

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	14/10/2025	Logged:	C.Nicholas
Method:	Rotary Core Wireline	Easting:	1727920.91	Date completed:	20/10/2025	Input:	C.Nicholas
Equipment:	Hanjin / D&B 10	Northing:	6014926.55	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	McMillan (NI) Drilling	Ground level:	34.447m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
													WSS	WSS	WSS	WSS	WSS		
1		HA		34		TS	0.00m: Clayey SILT; dark brown. Soft, moist, non-plastic. [TOPSOIL]		0.5m: ISHSV 174/61 kPa	100								0.00-9.38m: No HCl Reaction	
				1				0.50m: Silty CLAY; light greyish brown with orange mottles. Very stiff, moist, high plasticity. [RESIDUALLY WEATHERED RUARANGI FORMATION]		1m: ISHSV 180/100 kPa									
		SPT		33					1.5m: ISHSV 194 kPa 1.5m: SPT 1, 2// 2, 3, 2, 2 N = 9	67									
		HQ3		32		RR				100									
2		PUSHTUBE		31					3m: IBHSV 209/54 kPa	100									
		SPT							3.65m: Sandy SILT; light greyish brown with orange mottles. Very stiff, moist, non-plastic. Sand is fine. [COMPLETELY WEATHERED RUARANGI FORMATION]	67									
		HQ3		30					3.95m: Silty CLAY; light greyish brown with orange mottles. Very stiff, moist, high plasticity.	100									
		SPT							4.5m: SPT 1, 1// 1, 1, 1, 3 N = 6	100									
		HQ3		29						52									
3		PUSHTUBE		28						100									
		SPT							6.5m: SPT 3, 4// 5, 6, 7, 9 N = 27	100									
		HQ3		27					100										
		SPT							7.5m: SPT 2, 4// 5, 5, 6, 7 N = 23	100									

Remarks:

- Remarks:**
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 43mm and vertical accuracy +/- 75mm.
 2. One vibrating wire piezometer was installed on 20/10/2025. BH2B_1101_PZ01 was installed at 14m bgl. Serial No. 378249.
 3. Falling/rising head testing undertaken with data logger at borehole depth 23.70m on 15/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 34.40m on 16/10/2025.
 3. Third Falling/rising head testing undertaken with data logger at borehole depth 39.80m on 17 to 19/10/2025.
 4. RQD was calculated while ignoring low tensile strength incipient joints and making an assessment on the rocks status intact below ground level.
 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions.
 6. Major/dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

	Water Level Readings:																												
5.	<table border="1"> <thead> <tr> <th>Date/Time</th> <th>Hole Depth</th> <th>Water Level</th> </tr> </thead> <tbody> <tr> <td>2025-10-14 17:00</td> <td>15.00m</td> <td>3.90mbgl</td> </tr> <tr> <td>2025-10-15 08:00</td> <td>15.00m</td> <td>4.50mbgl</td> </tr> <tr> <td>2025-10-15 17:00</td> <td>23.70m</td> <td>3.90mbgl</td> </tr> <tr> <td>2025-10-16 08:00</td> <td>23.70m</td> <td>6.50mbgl</td> </tr> <tr> <td>2025-10-16 17:00</td> <td>34.40m</td> <td>5.00mbgl</td> </tr> <tr> <td>2025-10-17 08:00</td> <td>34.40m</td> <td>7.60mbgl</td> </tr> <tr> <td>2025-10-17 12:30</td> <td>39.80m</td> <td>3.90mbgl</td> </tr> <tr> <td>2025-10-20 08:00</td> <td>39.80m</td> <td>5.40mbgl</td> </tr> </tbody> </table>	Date/Time	Hole Depth	Water Level	2025-10-14 17:00	15.00m	3.90mbgl	2025-10-15 08:00	15.00m	4.50mbgl	2025-10-15 17:00	23.70m	3.90mbgl	2025-10-16 08:00	23.70m	6.50mbgl	2025-10-16 17:00	34.40m	5.00mbgl	2025-10-17 08:00	34.40m	7.60mbgl	2025-10-17 12:30	39.80m	3.90mbgl	2025-10-20 08:00	39.80m	5.40mbgl	
Date/Time	Hole Depth	Water Level																											
2025-10-14 17:00	15.00m	3.90mbgl																											
2025-10-15 08:00	15.00m	4.50mbgl																											
2025-10-15 17:00	23.70m	3.90mbgl																											
2025-10-16 08:00	23.70m	6.50mbgl																											
2025-10-16 17:00	34.40m	5.00mbgl																											
2025-10-17 08:00	34.40m	7.60mbgl																											
2025-10-17 12:30	39.80m	3.90mbgl																											
2025-10-20 08:00	39.80m	5.40mbgl																											

[illegible]

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000

Easting: 1727920.91
 Northing: 6014926.55
 Ground level: 34.447m (NZVD2016)

Date started:	14/10/2025
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Date completed: 20/10/2025
Inclination: 90°
Azimuth: N/A

Logged:	C. Nicholas
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Input:	C.Nicholas
Reviewed:	N. Crampton
Verified:	A. George

[illegible]

Remarks:	
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- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 43mm and vertical accuracy +/- 75mm.
- One vibrating wire piezometer was installed on 20/10/2025. BH2B_1101_PZ01 was installed at 14m bgl. Serial No. 378249.
- Falling/rising head testing undertaken with data logger at borehole depth 23.70m on 15/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 34.40m on 16/10/2025.
- Third Falling/rising head testing undertaken with data logger at borehole depth 39.80m on 17 to 19/10/2025.
- RQD was calculated while ignoring low tensile strength incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-10-20 10:45	39.80m	7.80mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started: 14/10/2025		Logged: C.Nicholas	
Method:	Rotary Core Wireline	Easting:	1727920.91	Date completed:	20/10/2025	Input:	C.Nicholas
Equipment:	Hanjin / D&B 10	Northing:	6014926.55	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	McMillan (NI) Drilling	Ground level:	34.447m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	18							91	91	91			16.05-16.18m: Healed JT set x2, 70°, Un, calcite infill <1mm	
	HQ3	17					UW		100	100	100			17.00-17.13m: Healed JT, 80°, Un, calcite infill 1mm	
7		17													
	HQ3	18				17.71m: Unweathered, grey and dark grey, moderately thick to very thick, interbedded calcareous SILTSTONE (85%) and SANDSTONE (15%). SILTSTONE is weak, laminated to thinly laminated, sub-horizontal bedding, incipient fractures with moderate to strong tensile strength, extremely closely spaced. SANDSTONE is moderately strong thinly laminated, sub-horizontal bedding.								18.00-20.10m: Core runs from 18.0m to 20.1m included core loss from core dropping from barrel then being picked up in later runs.	
	HQ3	16							100	100	100				
	HQ3	19													
	HQ3	15							100	100	100			19.35-19.55m: Healed JT set x5, 45-70°, Un, calcite infill <1-2mm	
	HQ3	20							100	100	100				
8		14				20.09-20.64m: ...Indistinctly bedded, fine SANDSTONE. Moderately strong.									
	HQ3	21					UW		100	100	100			20.69m: Healed JT, 65°, Pl, Ro, calcite Sn, <1mm	
	HQ3	13													
	HQ3	22				21.66m: ...SANDSTONE layers exhibit soft sediment deformation and cross-bedding.			100	100	100			22.80-23.00m: FRACTURE ZONE - Likely drilling induced from low tensile strength incipient fractures along calcite veins and bedding, recovered as fine to coarse angular gravel	
9		12													
	HQ3	23							100	100	100			23.42-23.70m: Healed JT, 70-90°, Un, Ro, calcite infill <1-1mm	
	HQ3	11													

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 43mm and vertical accuracy +/- 75mm. 2. One vibrating wire piezometer was installed on 20/10/2025. BH2B_1101_PZ01 was installed at 14m bgl. Serial No. 378249. 3. Falling/rising head testing undertaken with data logger at borehole depth 23.70m on 15/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 34.40m on 16/10/2025. 4. RQD was calculated while ignoring low tensile strength incipient joints and making an assessment on the rocks status intact below ground level. 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions. 6. Major/dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.											
Shear Vane (ISHSV + IBHSV) Serial No. 1378 + 1288, calibration constant 1.383 + 1.546.											
Water Level Readings:											
Date/Time			Hole Depth			Water Level					

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 14/10/2025	Logged: C.Nicholas
Method:	Rotary Core Wireline	Easting: 1727920.91	Date completed: 20/10/2025	Input: C.Nicholas
Equipment:	Hanjin / D&B 10	Northing: 6014926.55	Inclination: 90°	Reviewed: N. Crampton
Contractor:	McMillan (NI) Drilling	Ground level: 34.447m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3	10					UW		61	61	61		24.06-24.19m: Healed JT, 70-90°, Un, calcite infill <1-2mm	
			25			24.62m: CORE LOSS (580mm) Core dropping out of barrel								
	HQ3	9				25.20m: Unweathered, dark grey, laminated SILTSTONE. Weak. Sub horizontal <5°. Incipient fractures with moderate to strong tensile strength, extremely closely spaced.	UW		33	0	0			
						25.30m: CORE LOSS (200mm) Core dropping out of barrel.								
	HQ3					25.50m: Unweathered, dark grey, indistinctly bedded SILTSTONE. Weak. Incipient fractures with moderate to strong tensile strength, extremely closely spaced.			100	100	100			
10	HQ3		26											
			8											
	HQ3		27						100	100	100			
			7											
	HQ3		28						100	100	100		28.16-28.28m: Healed JT set x2, 70°, Pl. calcite infill <1mm	
11			6										28.28m: Healed JT, 30°, Pl. calcite infill 1-3mm	
													28.30-29.28m: Healed JT set x4, 60-90°, Un, calcite infill 1-20mm	
	HQ3		29				UW		95	95	95		28.45-28.79m: SZ, 80°, Un, Sil, crushed siltstone and silt infill 5-20mm, top contact 80° bottom contact 60°?	
			5										28.98-29.26m: FRACTURE ZONE - Likely drilling induced from low strength incipient fractures. Recovered as fine to coarse angular gravel	
													29.56-29.60m: FRACTURE ZONE - Likely drilling induced from low tensile strength incipient fractures	
			30										29.89m: Healed JT, 50°, Pl. calcite infill 1mm	
12	HQ3		4						100	86	86			
			31										31.02-31.20m: FRACTURE ZONE along healed joints/incipient fractures, likely drilling induced from low strength incipient fractures. Fractures included in RQD calculation. Recovered as fine to coarse angular gravel.	
	HQ3		3										31.50-33.32m: Healed JT set x13, 70°, Pl-Un, calcite infill <1-1mm. Very closely to moderately widely spaced	

Remarks:

- Remarks:**
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 43mm and vertical accuracy +/- 75mm.
 2. One vibrating wire piezometer was installed on 20/10/2025. BH2B_1101_PZ01 was installed at 14m bgl. Serial No. 378249.
 3. Falling/rising head testing undertaken with data logger at borehole depth 23.70m on 15/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 34.40m on 16/10/2025.
 4. Third Falling/rising head testing undertaken with data logger at borehole depth 39.80m on 17 to 19/10/2025.
 5. RQD was calculated while ignoring low tensile strength incipient joints and making an assessment on the rocks status intact below ground level.
 6. Tensile strength of incipient joints was assessed based on assumed in ground conditions.
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Water Level Readings:

Water Level Readings:		
Date/Time	Hole Depth	Water Level
5.		

		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 3935 State Highway 1, Waipu, Zone 1 Project Reference: Aurecon WSP JV		BH2B_1101										
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010				Sheet 5 of 5										
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin / D&B 10 Contractor: McMillan (NI) Drilling		CO-ORDINATES: NZTM2000 Easting: 1727920.91 Northing: 6014926.55 Ground level: 34.447m (NZVD2016)		Date started: 14/10/2025 Date completed: 20/10/2025 Inclination: 90° Azimuth: N/A										
				Logged: C.Nicholas Input: C.Nicholas Reviewed: N. Crampton Verified: A. George										
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3		2						100	100	100			
			33											
13	HQ3		1				UW		100	57	57		33.45-34.20m: Healed JT set x6, 80-90°, Un, Sm, calcite infill<1-1mm. Drilling breaks along joints. 33.77-36.66m: No HCl Reaction 33.85-34.30m: FRACTURE ZONE Likely drilling induced from low strength incipient fractures. fractures included in RQD calculation. Recovered as fine to coarse angular gravel. 34.40m: Healed JT, 30°, Un, calcite infill <1mm 34.40-38.20m: Core runs from 34.4m to 38.2m included core loss from core dropping from barrel then being picked up in later runs. 34.44m: JT, 40°, Pl, Sm, calcite Vn, open 34.50m: Healed JT, 40°, Pl, calcite infill <1mm 34.70-34.80m: Healed JT set x3, 40-60°, Pl, Sm, calcite infill <1-1mm. Drilling breaks along joints 34.82m: JT, 50°, Un, Sm, calcite Cg, open 35.60-36.87m: Healed JT/VN set x5, 75-90°, Pl-Un, calcite infill <1-4mm	
			34											
	HQ3		0											
			35						100	95	80			
			36											
	HQ3		2						100	100	100			
	HQ3								100	100	100			
14			37			36.66m: Unweathered, very thinly to thinly interbedded SANDSTONE (80%) and SILTSTONE (20%). SANDSTONE is grey, calcareous, moderately strong, indistinctly bedded. SILTSTONE is dark grey, weak, moderately inclined 15-20°, disseminated.	UW						36.66-37.60m: Weak HCl Reaction Within Sandstone	
	HQ3		3			37.60m: Unweathered, dark grey, indistinctly bedded SILTSTONE. Weak. Moderate to strong extremely closely spaced incipient fractures.	UW		100	100	100		37.60-38.44m: No HCl Reaction 37.61m: Healed JT, 70°, Pl, calcite infill <1mm	
			38				UW						38.03-38.08m: Healed JT set x3, 30-40°, Pl, calcite infill <1mm 38.19-38.84m: Healed JT/VN set x2, 80°, Pl, calcite infill 1-20mm 38.44-39.80m: Weak HCl Reaction	
15	HQ3		39			38.44m: Unweathered, dark grey and grey, thinly laminated to laminated, calcareous fine SANDSTONE. Moderately strong. Cross-bedding and soft sediment deformation.	UW		98	98	98		38.90-39.31m: Healed JT, 85°, Un, calcite 1mm to 3mm 39.65-39.74m: Healed JT set x2, 20°, Un, calcite infill <1mm	
						Terminated at 39.80 m. Target depth.								
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 43mm and vertical accuracy +/- 75mm. 2. One vibrating wire piezometer was installed on 20/10/2025. BH2B_1101_PZ01 was installed at 14m bgl. Serial No. 378249. 3. Falling/rising head testing undertaken with data logger at borehole depth 23.70m on 15/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 34.40m on 16/10/2025. Third Falling/rising head testing undertaken with data logger at borehole depth 39.80m on 17 to 19/10/2025. 4. RQD was calculated while ignoring low tensile strength incipient joints and making an assessment on the rocks status intact below ground level. 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions. 6. Major/dominant defects are noted in defect column while minor/secondary defects are included in the material descriptions.												Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (ISHSV + IBHSV) Serial No. 1378 + 1288, calibration constant 1.383 + 1.546.														

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B_1101_BOX001_0m-1.5m



BH2B_1101_BOX002_1.5m-4.95m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B 1101 BOX003 4.95m-7.95m



BH2B_1101_BOX004_7.95m-10.87m

Borehole Reference:

BH2B_1101

Photographed By:

CN

Date Photographed:

13/10/2025-30/10/2025



BH2B 1101 BOX005 10.87m-13.74m



BH2B_1101_BOX006_13.74m-16.5m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B 1101_BOX007_16.5m-19.21m



BH2B_1101_BOX008_19.21m-21.93m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B 1101 BOX009 21.93m-24.92m



BH2B_1101_BOX010_24.92m-27.28m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B_1101_BOX011_27.28m-30m



BH2B_1101_BOX012_30m-33m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B_1101_BOX013_33m-35.58m



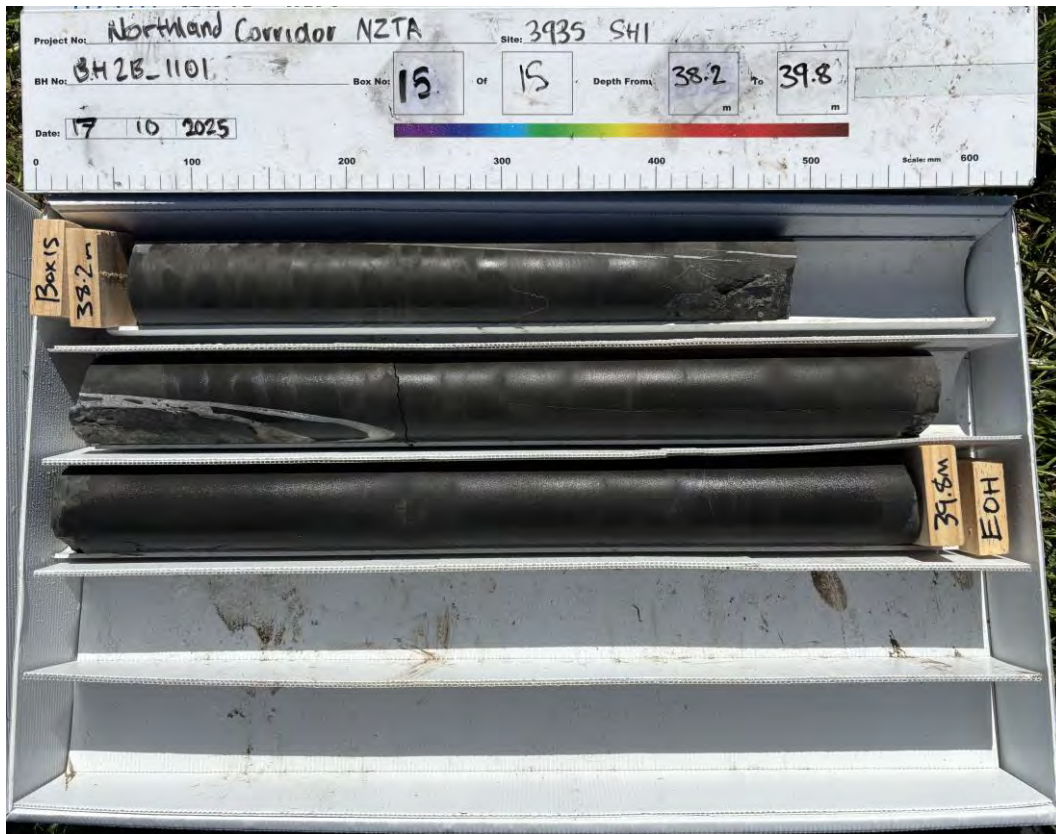
BH2B_1101_BOX014_35.58m-38.2m

Borehole Reference: BH2B_1101

Photographed By: CN

Date Photographed:

13/10/2025-30/10/2025



BH2B_1101_BOX015_38.2m-39.8m

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date Started: 20/08/2025	Logged: D.Baker/B.Griffiths
Method: Rotary Core Wireline	Easting: 1727722.82mE,	Date Completed: 27/08/2025	Input: D.Baker
Equipment: Hanjin / D&B 10	Northing: 6012232.02mN,	Inclination: 90	Reviewed: S.Nelis
Contractor: McMillan Drilling Ltd	Ground level: 22.91m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	22	1		TP	Clayey SILT, with minor gravel; brown. Soft, moist, low plasticity; gravel, fine to coarse, angular. [FILL-TOPSOIL].		0.5m SV BH SV 130/52kPa	100	-	-		0.00m - 19.50m: Casing installed to 19.50m	
	SPT	21	2		TA	CLAY, with trace sand; brown. Stiff, moist, high plasticity; sand, fine to medium. [RECENT (HOLOCENE) ALLUVIUM].		1m SV BH SV 94/33kPa						
	HQ3	20	3			2.76-3.0m: CORE LOSS (240mm). Fines assumed washed out.		149m SV BH SV 163/73kPa 1.5m SPT 1, 1/1, 2, 1, 2 N= 6	100	-	-			
	SPT	19	4			CLAY; grey and orange-brown. Stiff, moist, high plasticity.		299m SV BH SV 128/29kPa 3m SPT 0, 1/1, 1, 2, 1 N= 5	100	-	-			
	HQ3	18	5			3.65-4.50m: CORE LOSS (850mm). Fines assumed washed out.		4.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	SPT	17	6		TA	CLAY, some silt, trace fine sand; grey. Very soft, wet, high plasticity.		599m SV CB SV 15/5kPa 6m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	HQ3	16	7					749m SV CB SV 13/3kPa 7.5m SPT 0, 0/0, 0, 0, 0	100	-	-			
	SPT	15				Silty CLAY, some fine sand; grey. Soft, wet, high plasticity.								

REMARKS:	Water Level Readings:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm.	DateTime
2. Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout.	Hole Depth (m)
3. Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025.	Water Level (m)
4. Shear Vane Serial No. 506, calibration constant 1.626.	

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 20/08/2025	Logged: D.Baker/B.Griffiths
Method: Rotary Core Wireline		Easting: 1727722.82mE,	Date Completed: 27/08/2025	Input: D.Baker
Equipment: Hanjin / D&B 10		Northing: 6012232.02mN,	Inclination: 90	Reviewed: S.Nelis
Contractor: McMillan Drilling Ltd		Ground level: 22.91m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	14	9			[CONT] Silty CLAY, some fine sand; grey. Soft, wet, high plasticity. 8.10m: With minor sand; sand, fine.		N= 0	100	-	-			
	U54							9m SV CB SV 15/3kPa	100	-	-			
	HQ3	13	10					10.49m SV CB SV 11/3kPa	100	-	-			
	SPT	12	11			10.95m: With some sand; sand, fine.		10.5m SPT 0, 0/0, 0, 0, 0 N= 0	100	-	-			
	HQ3	11	12					11.99m SV CB SV 13/3kPa	100	-	-			
	SPT					Silty CLAY, with some sand; grey. Very soft, wet, low plasticity; sand, fine to medium.		12m SPT 0, 0/0, 0, 0, 0 N= 0	44	-	-			
	HQ3	10	13			Silty fine to medium SAND; grey. Very loose, saturated.			67	-	-			
	HQ3					Sandy fine to medium GRAVEL; grey. Loose. Gravel is sub-rounded to rounded, slightly weathered strong greywacke. Sand is fine to coarse.				-	-			
	HQ3					Silty CLAY, minor fine to medium sand, trace gravel; grey. Soft, wet, high plasticity. Gravel is fine to coarse, sub-rounded slightly weathered Greywacke.				-	-			
	SPT	9	14			13.25-13.70m: CORE LOSS (450mm).		13.7m SPT 0, 1/1, 2, 3, 3 N= 9	100	-	-			
	HQ3					Silty fine to medium SAND; dark grey. Loose, wet.			100	-	-			
	HQ3					Fine to coarse SAND, with some gravel; grey. Loose, saturated; gravel, fine to coarse, subrounded, slightly weathered, Greywacke.			0	-	-			
	HQ3					Gravelly fine to coarse SAND; grey. Loose, saturated, well graded; gravel, fine to coarse, rounded, slightly weathered, greywacke.			0	-	-			
	HQ3	8	15			14.34m: Wood fragment (approx. 1%) around 10mm.			0	-	-			
	SC					14.35-14.90m: CORE LOSS (550mm). Fines assumed washed out.		15m SPT 7, 5/6, 6, 5, 7 N= 24	100	-	-			
	HQ3					Fine to Coarse GRAVEL, minor cobbles. Medium dense, wet. Gravel is sub-angular to sub-rounded slightly weathered greywacke. Silty Clay matrix assumed washed away. [OLDER (PLEISTOCENE) ALLUVIUM].			100	-	-			
	HQ3	7							71	-	-			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm.
- Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout.
- Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025.
- Shear Vane Serial No. 506, calibration constant 1.626.

Water Level Readings:

Date/Time

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000 Easting: 1727722.82mE, Northing: 6012232.02mN, Ground level: 22.91m (NZVD2016)	Date Started: 20/08/2025 Date Completed: 27/08/2025 Inclination: 90 Azimuth: N/A	Logged: D.Baker/B.Griffiths Input: D.Baker Reviewed: S.Nelis Verified: A.George
Method: Rotary Core Wireline Equipment: Hanjin / D&B 10 Contractor: McMillan Drilling Ltd			

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
5	HQ3		6		TP	[CONT] Fine to Coarse GRAVEL, minor cobbles. Medium dense, wet. Gravel is sub-angular to sub-rounded slightly weathered greywacke. Silty Clay matrix assumed washed away. [OLDER (PLEISTOCENE) ALLUVIUM]. 16.30-16.50m: CORE LOSS (200mm). Core bound.		16.5m SPT 5, 8/10, 8, 9, 9 N= 36	71	-	-			
	SC		17			Fine to coarse GRAVEL, minor Cobbles, Dense. Gravel is sub-rounded to sub-angular slightly weathered strong greywacke. Matrix is assumed silty clay, some sand (washed out). 17.06m: Interbedded with fine to coarse, medium dense, SAND layers (approx. 5%) up to 40mm.			0	-	-			
	HQ3								100	-	-			
	HQ3								100	-	-			
	HQ3		5		TP			18m SPT 11, 12/12, 10, 10, 9 N= 41	100	-	-			
	SC		18						0	-	-			
	HQ3								100	-	-			
	HQ3		4						100	-	-			
	HQ3		19						60	-	-			
	SC		3			19.30-19.50m: CORE LOSS (200mm). Core bound.		19.5m SPT 4, 7/18, 8, 15, 12 N= 43	0	-	-			
	HQ3		20			Fine to coarse GRAVEL, minor cobbles, Dense. Gravel is sub-rounded to sub-angular slightly weathered strong greywacke. Matrix is assumed silty clay, some sand (washed out).			100	-	-			
	HQ3								100	-	-			
	HQ3		2		TP	20.70-21.00m: CORE LOSS (300mm). Fines assumed washed out.		21m SPT 4, 4/16, 5, 4, 2 N= 17	50	-	-			
	SC		21			Fine to coarse GRAVEL, minor silty clay. Medium dense, wet. Gravel is sub-rounded to sub-angular slightly weathered strong greywacke. Silty Clay matrix assumed washed out.			0	-	-			
	HQ3								38	-	-			
	HQ3		1			21.75-22.25m: CORE LOSS (500mm). Fines assumed washed out.			100	-	-			
	SC					Fine to coarse GRAVEL, minor silty clay. Medium dense, wet. Gravel is sub-rounded to sub-angular slightly weathered strong greywacke. Silty Clay matrix assumed washed out. 22.40m: With trace fine chert gravel.		22.5m SPT 6, 7/15, 5, 4, 5 N= 19	0	-	-			
	HQ3		-0		TP				100	-	-			
	HQ3		-1			Gravelly fine to coarse SAND, some silt; grey. Medium dense, wet. Gravel is fine to coarse sub-rounded to rounded, slightly weathered strong greywacke and Ruarangi siltstone. 23.65-24.00m: CORE LOSS (350mm). Fines			53	-	-			

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm. 2. Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout. 3. Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025. 4. Shear Vane Serial No. 506, calibration constant 1.626.	Water Level Readings: Date/Time: 21/08/2025 7:30:00 am Hole Depth (m): 16.95 Water Level (m): 3.30
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BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 20/08/2025	Logged: D.Baker/B.Griffiths
Method: Rotary Core Wireline		Easting: 1727722.82mE,	Date Completed: 27/08/2025	Input: D.Baker
Equipment: Hanjin / D&B 10		Northing: 6012232.02mN,	Inclination: 90	Reviewed: S.Nelis
Contractor: McMillan Drilling Ltd		Ground level: 22.91m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	SC				TP	assumed washed out.		24m SPT 3, 3/4, 6, 5, 5 N= 20	0	-	-			
	HQ3					Gravelly fine to coarse SAND, some silt, minor clay; grey. Medium dense, wet. Gravel is fine to coarse, rounded to sub-rounded slightly weathered strong greywacke.			100	-	-			
	HQ3	-2	25			24.90-25.50m: CORE LOSS (600mm). Fines assumed washed out.			33	-	-			
7	SC				TP	Silty fine to medium SAND, some gravel; dark grey. Medium dense, wet. Gravel is fine to medium, sub-rounded, slightly weathered, strong greywacke.		25.5m SPT 1, 2/2, 3, 3, 4 N= 12	0	-	-			
	HQ3								100	-	-			
	SPT	-3	26			27.00m: Very loose.		27m SPT 0, 0/0, 0, 0, 2 N= 2	67	-	-			
7	HQ3					Silty fine to coarse GRAVEL, trace fine sand; grey. Medium dense. Gravel is rounded to sub-rounded, slightly weathered, strong greywacke.			100	-	-			
	HQ3								73	-	-			
	HQ3	-5	28		TP	28.35-28.50m: CORE LOSS (150mm). Fines assumed washed out.		28.7m SPT 9, 11/16, 26, 8 for 50mm N = 50+	0	-	-			
8	SC					Fine to coarse GRAVEL, with some silt and sand; grey. Medium dense, wet, well graded, sub-rounded; sand, fine to coarse.			100	-	-			
	HQ3					Slightly weathered, brown, MUDSTONE. Very weak, calcareous; thin, sub-horizontal bedding; breaks when handled. [SLIGHTLY WEATHERED RUARANGI FORMATION].			100	16	16			
	HQ3	-6	29			Slightly weathered, grey, laminated fine SANDSTONE. Bedding dips 10-30° with drilling breaks parallel to bedding planes.			100	17	17			
8	SC				RU	29.25m - 29.80m: Recovered as silty fine to coarse gravel.	SW	30m SPT 30, 20 for 20mm N = 50+	0	0	0			
	HQ3					30.60m: Very thin bedding.			92	50	40			
	HQ3	-7	30			30.82m: Laminated bedding.			100	100	100			
8	SC							31.5m SPT 31, 19 for 30mm N = 50+	0	0	0			
	HQ3								100	49	40			
	HQ3	-8	31											
8	SC													
	HQ3													
	HQ3	-9												

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm.
- Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout.
- Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025.
- Shear Vane Serial No. 506, calibration constant 1.626.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
21/08/2025 4:30:00 pm	24.05	1.60
22/08/2025 7:30:00 am	24.05	3.20
25/08/2025 6:30:00 am	24.05	3.20

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 20/08/2025	Logged: D.Baker/B.Griffiths
Method: Rotary Core Wireline		Easting: 1727722.82mE,	Date Completed: 27/08/2025	Input: D.Baker
Equipment: Hanjin / D&B 10		Northing: 6012232.02mN,	Inclination: 90	Reviewed: S.Nelis
Contractor: McMillan Drilling Ltd		Ground level: 22.91m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	HQ3	-10	33			[CONT] Slightly weathered, grey, laminated fine SANDSTONE. Bedding dips 10-30° with drilling breaks parallel to bedding planes. 32.30m - 32.45m: Very closely spaced micro-fracture sets at 10-20° and 80-90°.			100	49	40	WS CS	32.15m JT, 60°, SM, PL, clean 32.25m JT, 60°, SM, PL, clean 32.30-32.40m: JT, 60°, clean	
9	HQ3	-11	34			Slightly weathered, grey, laminated to very thinly interbedded calcareous fine SANDSTONE (70%) and SILTSTONE (30%). Weak. Bedding dips 5-10°. 33.45m: Laminated bedding.			100	30	30	WS VCS	33.00m: HCl test: weak reaction 33.15-33.00m: , drilling induced broken core	
10	HQ3	-12	35			34.50m: Laminated to very thin bedding. Bedding dips 5-10°.			100	7	7	MWS ECS	33.69m JT, 45°, RG, UN, silt infill (less than 1mm) 33.75m JT, 80°, silt infill (less than 1mm) 34.04-34.40m: CS, crushed seam, extremely weak, recovered as angular to subangular fine to coarse gravel 34.20-34.30m: JT, 80°, SM, UN, clean	
11	HQ3	-13	36						93	73	73	WS	35.69m JT, 30°, SM, PL, silt infill (less than 1mm)	
12	HQ3	-14	37						100	15	11	CS MWS ECS	36.10-36.15m: VN, 80°, PL, multiple calcite veins 36.17m JT, 40°, SM, PL, clean 36.27-36.31m: CS, crushed seam, extremely weak, recovered as angular to subangular fine to coarse gravel 36.36m JT, 15°, SM, UN, silt infill (less than 1mm) 36.83-36.93m: CS, crushed seam, extremely weak, recovered as angular to subangular fine to coarse gravel 36.93m JT, 80°, RG, UN, silt infill (less than 1mm)	
13	HQ3	-15	38			38.10m - 38.70m: Fracture Zone. 2 distinct joint sets; Set 1; 10-15°, with silt infill. Drilling induced breaks parallel to bedding planes. Set 2; 80 - 90°, planar, silt infill, broken along calcite vein, 3-5mm thick.			93	14	14	WS	37.45-37.50m: VN, 10°-15°, PL, calcite 37.67-37.74m: VN, 80°, UN, calcite, 3mm	
14	HQ3	-16	39			38.70m - 39.00m: Crush zone, extremely weak, recovered as gravelly SILT. Low plasticity. Gravel is fine to medium, angular, siltstone.			100	43	27	ECS	37.95m: HCl test: weak reaction 38.08m JT, 30°, RG, UN, calcite veneer 38.10-38.70m: FZ, Fracture Zone. 38.70-39.00m: CZ, Crushed zone	
15	HQ3	-17							100	33	27	MWS CS	39.15-39.56m: , 70°-80°, UN, healed joints x3 39.30m JT, 10°, SM, PL, silt infill (less than 1mm) 39.48-39.56m: JT, 80°, RG, UN, calcite veneer 39.56-40.00m: DB, drilling induced broken core, core broken along inferred sub-vertical joints	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm.
- Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout.
- Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025.
- Shear Vane Serial No. 506, calibration constant 1.626.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
25/08/2025 4:40:00 pm	33.00	4.10
26/08/2025 7:30:00 am	33.00	4.30
26/08/2025 4:40:00 pm	37.10	4.40
27/08/2025 7:30:00 am	37.10	4.20
27/08/2025 4:30:00 pm	37.10	4.40

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 20/08/2025	Logged: D.Baker/B.Griffiths
Method: Rotary Core Wireline		Easting: 1727722.82mE,		Date Completed: 27/08/2025	Input: D.Baker
Equipment: Hanjin / D&B 10		Northing: 6012232.02mN,		Inclination: 90	Reviewed: S.Nelis
Contractor: McMillan Drilling Ltd		Ground level: 22.91m (NZVD2016)		Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3					40.00m - 40.13m: Brecciated fabric with silt infill. 40.13m: Very thin, sub-horizontal bedding.			92	25	25	MWS		
12	HQ3	-18	41		RU		SW		100	90	90	W.C.	40.60m JT, 30°, SM , PL , calcite veneer 41.00m: HCl test: weak reaction	
		-19	42			End Of Hole: 42.00m								
		-20	43											
		-21	44											
		-22	45											
		-23	46											
		-24	47											
		-25												

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller,with a horizontal accuracy +/- 17mm and vertical accuracy +/- 30mm.		DateTime	Hole Depth (m)	Water Level (m)
2. Two vibrating wire piezometers were installed on 27/08/2025. BH2B_1104-PZ01 was installed at 18.00m bgl, Serial No. 378365. BH2B_1104-PZ02 was installed at 30.50m bgl, Serial No. 378391. The hole was backfilled with a sand pack instead of grout.		28/08/2025 10:00:00 am	42.00	2.94
3. Terminal/Straddle packer testing undertaken between 31.5 to 32.0m on 27/08/2025.				
4. Shear Vane Serial No. 506, calibration constant 1.626.				

Borehole Reference: BH2B_1104

Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX001_0m-4.5m



BH2B_1104_BOX002_4.5m-8.05m

Borehole Reference: BH2B_1104

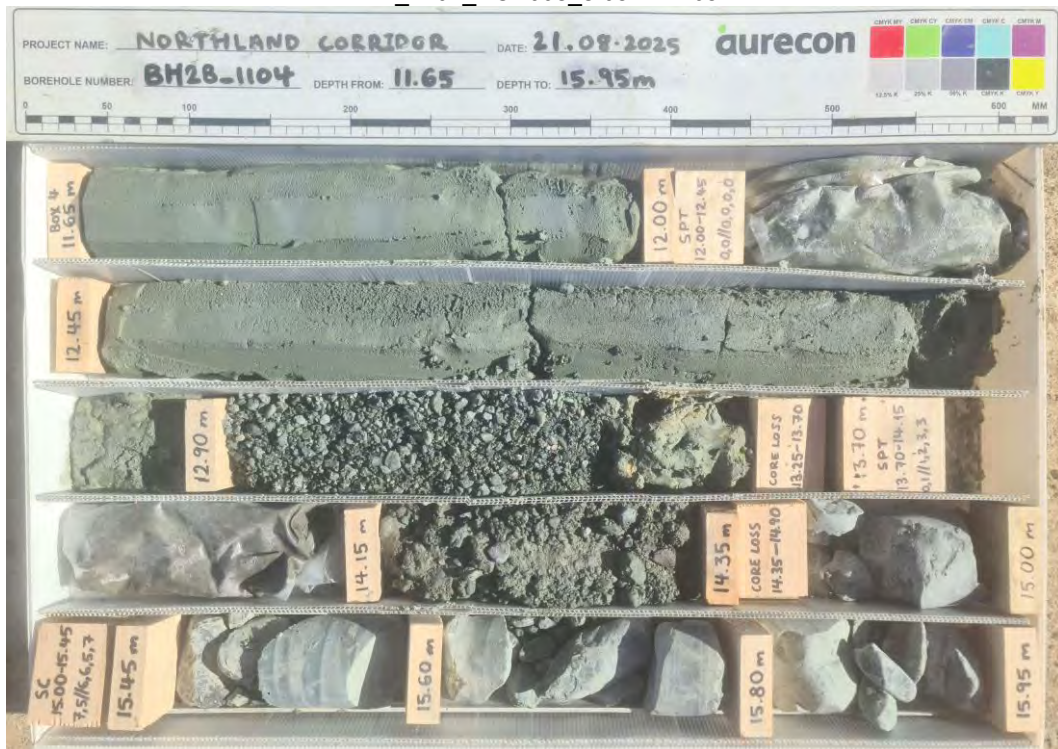
Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX003_8.05m-11.65m



BH2B_1104_BOX004_11.65m-15.95m

Borehole Reference: BH2B_1104

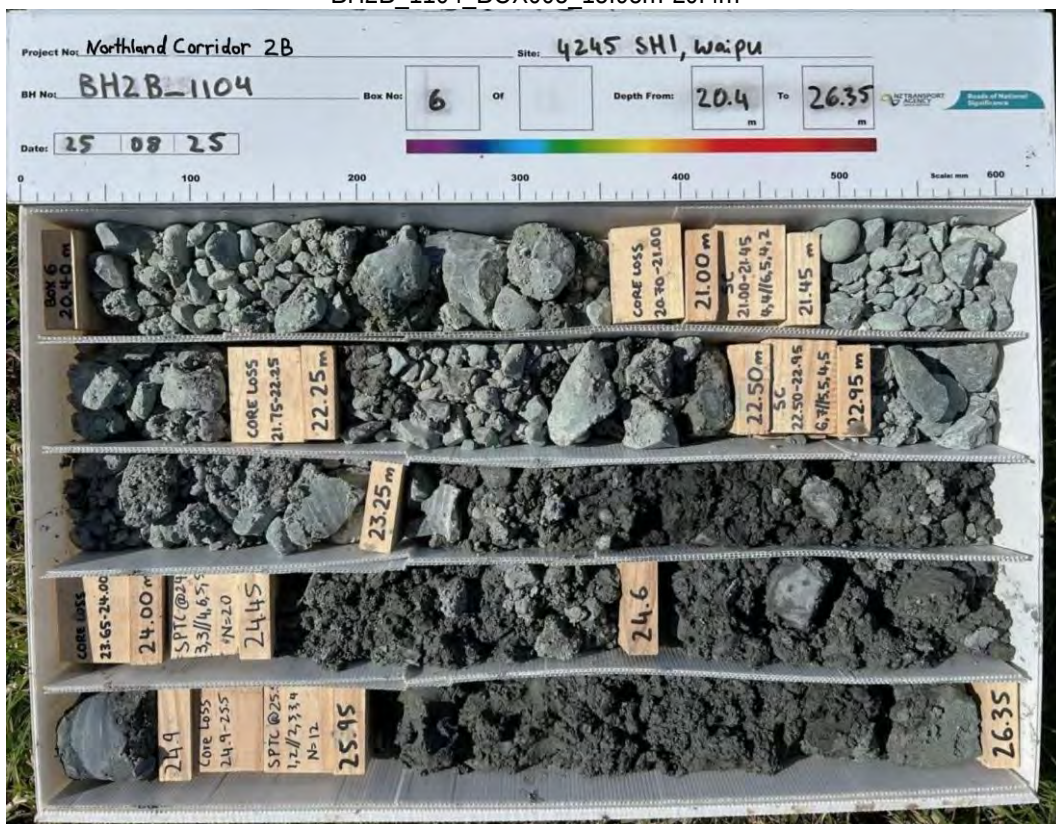
Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX005_15.95m-20.4m



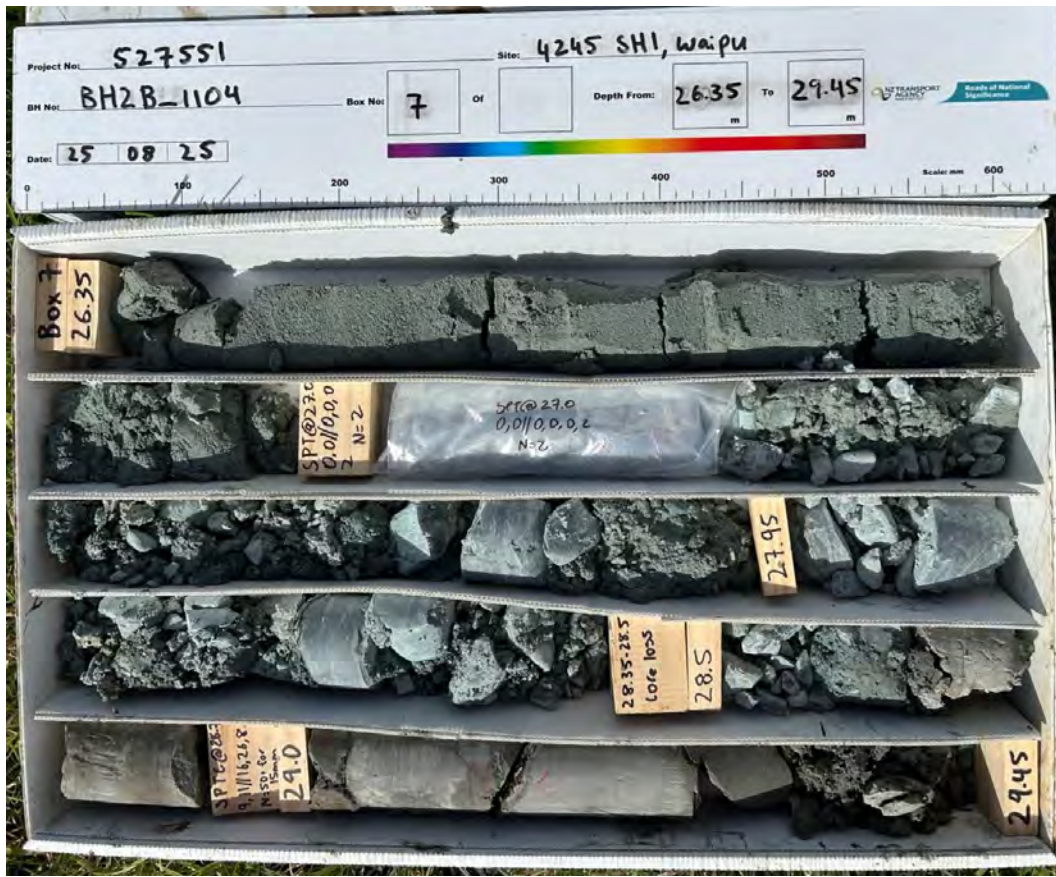
BH2B_1104_BOX006_20.4m-26.35m

Borehole Reference: BH2B_1104

Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX007_26.35m-29.45m



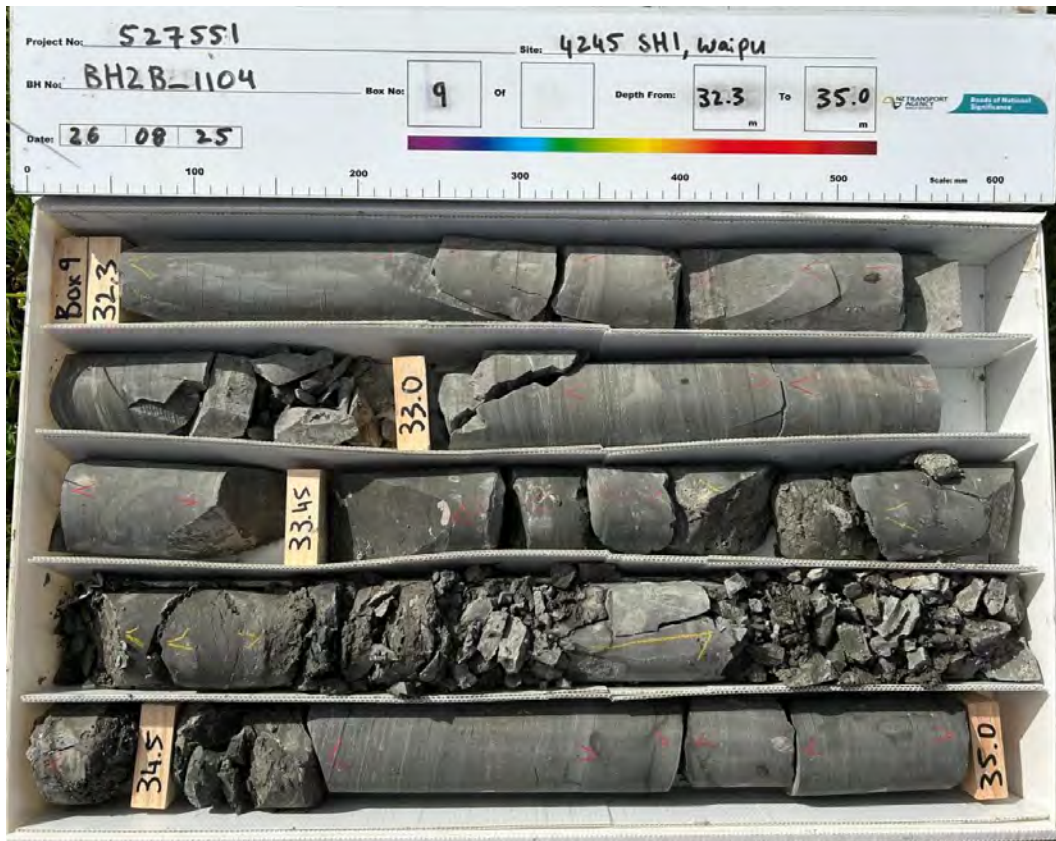
BH2B_1104_BOX008_29.45m-32.3m

Borehole Reference: BH2B_1104

Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX009_32.3m-35m



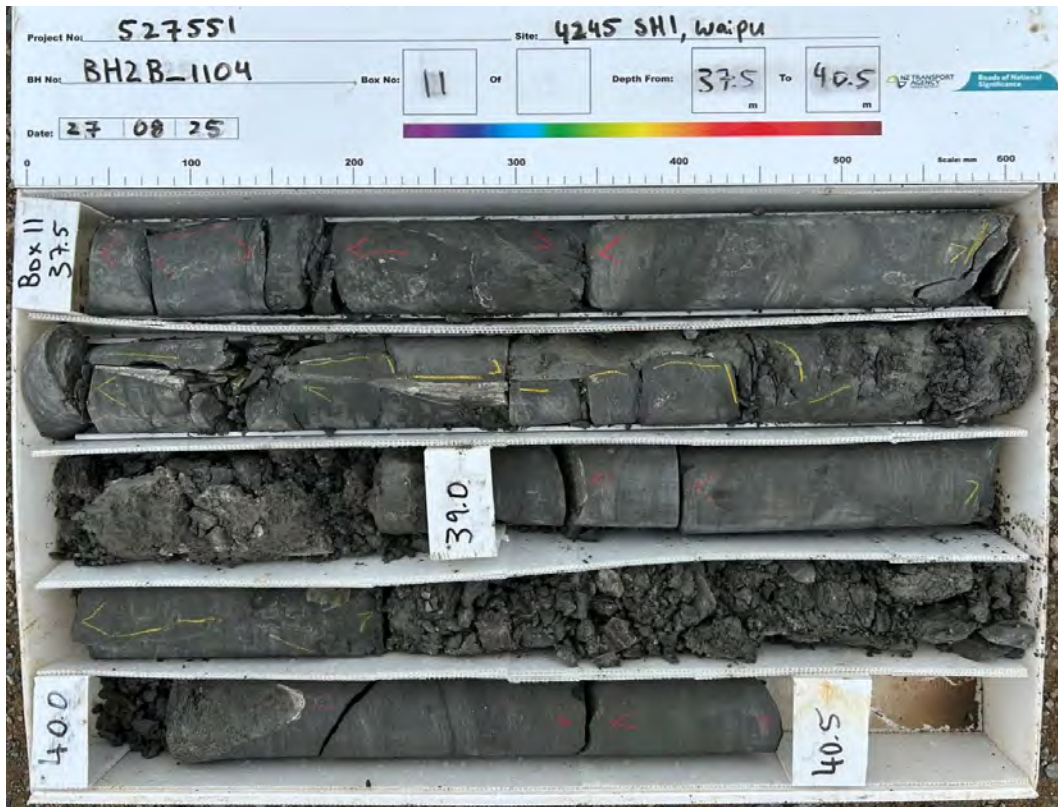
BH2B_1104_BOX010_35m-37.5m

Borehole Reference: BH2B_1104

Photographed By: BTG

Date Photographed:

20/08/2025-10/11/2025



BH2B_1104_BOX011_37.5m-40.5m



BH2B_1104_BOX012_40.5m-42m

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	01/09/2025	Logged:	B.Griffiths
Method:	Wash Drill	Easting:	1727721.65	Date completed:	02/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6012229.34	Inclination:	90°	Reviewed:	S. Nelis
Contractor:	McMillan (NI) Drilling	Ground level:	22.995m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
											VWS	WS	MWS	VCS	EGS		
	WASH HQ	22	1		0.00m: Wash Drilled (No Recovery)												
	W				1.60m: In Situ iVane - CLAY with some silt; brownish orange. Firm, moist, high plasticity			0									
	WASH HQ	21	2		1.70m: Wash Drilled (No Recovery)												
	U54				3.10m: PUSH TUBE - Clayey SILT; brownish orange.		U: 3.10 m	86									
	WASH HQ	19	4		3.60m: Wash Drilled (No Recovery)												
	W				4.60m: In Situ iVane - CLAY with some silt; grey. Soft, moist, high plasticity.												
	WASH HQ	18	5		4.80m: Wash Drilled (No Recovery)			0									
	PUSHTUBE	17	6		6.10m: PUSH TUBE - SILT with some clay; grey.		U: 6.10-6.60 m	100									
	WASH HQ	16	7		6.60m: Wash Drilled (No Recovery)												
	W				7.60m: In Situ iVane - CLAY, trace silt; grey. Soft, moist, high plasticity.												
	WASH HQ	15			7.80m: Wash Drilled (No Recovery)			0									

Remarks:			Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 20mm and vertical accuracy +/- 31mm.	2. A standpipe was installed on 02/09/2025 with a screened interval between 6 to 12m bgl. A vibrating wire piezometer was installed at 11.9m bgl, within the open standpipe on 16/09/2025, Serial No. 378315.	3. BH2B_1104A was completed 3m from BH2B_1104 as an additional borehole for installation of a standpipe. Downhole iVane testing was completed alongside push tubes in BH2B_1104A.	DateTime	Hole Depth	Water Level
			2025-09-02 10:30	15.10m	1.30mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 01/09/2025	Logged: B.Griffiths
Method: Wash Drill		Easting: 1727721.65	Date completed: 02/09/2025	Input: B.Griffiths
Equipment: Hanjin/D&B 10		Northing: 6012229.34	Inclination: 90°	Reviewed: S. Nelis
Contractor: McMillan (NI) Drilling		Ground level: 22.995m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VMS WMS MWS CS VCS ECS	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
	WASH HQ		9										
	U54		9		9.10m: PUSH TUBE - SILT with some clay; grey.	U: 9.10-9.60 m		100					
	WASH HQ		10		9.60m: Wash Drilled (No Recovery)								
	W		10		10.60m: In Situ iVane - Fine sandy SILT; grey. Very soft, moist, high plasticity.								
	WASH HQ		11		10.80m: Wash Drilled (No Recovery)		0						
	U54		12		12.10m: PUSH TUBE - Silty fine SAND; grey.	U: 12.10 m		60					
	WASH HQ		13		12.60m: Wash Drilled (No Recovery)			0					
	U54		14		13.60m: In Situ iVane refused, Push tube done instead. Silty fine SAND with some gravel; brownish grey. Gravel is subrounded, strong greywacke siltstone.			100					
	WASH HQ		15		14.10m: Wash Drilled (No Recovery)			0					
U54					15.10m: PUSH TUBE FAIL - No recovery. Push tube significantly dented, likely from gravels. Terminated at 15.10 m. Target depth.								

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 20mm and vertical accuracy +/- 31mm.
2. A standpipe was installed on 02/09/2025 with a screened interval between 6 to 12m bgl. A vibrating wire piezometer was installed at 11.9m bgl, within the open standpipe on 16/09/2025, Serial No. 378315.
3. BH2B_1104A was completed 3m from BH2B_1104 as an additional borehole for installation of a standpipe. Downhole iVane testing was completed alongside push tubes in BH2B_1104A.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-02 10:30	15.10m	1.30mbgl

BOREHOLE INFORMATION

Method: Sonic Percussion
Equipment: Fraste SRS
Contractor: Pro-Drill (Auck) NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727727.67
Northing: 6012236.92
Ground level: 31.504m (NZVD2016)

Date started: 08/12/2025
Date completed: 08/12/2025
Inclination: 90°
Azimuth: N/A

Logged: A. Pola
Input: A. Pola
Reviewed: N. Crampton
Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	VECS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	31			TS	0.00m: SILT with some clay; dark brown. Very stiff, dry, low plasticity. [TOPSOIL]													
			1			0.40m: Silty CLAY; light brown mottled orange. Very stiff, moist, high plasticity. [RECENT (HOLOCENE) ALLUVIUM]		0.5m: ISHSV 154/36 kPa	100										
	SPT	30						1m: ISHSV 181/69 kPa											
			2			1.95m: ...Bluish grey streaks.		1.5m: ISHSV 166/81 kPa 1.5m: SPT 1, 1/ 1, 1, 1, 1 N = 4	100										
	SNC	29				2.25m: ...Minor sand.			100										
2	SPT		3			3.15m: Silty CLAY with some sand; bluish grey. Very soft, moist, high plasticity. Sand is fine.		3m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100										
	SNC	28			TA				100										
	SPT	27				4.80m: ...Greenish brown streaks.		4.5m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100										
	SNC	26				5.00-6.00m: ...Amorphous decomposed pieces of wood. Wet, water can be squeezed out.			100										
3	SPT		6					6m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100										
	SNC	25							100										
4	SPT	24						7.5m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100										

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 35mm and vertical accuracy +/- 107mm. 2. Borehole backfilled upon completion of drilling. 3. No groundwater level readings taken. 4. This borehole was drilled adjacent to a rotary cored borehole BH2B_1104 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.																		Water Level Readings:	
																		Date/Time	Hole Depth
																		Water Level	

BOREHOLE INFORMATION		CO-ORDINATES:		Date started:		Logged:	
Method:	Sonic Percussion	Easting:	NZTM2000 1727727.67	Date completed:	08/12/2025	Input:	A. Pola
Equipment:	Fraste SRS	Northing:	6012236.92	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	Pro-Drill (Auck) NZ Ltd	Ground level:	31.504m (NZVD2016)	Azimuth:	N/A	Verified:	C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	ROD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL								
												WWS	WS	MWS	CS	VCS	EGS									
4	SNC	23			TA	8.45m: ...Minor amorphous flecks of black organic material.		9m: SPT 0, 0// 0, 0, 0, 0 N = 0	100																	
						8.75-9.27m: ...Sandy silty CLAY. Sand, fine.																				
	SPT	9							9.27-10.95m: ...Sandy CLAY with minor silt. Sand, fine.	100																
5	SNC	22						10.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100																	
	SPT	10								100																
6	SNC	21				10.95m: Clayey fine SAND; bluish grey. Very loose, moist, high plasticity.		12m: SPT 0, 0// 0, 0, 0, 0 N = 0	100																	
	SPT	11								67																
7	SNC	19			TP	12.75m: Clayey fine to medium SAND with minor gravels and cobbles; bluish grey. Very loose, moist, low plasticity. Fine to coarse gravels and cobbles are moderately strong sub-angular to sub-rounded slightly weathered greywacke sandstone. [OLDER (PLEISTOCENE) ALLUVIUM]		13.5m: SPT 2, 3// 2, 3, 3, 3 N = 11	100																	
						12.95m: Sandy fine to coarse GRAVEL with some cobbles and silt; bluish grey. Medium dense, moist, well graded. Gravel and cobbles are moderately strong sub-angular to sub-rounded slightly weathered greywacke. Sand is fine to medium. Matrix is silty sand.																				
	SPT	13								56																
8	SNC	18				14.35-14.75m: ...Streaks of brown organic SILT and decomposing wood		15m: SPT 1, 2// 8, 10, 5, 5 N = 28	100																	
	SPT	17							15.15-15.20m: ...Coarse SAND	56																
									15.45-15.60m: ...Fine to coarse SAND 15.60-15.75m: ...Fine GRAVEL																	
9	SNC	16																								

Remarks:			Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 35mm and vertical accuracy +/- 107mm.			Date/Time	Hole Depth	Water Level
2. Borehole backfilled upon completion of drilling.					
3. No groundwater level readings taken.					
4. This borehole was drilled adjacent to a rotary cored borehole BH2B_1104 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.					
Shear Vane (ISHSV) Serial No. 3733, calibration constant 1.507.					

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 08/12/2025	Logged: A. Pola
Method:	Sonic Percussion	Easting: 1727727.67	Date completed: 08/12/2025	Input: A. Pola
Equipment:	Fraste SRS	Northing: 6012236.92	Inclination: 90°	Reviewed: N. Crampton
Contractor:	Pro-Drill (Auck) NZ Ltd	Ground level: 31.504m (NZVD2016)	Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
8	SNC				TP	16.50-16.60m: ...Fine GRAVEL		16.5m: SPT 3, 3// 1, 0, 0, 0 N = 1	100			VWS WVS MWS CS VCS ECS		
	SPT	15		16.70m: Sandy CLAY with trace organics; grey, with minor brown streaks. Very soft, moist, high plasticity. Organics are amorphous.			78							
	SNC	17		17.35m: Clayey fine to coarse GRAVEL with some sand and minor cobbles; bluish grey. Medium dense, moist, well graded. Gravel and cobbles are moderately strong sub-angular to sub-rounded slightly weathered greywacke. Matrix is sandy clay. Sand is fine to medium. 17.60m: ...Sandy fine GRAVEL. Sand, coarse. 17.90m: ...Decomposed wood, black			100							
	SPT	14				67								
9	SNC				TP	19.20m: Clayey fine to coarse SAND with minor gravel; bluish grey. Medium dense, moist, low plasticity.		18m: SPT 10, 10// 10, 5, 7, 6 N = 28	100					
	SPT	13		19.50m: Sandy fine to coarse GRAVEL with minor clay; bluish grey. Medium dense, moist, well graded. Gravel is moderately strong sub-angular to sub-rounded slightly weathered greywacke. Matrix is fine to medium sand with minor clay.			67							
	SNC	19				100								
	SPT	12				67								
10	SNC				TP			19.5m: SPT 6, 8// 11, 9, 8, 8 N = 36	100					
	SPT	20		21m: SPT 11, 7// 6, 6, 5, 8 N = 25		100								
	SNC	11				100								
	SPT	21				100								
11	SNC				TP			22.5m: SPT 6, 8// 6, 6, 5, 3 N = 20	100					
	SPT	10				100								
	SNC	22				100								
	SPT	9				100								
	SNC					23.60m: Clayey fine to medium SAND; grey with brown streaks. Moist, very loose/ high plasticity. Amorphous fragments of decomposed wood.			100					

Remarks:		
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1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 35mm and vertical accuracy +/- 107mm.
2. Borehole backfilled upon completion of drilling.
3. No groundwater level readings taken.
4. This borehole was drilled adjacent to a rotary cored borehole BH2B_1104 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.

Shear Vane (ISHSV) Serial No. 3733, calibration constant 1.507.

Water Level Readings:

[illegible]

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	08/12/2025	Logged:	A. Pola
Method:	Sonic Percussion	Easting:	1727727.67	Date completed:	08/12/2025	Input:	A. Pola
Equipment:	Fraste SRS	Northing:	6012236.92	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	Pro-Drill (Auck) NZ Ltd	Ground level:	31.504m (NZVD2016)	Azimuth:	N/A	Verified:	C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
11	SPT				TP			24m: SPT 3, 3// 1, 2, 3, 4 N = 10	100			VWS	WS	MWS	VCS	EGS		
	SNC	7	25						100									
	SPT	6						25.5m: SPT 0, 0// 2, 1, 1, 2 N = 6	100									
			26			Terminated at 25.95 m. Target depth.												
			5															
			27															
			4															
			28															
			3															
			29															
			2															
			30															
			1															
			31															
			0															

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 35mm and vertical accuracy +/- 107mm. 2. Borehole backfilled upon completion of drilling. 3. No groundwater level readings taken. 4. This borehole was drilled adjacent to a rotary cored borehole BH2B_1104 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.			Water Level Readings:		
DateTime		Hole Depth		Water Level	
Shear Vane (ISHSV) Serial No. 3733, calibration constant 1.507.					

Borehole Reference:

BH2B_1104B

Photographed By:

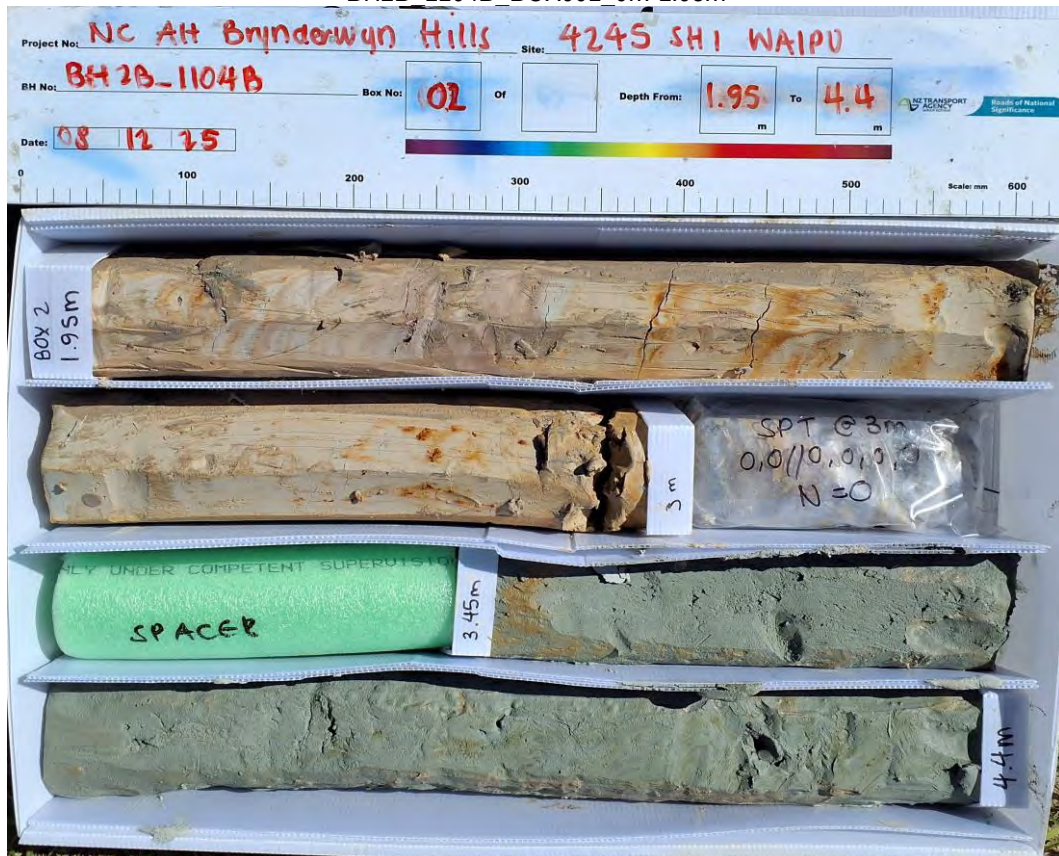
AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX001_0m-1.95m



BH2B_1104B_BOX002_1.95m-4.4m

Borehole Reference:

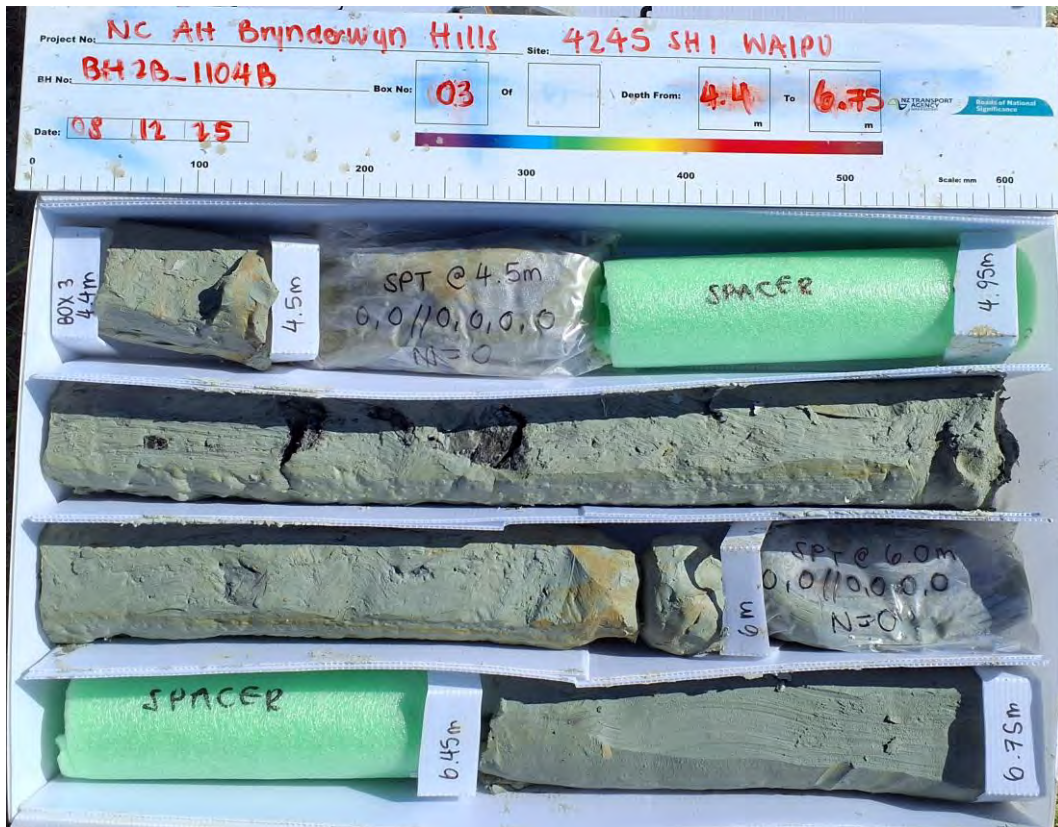
BH2B_1104B

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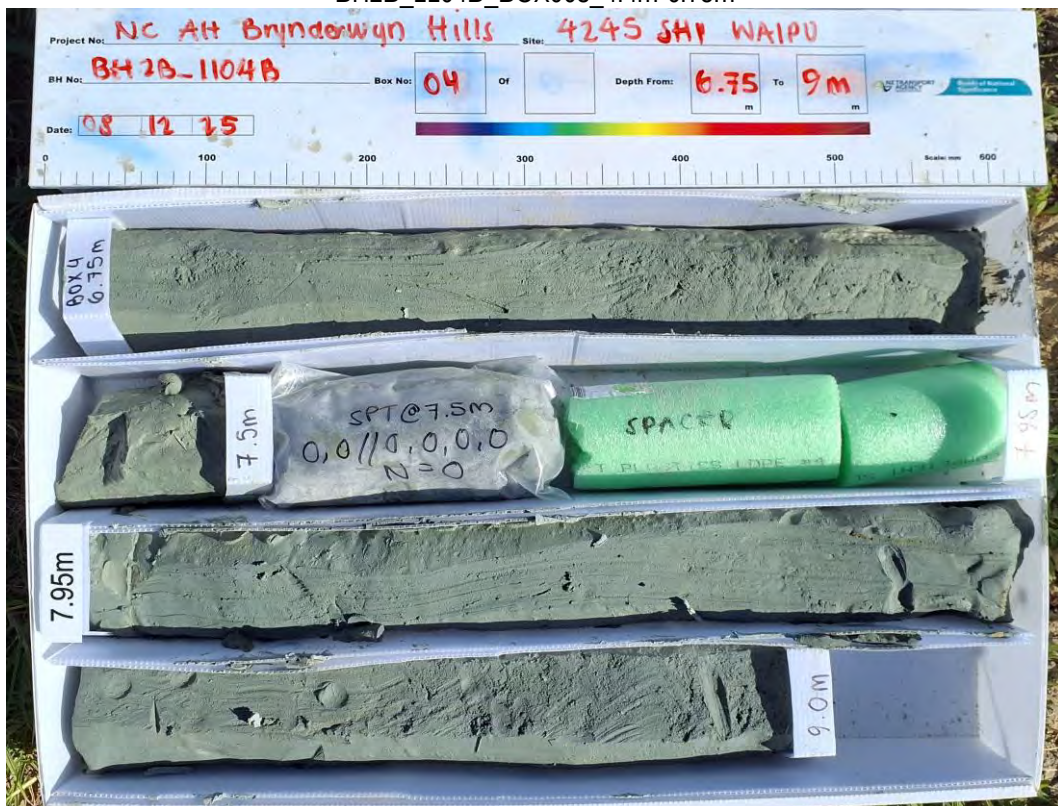
AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX003_4.4m-6.75m



BH2B_1104B_BOX004_6.75m-9m

Borehole Reference:

BH2B_1104B

Photographed By:

AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX005_9m-11.25m



BH2B_1104B_BOX006_11.25m-13.5m

Borehole Reference:

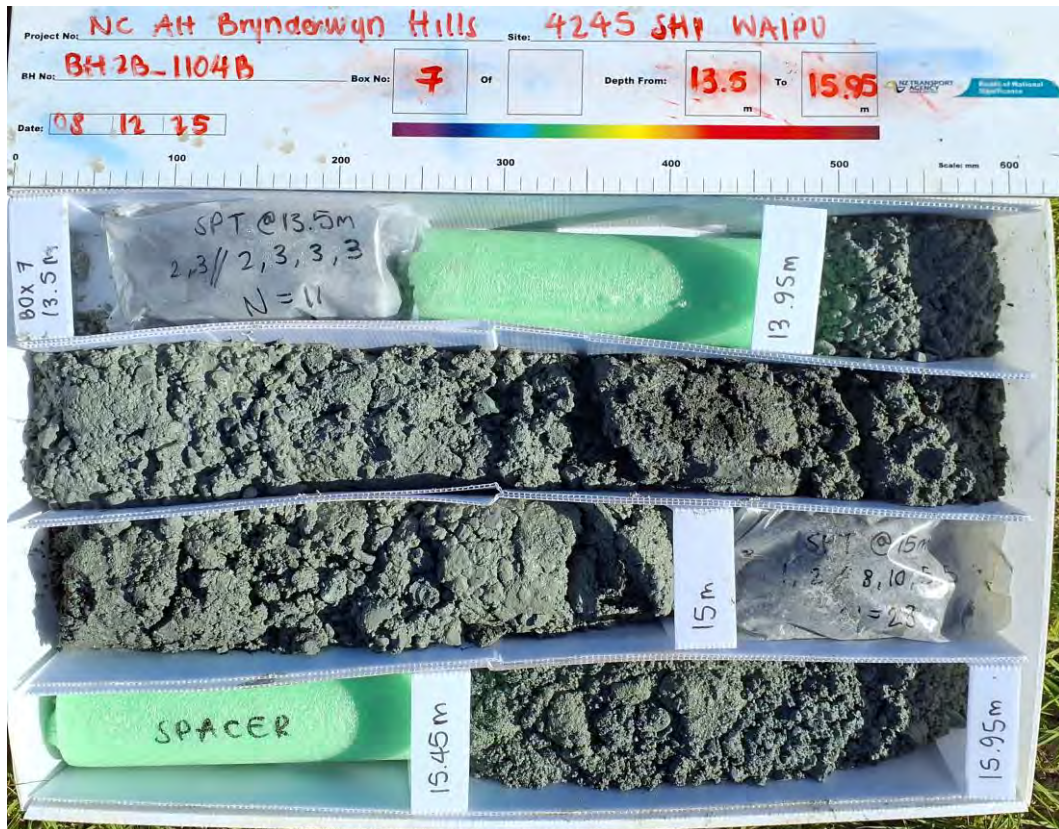
BH2B_1104B

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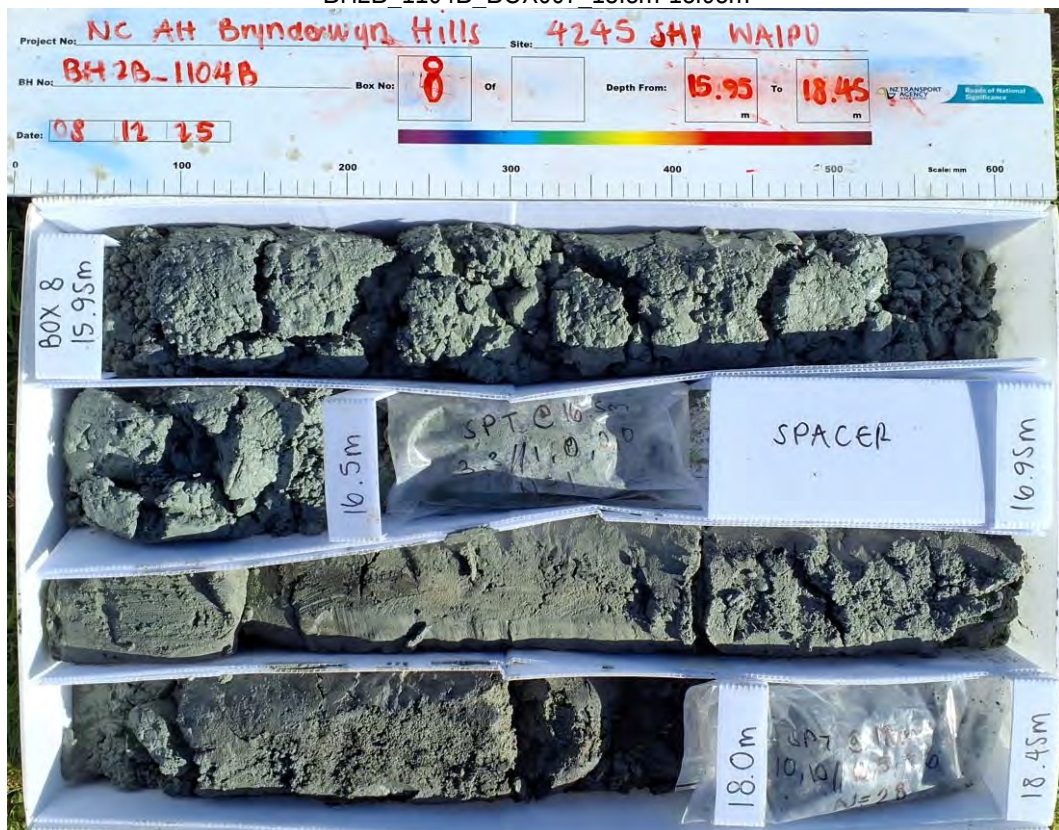
AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX007_13.5m-15.95m



BH2B_1104B_BOX008_15.95m-18.45m

Borehole Reference:

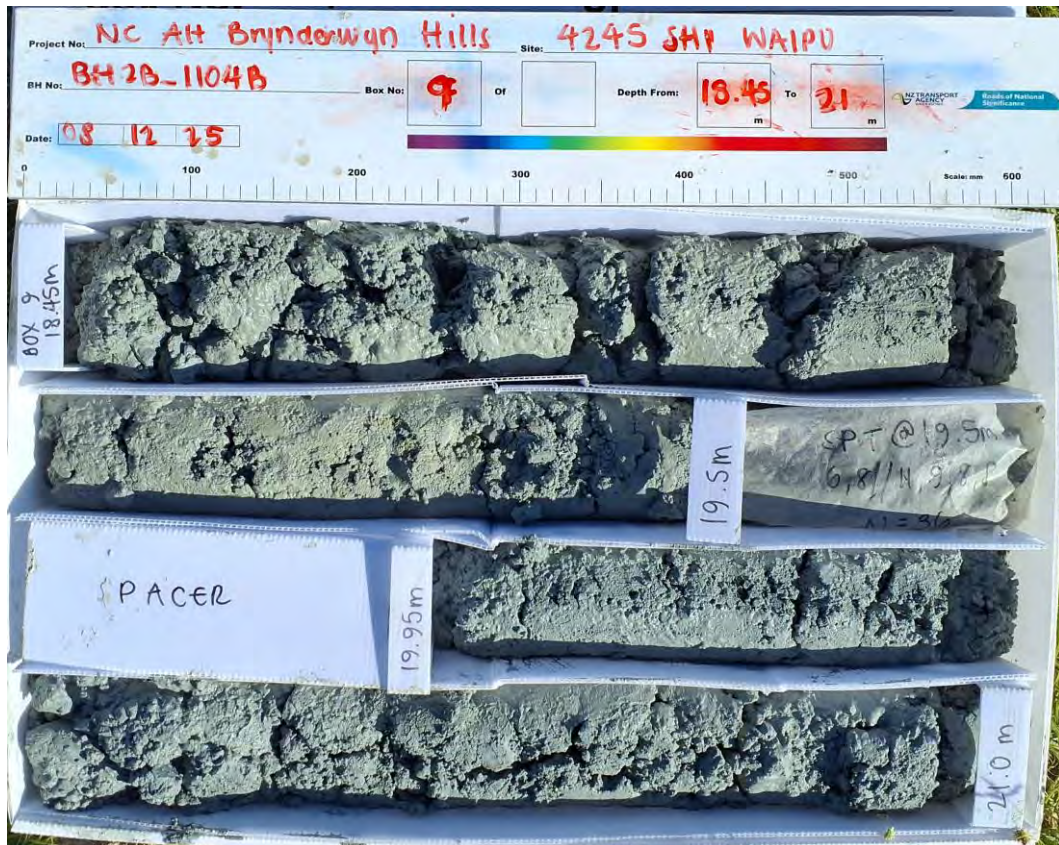
BH2B_1104B

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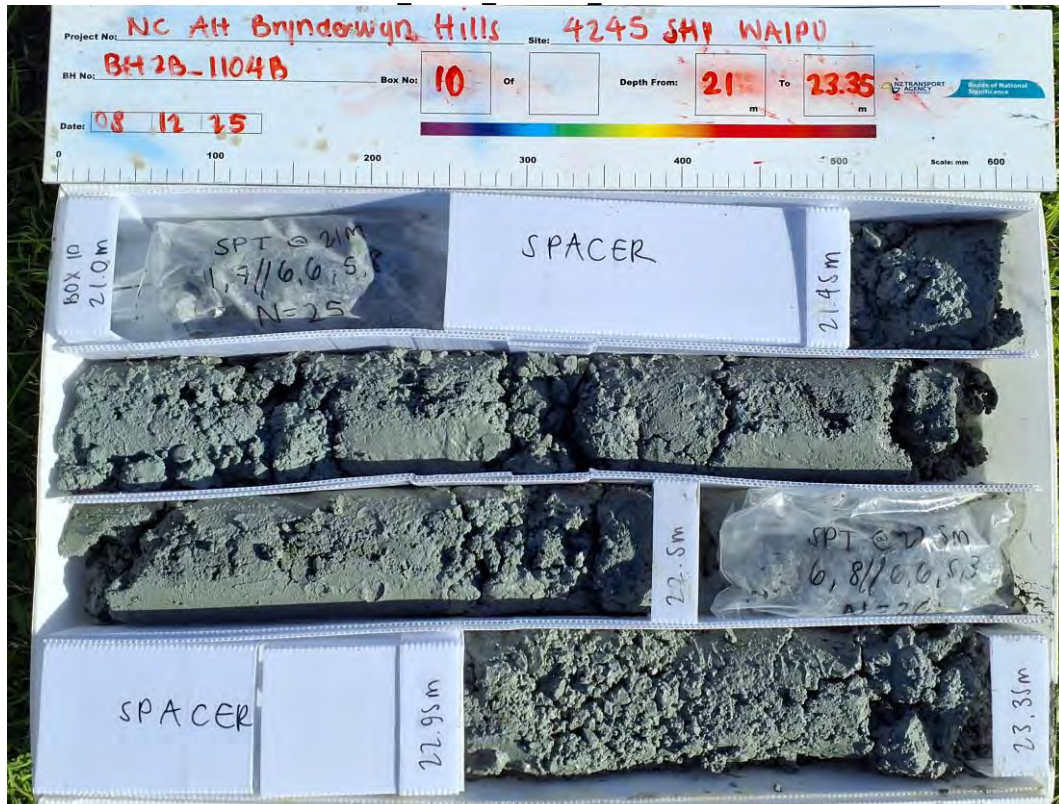
AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX009_18.45m-21m



BH2B_1104B_BOX010_21m-23.35m

Borehole Reference:

BH2B_1104B

Photographed By:

AP

Date Photographed:

10/04/2026



BH2B_1104B_BOX011_23.35m-25.95m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	02/09/2025	Logged:	B.Griffiths
Method:	Rotary Core Wireline	Easting:	1727750.40	Date completed:	05/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6011853.67	Inclination:	90°	Reviewed:	S. Nelis
Contractor:	McMillan (NI) Drilling	Ground level:	23.15m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 28mm and vertical accuracy +/- 60mm. 2. One vibrating wire piezometer was installed on 05/09/2025. BH2B_1105_PZ01 was installed at 28.8m bgl, Serial No. 378300. 3. An additional borehole, BH2B_1105A was completed 3m from BH2B_1105 for downhole iVane testing.			Water Level Readings:		
			Date/Time	Hole Depth	Water Level
			2025-09-02 17:24	4.50m	2.40mbgl
			2025-09-03 07:45	4.50m	0.00mbgl
			2025-09-03 16:50	21.00m	1.60mbgl
			2025-09-04 07:20	21.00m	0.60mbgl
			2025-09-04 17:19	44.50m	7.70mbgl
			2025-09-05 07:50	44.50m	3.30mbgl
			2025-09-05 11:30	47.00m	0.70mbgl
Shear Vane (ISHSV) Serial No. 1558, calibration constant 1.485.					

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	02/09/2025	Logged:	B.Griffiths
Method:	Rotary Core Wireline	Easting:	1727750.40	Date completed:	05/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6011853.67	Inclination:	90°	Reviewed:	S. Nelis
Contractor:	McMillan (NI) Drilling	Ground level:	23.15m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
3	HQ3	15			TA				100					
	U54	14	9	9.00m: PUSH TUBE (450mm Recovery)		9m: ISHSV 42/15 kPa U: 9.00-9.50 m	90							
	HQ3	13	10	9.50m: CLAY, some silt, trace disseminated organics; brownish grey and bluish grey. Firm, moist, high plasticity. Organics are partially decomposed woody fragments, 1-4mm.										
4	SPT		11		TA	10.30m: ...Some organics, greyish brown, soft		10.5m: ISHSV 15/6 kPa 10.5m: SPT 0, 0// 0, 0, 0, 0 N = 0	100					
	HQ3	12	10	10.70-10.80m: ...Wood fragment, partially decomposed, dark brown.										
	SPT	11	12			12m: ISHSV 59/30 kPa 12m: SPT 0, 0// 0, 0, 0, 0 N = 0	100							
5	HQ3	10	13		TA	12.45m: Silty CLAY, some organics; grey with greenish orange staining. Firm, moist, high plasticity. Organics are partially decomposed woody fragments, 1-4mm. 12.80m: ...Grey		12.95m: ISHSV 104/45 kPa	0				13.00m: HCl: Weak	
	SPT		14	13.35m: Fine to coarse GRAVEL, trace fine to medium sand; bluish grey. Medium dense. Gravel is sub-rounded, slightly weathered, strong, greywacke siltstone. Matrix is assumed to be clayey silt (washed away).		13.5m: SPTC 9, 7// 7, 6, 3, 2 N = 18	100							
	HQ3	9	14	14.15m: CORE LOSS (250mm). Fines assumed washed away.			44							
6	HQ3		15		RW	14.40m: Highly weathered, grey, laminated SILTSTONE Extremely weak. Poorly cemented. [Sandy SILT; grey. Hard, moist, low plasticity. [HIGHLY WEATHERED RUARANGI FORMATION]	HW	15m: SPTC 3, 4// 5, 7, 8, 9 N = 29	100	62	62		14.50m: HCl: Weak	
	SPT	8		14.60m: Moderately weathered, greenish grey, slightly calcareous SILTSTONE. Very weak. Laminated to very thin, bedding dips 0-5 degrees. Poorly cemented. Drilling breaks parallel to bedding planes. [MODERATELY WEATHERED RUARANGI FORMATION]		MW		0						
	HQ3													

Remarks:

- Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 28mm and vertical accuracy +/- 60mm.
 2. One vibrating wire piezometer was installed on 05/09/2025. BH2B_1105_PZ01 was installed at 28.8m bgl, Serial No. 378300.
 3. An additional borehole, BH2B_1105A was completed 3m from BH2B_1105 for downhole iVane testing.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-02 17:24	4.50m	2.40mbgl
2025-09-03 07:45	4.50m	0.00mbgl
2025-09-03 16:50	21.00m	1.60mbgl
2025-09-04 07:20	21.00m	0.60mbgl
2025-09-04 17:19	44.50m	7.70mbgl
2025-09-05 07:50	44.50m	3.30mbgl
2025-09-05 11:30	47.00m	0.70mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000
Easting: 1727750.40
Northing: 6011853.67
Ground level: 23.15m (NZVD2016)

Date started: 02/09/2025
Date completed: 05/09/2025
Inclination: 90°
Azimuth: N/A

Logged: B. Griffiths
Input: B. Griffiths
Reviewed: S. Nelis
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3	-1							100	89	89		24.40-24.48m: CZ, 30. Fine to medium angular to subangular mudstone and siltstone gravel, minor silt and fine sand matrix, low plasticity.	
		25											25.00m: HCl: Weak	
		-2												
	HQ3	-3							100	88	88		25.50-25.65m: CZ?, 30. Angular to subangular fine to coarse siltstone gravel. Matrix is minor silt and fine sand, low plasticity (90% washed away). 25.70-29.13m: BP, Laminated to very thin, 10°, closed, planar	
		26												
		27											26.74-26.87m: VE, 8x, Un, 40°, Calcite, 1-3mm thick	
10	HQ3	-4							100	100	100		27.35m: VE, 70°, Pl, Calcite 27.40m: VE, 80°, Pl, Calcite, 1-3mm thick	
		28											27.72m: JT, 45°, Sm, Pl, Cn 27.93m: JT, 30°, Sm, Pl, Cn 28.00m: HCl: Weak	
		-5											28.20-28.35m: CZ? 35. Fine to coarse subangular siltstone gravel. Matrix is silt, minor sand, trace clay, low plasticity (90% washed away).	
		29											28.82-28.88m: JT, 80°, Sm, Pl, Cn	
	HQ3	-6							97	91	91		29.13-32.80m: BP, Laminated to very thin, 0-5°, closed, planar	
		30												
		-7							100	88	88		30.00m: HCl: Weak 30.07m: JT, 60°, Sm, St, Cn 30.15m: JT, 60°, Sm, Pl, Cn 30.26m: JT, 40°, Sm, Pl, Vn Calcite 30.44m: JT, 70°, Sm, Pl, Vn Calcite	
11	HQ3	-8							100	100	100		31.69m: VE, 30°, Pl, Calcite, 1-3mm thick	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 28mm and vertical accuracy +/- 60mm.
- One vibrating wire piezometer was installed on 05/09/2025. BH2B_1105_PZ01 was installed at 28.8m bgl, Serial No. 378300.
- An additional borehole, BH2B_1105A was completed 3m from BH2B_1105 for downhole iVane testing.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-02 17:24	4.50m	2.40mbgl
2025-09-03 07:45	4.50m	0.00mbgl
2025-09-03 16:50	21.00m	1.60mbgl
2025-09-04 07:20	21.00m	0.60mbgl
2025-09-04 17:19	44.50m	7.70mbgl
2025-09-05 07:50	44.50m	3.30mbgl
2025-09-05 11:30	47.00m	0.70mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	02/09/2025	Logged:	B. Griffiths
Method:	Rotary Core Wireline	Easting:	1727750.40	Date completed:	05/09/2025	Input:	B. Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6011853.67	Inclination:	90°	Reviewed:	S. Nelis
Contractor:	McMillan (NI) Drilling	Ground level:	23.15m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	-9							95	95	95			32.53m: BP, 20°, Sm, Pl, Cg Calcite	
		33												32.80-36.00m: BP, Very thin to thin, 0-5°, closed, planar	
		-10							100	100	100			33.00m: HCl: Weak	
		34							100	100	100				
	HQ3	-11				34.60-34.68m: ...Fine sandstone bed, Laminated, dip 0-5 degrees	SW							34.60-34.68m: BP, Laminated, 0-5°, closed, planar	
13	HQ3	-12				35.20m: Unweathered, grey, laminated to very thinly bedded fine SANDSTONE. Weak. Bedding dips 5-10 degrees. Well cemented. Trace disseminated pyrite throughout, 1-2mm diameter. Drilling breaks parallel to bedding planes and calcite veins. [UNWEATHERED RUARANGI FORMATION]			100	100	100			35.66m: VE, 65°, Pl, Calcite, 1-4mm thick. Drilling breaks parallel to veins.	
		36												35.92m: Calcite, 1-4mm thick. Drilling breaks parallel to veins.	
		-13												36.00m: HCl: Weak	
		37							100	97	97			36.65m: JT, 40°, Ro, Un, Vn, Calcite with pyrite	
	HQ3	-14					UW							37.07m: JT, 40°, Ro, Pl, Vn Calcite with pyrite	
14	HQ3	-15												37.75m: JT, 80°, Ro, Pl, Vn, calcite with pyrite	
		38							93	93	93				
		-16				38.25-38.60m									
		39				39.60m: Unweathered, greenish grey, slightly calcareous CONGLOMERATE. Weak. Clast supported. fine to medium sandstone and calcareous siltstone clasts, greenish grey to grey, 5-10mm wide, sub-angular. Matrix of light grey fine sandstone with some pyrite infill within matrix.	UW		100	100	100			38.81m: VE, 10°, Pl, Calcite, 1-3mm thick	
	HQ3					39.95m: Unweathered, white, brecciated slightly calcareous fine SANDSTONE. Moderately strong. Clast supported. Sandstone clasts with laminated, sub-horizontal bedding. Matrix of grey fine sandstone.	UW								

Remarks:		Water Level Readings:	
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 28mm and vertical accuracy +/- 60mm.		Date/Time	Hole Depth
2. One vibrating wire piezometer was installed on 05/09/2025. BH2B_1105_PZ01 was installed at 28.8m bgl, Serial No. 378300.		2025-09-02 17:24	4.50m
3. An additional borehole, BH2B_1105A was completed 3m from BH2B_1105 for downhole iVane testing.		2025-09-03 07:45	4.50m
		2025-09-03 16:50	21.00m
		2025-09-04 07:20	21.00m
		2025-09-04 17:19	44.50m
		2025-09-05 07:50	44.50m
		2025-09-05 11:30	47.00m
			Water Level
			2.40mbgl
			0.00mbgl
			1.60mbgl
			0.60mbgl
			7.70mbgl
			3.30mbgl
			0.70mbgl

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	02/09/2025	Logged:	B.Griffiths
Method:	Rotary Core Wireline	Easting:	1727750.40	Date completed:	05/09/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6011853.67	Inclination:	90°	Reviewed:	S. Nelis
Contractor:	McMillan (NI) Drilling	Ground level:	23.15m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

[illegible]

Remarks:

- Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 28mm and vertical accuracy +/- 60mm.
 2. One vibrating wire piezometer was installed on 05/09/2025. BH2B_1105_PZ01 was installed at 28.8m bgl, Serial No. 378300.
 3. An additional borehole, BH2B_1105A was completed 3m from BH2B_1105 for downhole iVane testing.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-02 17:24	4.50m	2.40mbgl
2025-09-03 07:45	4.50m	0.00mbgl
2025-09-03 16:50	21.00m	1.60mbgl
2025-09-04 07:20	21.00m	0.60mbgl
2025-09-04 17:19	44.50m	7.70mbgl
2025-09-05 07:50	44.50m	3.30mbgl
2025-09-05 11:30	47.00m	0.70mbgl

Borehole Reference: BH2B_1105

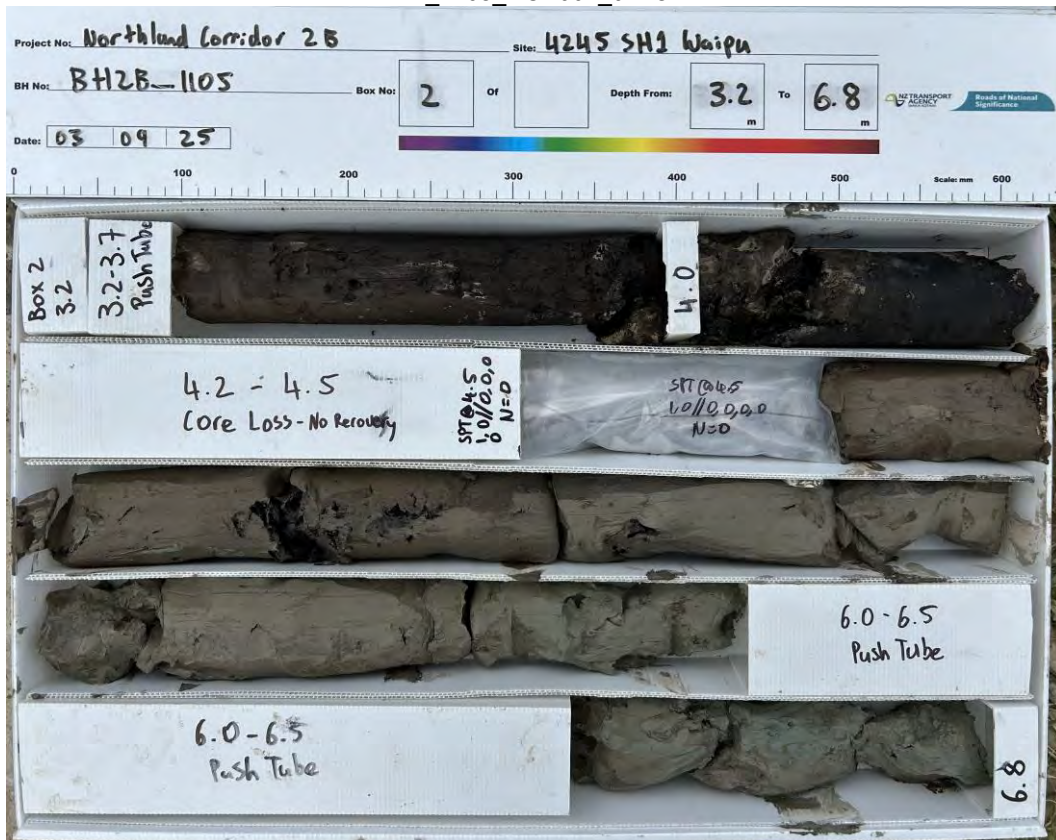
Photographed By: BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX001_0m-3.2m



BH2B_1105_BOX002_3.2m-6.8m

Borehole Reference:

BH2B_1105

Photographed By:

BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX003_6.8m-9.8m



BH2B_1105_BOX004_9.8m-12.45m

Borehole Reference: BH2B_1105

Photographed By: BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX005_12.45m-15m



BH2B_1105_BOX006_15m-18m

Borehole Reference: BH2B_1105

Photographed By: BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX007_18m-21m



BH2B_1105_BOX008_21m-23.64m

Borehole Reference:

BH2B_1105

Photographed By:

BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX009_23.64m-26.37m



BH2B_1105_BOX010_26.37m-29.13m

Borehole Reference:

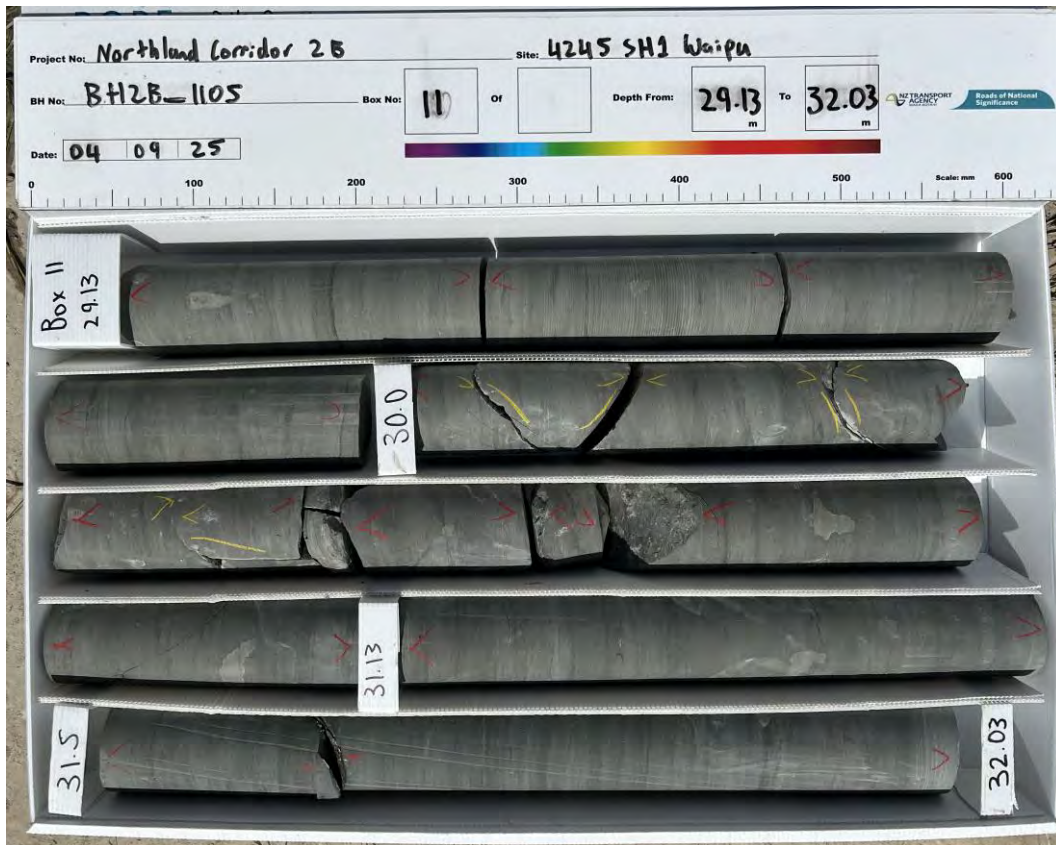
BH2B_1105

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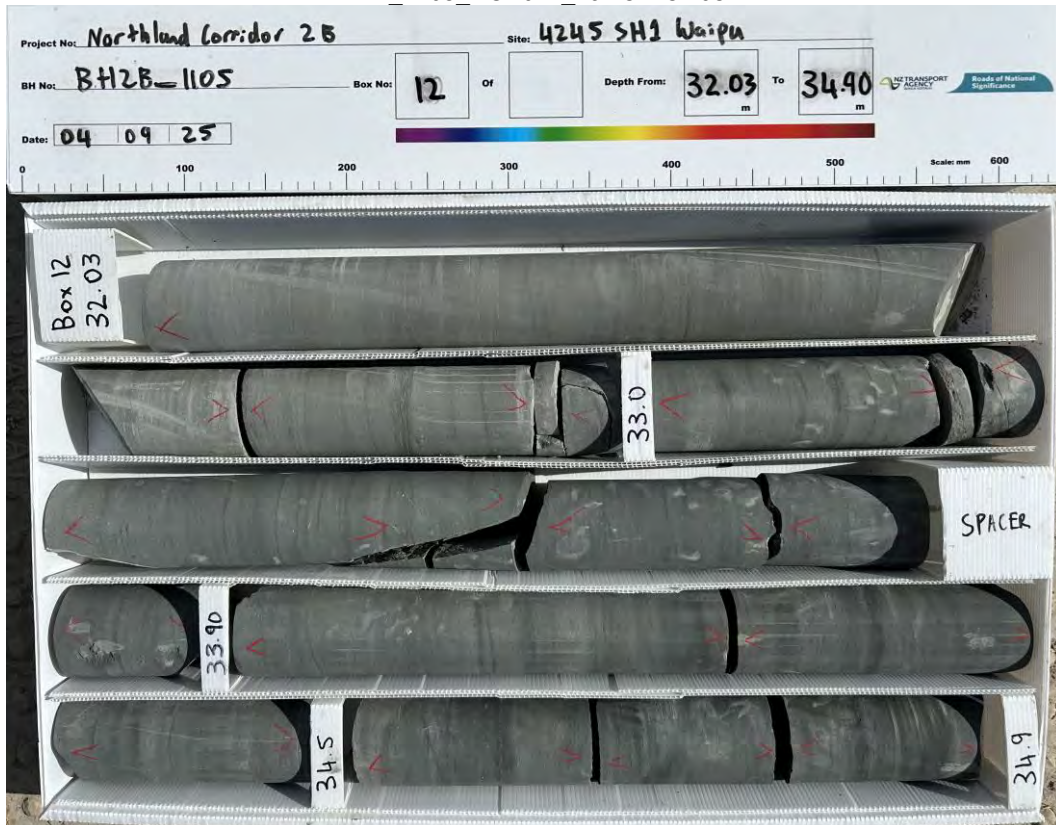
BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX011_29.13m-32.03m



BH2B_1105_BOX012_32.03m-34.9m

Borehole Reference: BH2B_1105

Photographed By: BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX013_34.9m-37.5m



BH2B_1105_BOX014_37.5m-40.3m

Borehole Reference:

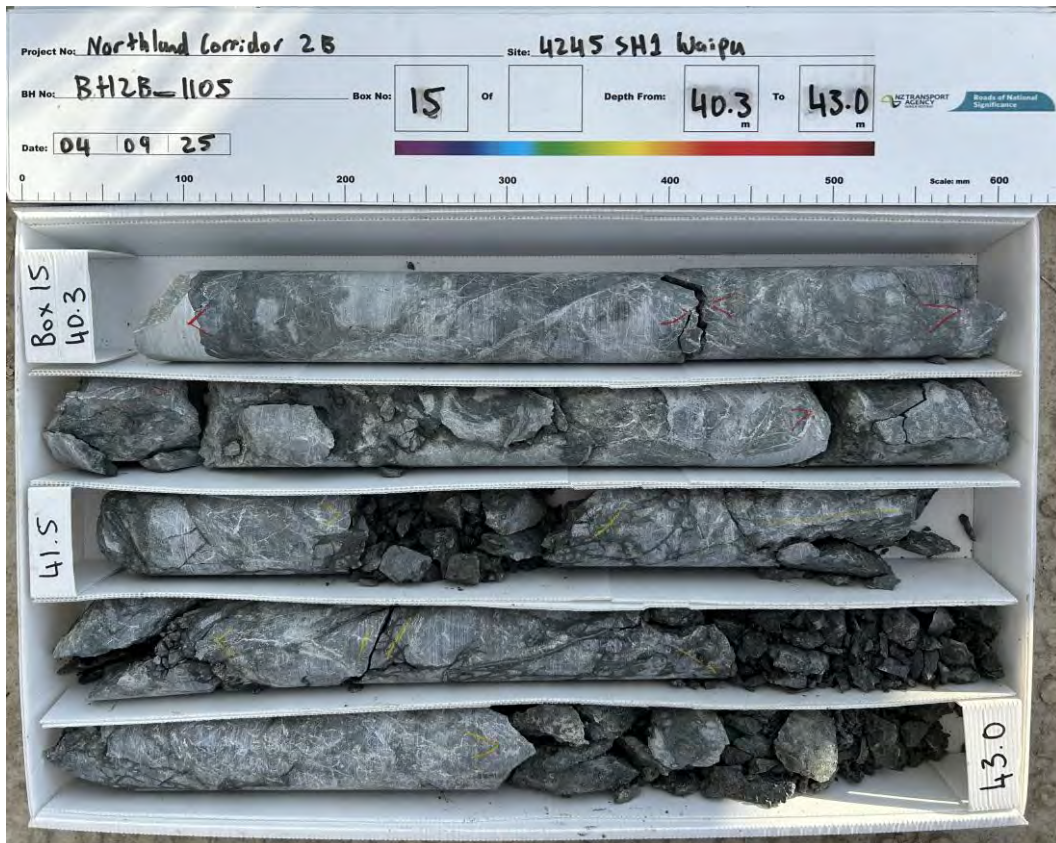
BH2B_1105

Photographed By:

BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX015_40.3m-43m



BH2B_1105_BOX016_43m-45.35m

Borehole Reference: BH2B_1105

Photographed By: BTG

Date Photographed:

03/09/2025-08/09/2025



BH2B_1105_BOX017_45.35m-47m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727713.24
Northing:	6011388.68
Ground level:	26.044m (NZVD2016)

Date started:	19/08/2025
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Date completed: 27/08/2025
Inclination: 90°
Azimuth: N/A

Logged:	MC/CM
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Input:	C. Mariscal
Reviewed:	R. van Dam
Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
															VMS	WMS
1	HA	26			TS	0.00m: Silty CLAY with minor organics; dark brown. Wet, soft, high plasticity; organics are fibrous rootlets [TOPSOIL].										
					TA	0.40m: CLAY with trace organics; light brown, streaked grey. Wet, very soft, high plasticity; organics are fibrous rootlets. [RECENT (HOLOCENE) ALLUVIUM].										
						0.90m: ...grades to light orange streaked grey.										
						1.95m: ...trace fibrous sticks up to 50 mm long and 1mm wide.										
						2.35m: ...grades to light grey streak orange.										
	SPT	24				2.55m: CORE LOSS (450mm) assumed wash out of soft material.										
						TA	3.00m: CLAY with trace organics; light brown streaked grey. Wet, very soft, high plasticity; organics are fibrous rootlets.									
							3.45m: ...fibrous organics up to 20 mm in length, organics are rootlets.									
							4.50-5.00m: ...U54 PUSH TUBE (500 mm recovery)									
							5.00m: ...dark brown with minor silt.									
2	HQ3	23				5.60m: Clayey SILT with trace organics; bluish grey mottled greenish grey. Wet, stiff, high plasticity; organics are fibrous wood, partly decayed.										
						WPR	5.80m: Gravely SILT with minor clay and minor sand; bluish grey. Wet, hard, high plasticity. Gravel is fine to coarse, very dense, well graded, angular to sub-angular, weak, moderately weathered sandstone. [COMPLETELY WEATHERED GREYWACKE]									
							6.43m: Slightly weathered, bluish grey, fine to medium GREYWACKE SANDSTONE. Moderately strong; fragmented, extremely closely spaced, smooth to rough, planar to undulating, incipiently jointed with weak tensile strength. Recovered as fine to coarse GRAVEL with minor sand; tightly packed, wet, well graded; angular. [SLIGHTLY WEATHERED GREYWACKE]									
							6.80m: Slightly weathered, dark bluish grey, medium GREYWACKE SANDSTONE. Strong; highly fractured; joints are extremely closely spaced, moderately inclined to very steeply inclined, with white mineral coating on joint surfaces. Indistinct incipient jointing with moderate tensile strength, 1-2mm white mineral infill.									
							7.30m: ...Green mineral along joint surfaces.									
	SPT	22					6.43m: Slightly weathered, bluish grey, fine to medium GREYWACKE SANDSTONE. Moderately strong; fragmented, extremely closely spaced, smooth to rough, planar to undulating, incipiently jointed with weak tensile strength. Recovered as fine to coarse GRAVEL with minor sand; tightly packed, wet, well graded; angular. [SLIGHTLY WEATHERED GREYWACKE]									
							WPU	6.80m: Slightly weathered, dark bluish grey, medium GREYWACKE SANDSTONE. Strong; highly fractured; joints are extremely closely spaced, moderately inclined to very steeply inclined, with white mineral coating on joint surfaces. Indistinct incipient jointing with moderate tensile strength, 1-2mm white mineral infill.								
								7.30m: ...Green mineral along joint surfaces.								
								7.57-8.10m: Fragmented zone, no preferred orientation, crumbles when handled with weak tensile strength through incipient joints.								
								7.90m: JT, 85° - sub-vertical, Un, Ro, 1-2mm								

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 21mm and vertical accuracy +/- 34mm.
- Two vibrating wire piezometers were installed on 27/08/25. BH2B_1106_P201 was installed at 5m, Serial no. 378366. BH2B_1106_P202 was installed at 15m, Serial no. 378426.
- An additional borehole, BH2B_1106B was completed 5m from BH1106 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.
- RQD was calculated while ignoring incipient joints and assessing likely in situ condition.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Low grade metamorphic minerals present (Zeolite or Prehnite-Pumpellyite - TBC).
- Major/ dominant defects are noted in the material descriptions.

Water Level Readings:

Water Date/Time	Hole Depth	Water Level
2025-08-19 16:00	9.00m	1.10mbgl
2025-08-20 08:00	9.00m	0.50mbgl
2025-08-20 16:00	13.30m	0.20mbgl
2025-08-21 08:00	13.30m	0.70mbgl
2025-08-21 16:00	18.00m	0.20mbgl
2025-08-25 09:00	24.80m	1.00mbgl
2025-08-25 17:10	29.20m	1.90mbgl
2025-08-26 07:15	29.20m	1.60mbgl

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 21mm and vertical accuracy +/- 34mm.
2. Two vibrating wire piezometers were installed on 27/08/25. BH2B_1106_PZ01 was installed at 5m, Serial no. 378366. BH2B_1106_PZ02 was installed at 15m, Serial no. 378426.
3. An additional borehole, BH2B_1106B was completed 5m from BH1106 to install data logs and to form the basis for the requirement of departure for sonic drilling in this material.
4. ROD was calculated while ignoring incipient joints and assessing likely in situ condition.
5. Tensile strength of incipient joints was assessed based on assumed in ground conditions.
6. Low grade metamorphic minerals present (Zeolite or Prehnite-Pumpellyite - TBC).
7. Major/ dominant defects are noted in the material descriptions.

DateTime	Hole Depth	Water Level
2025-08-26 17:10	40.00m	1.90mbgl
2025-08-27 12:47	40.00m	1.50mbgl

		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zone 2, 4245 State Highway 1, Waipu Project Reference: Aurecon WSP JV			BH2B_1106										
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010					Sheet 3 of 5										
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin / D&B 10 Contractor: McMillan Drilling Ltd		CO-ORDINATES: NZTM2000 Easting: 1727713.24 Northing: 6011388.68 Ground level: 26.044m (NZVD2016)		Date started: 19/08/2025 Date completed: 27/08/2025 Inclination: 90° Azimuth: N/A		Logged: MC/CM Input: C. Mariscal Reviewed: R. van Dam Verified: A. George									
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS CS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	10			WPU	16.00m: ...Minor pitting where soft white infill - possible zeolite has eroded out. 16.15-16.35m: ...Weak tensile strength incipient joints.	UW		100	100	86			15.80-16.75m: JT, 85° - sub-vertical, Un-Pl, Ro, possible zeolite staining on joint face 16.05-16.40m: JT set x4, 45°, Pl, Sm, 1mm, possible zeolite staining 16.10m: JT, 3°, Un, Ro, Cn, <1mm 16.30m: JT set x2, 45°, healed, possible zeolite infill 16.50-16.80m: JT set x2, 60-65°, Pl, Sm, 1mm, possible zeolite staining, persistent incipient joints with soft white - possible zeolite infill 16.60-16.90m: JT, 70°- sub-vertical, Un, Ro, 1mm, possible zeolite staining 17.00m: JT set x2, 45-50°, Un, Ro, 1mm, possible zeolite staining 17.10-15.60m: Persistent incipient joints with soft white infill - possible zeolite infill 17.30m: JT set x2, 65°, Pl, Ro, 1mm, possible zeolite staining 17.50m: JT, 80°, Pl, Sm, 1mm, possible zeolite staining	
	HQ3	17				16.70m: ...Orthogonal jointing and incipient joints.			100	93	93				
7	HQ3	18			WPU	17.60m: CORE LOSS (300mm) driller notes due to catching barrel issues - the driller suspected that the core not recovered is falling out when pulling tube.	UW		25	0	0			18.10-18.45m: JT, 85°- sub-vertical, PL, Ro, 1mm, possible zeolite staining on joint face 18.22m: JT, 50°, Pl, Ro, 1mm, possible zeolite staining 18.23m: JT, 60°, Pl, Ro, Cn, 1mm 18.53m: JT, 60°, Pl, Ro, 1mm, possible zeolite staining 18.95-19.25m: Fracture zone, controlled by 70-80° joints, preferred orientation 20-60°, fragmented, minor possible zeolite staining, weak tensile strength through incipient joints 19.30-19.50m: JT set x3, 80°, Pl-St, Ro, 1mm, possible zeolite staining	
	HQ3	18				17.90m: Unweathered, bluish grey, fine to coarse, GREYWACKE SANDSTONE. Strong; Highly fractured, joints extremely closely spaced, smooth to rough, planar to undulating; incipient joints with moderate tensile strength, extremely closely spaced, zeolite infill.			100	97	97				
	HQ3	19				19.00-19.05m: ...Weak tensile strength incipient joints, fragmented. 19.10-19.30m: ...Weak tensile strength incipient joints, fragmented.			100	18	0				
	HQ3	20				19.50m: CORE LOSS (500mm) driller notes due to catching barrel issues.			29	0	0				
8	HQ3	20			WPU	20.00m: Unweathered, bluish grey, fine to coarse, GREYWACKE SANDSTONE. Strong; Highly fractured, joints extremely closely spaced, smooth to rough, planar to undulating; incipient joints with moderate tensile strength, extremely closely spaced, zeolite infill. 20.00-20.45m: ...Weak tensile strength incipient joints; recovered as fine to coarse GRAVEL; bluish grey with green and white staining. Well graded; angular. 20.70-21.25m: ...Dominant sub-vertical jointing.	UW		100	0	0			20.49m: JT, 50°, Pl, Ro, 1mm, possible zeolite staining 20.70-21.00m: JT set x4, 85°- sub-vertical, Pl, Ro, 1mm, possible zeolite staining 20.80m: JT, 40°, St, Ro, Cn, 1mm 21.00-21.50m: JT, 90°, Pl, Ro, 1mm, possible zeolite staining 21.05-22.30m: JT set x14, 35-65°, Pl, Sm-Ro, 1mm, possible zeolite staining 21.55m: JI, 50°, Pl, Ro, 2mm possible zeolite infill 21.75m: JT, 25°, Pl, Ro, Cn, <1mm 22.26m: JT, 70°, Pl, Ro, Cn, 1mm 22.50m: JT, 65-70°, Im, Ro, 1mm, zeolite staining	
	HQ3	21				21.20-22.80m: ...Strong tensile strength incipient joints, moderately fractured.			100	20	60				
	HQ3	22							100	77	70				
	HQ3	23				22.80-23.80m: ...Dominant sub-vertical jointing, moderate tensile strength.			100	30	100				
9	HQ3	23						100	67	67			23.00-24.10m: JT set x5, 80°- sub-vertical, Pl, Ro, 1mm zeolite staining 23.40-23.47m: JT set x2, 70°, Pl, Ro, Cn, 1mm 23.60-23.70m: JT set x2, 40°, Pl, Ro, Cn, 1mm 23.80m: JT, 55°, Pl, Ro, 1mm, zeolite staining		
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 21mm and vertical accuracy +/- 34mm. 2. Two vibrating wire piezometers were installed on 27/08/25. BH2B_1106_PZ01 was installed at 5m, Serial no. 378366. BH2B_1106_PZ02 was installed at 15m, Serial no. 378426. 3. An additional borehole, BH2B_1106B was completed 5m from BH1106 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material. 4. RQD was calculated while ignoring incipient joints and assessing likely insitu condition. 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions. 6. Low grade metamorphic minerals present (Zeolite or Prehnite-Pumpellyite - TBC). 7. Major/ dominant defects are noted in the material descriptions.												Water Level Readings: DateTimeHole DepthWater Level			

Remarks:	Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 21mm and vertical accuracy +/- 34mm. 2. Two vibrating wire piezometers were installed on 27/08/25. BH2B_1106_PZ01 was installed at 5m, Serial no. 378366. BH2B_1106_PZ02 was installed at 15m, Serial no. 378426. 3. An additional borehole, BH2B_1106B was completed 5m from BH1106 to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material. 4. RQD was calculated while ignoring incipient joints and assessing likely insitu condition. 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions. 6. Low grade metamorphic minerals present (Zeolite or Prehnite-Pumpellyite - TBC). 7. Major/ dominant defects are noted in the material descriptions.	DateTime	Hole Depth	Water Level

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Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX001_0m-3.45m



BH2B_1106_BOX002_3.45m-6.8m

Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX003_6.8m-9.07m



BH2B_1106_BOX004_9.07m-11.95m

Borehole Reference: BH2B_1106

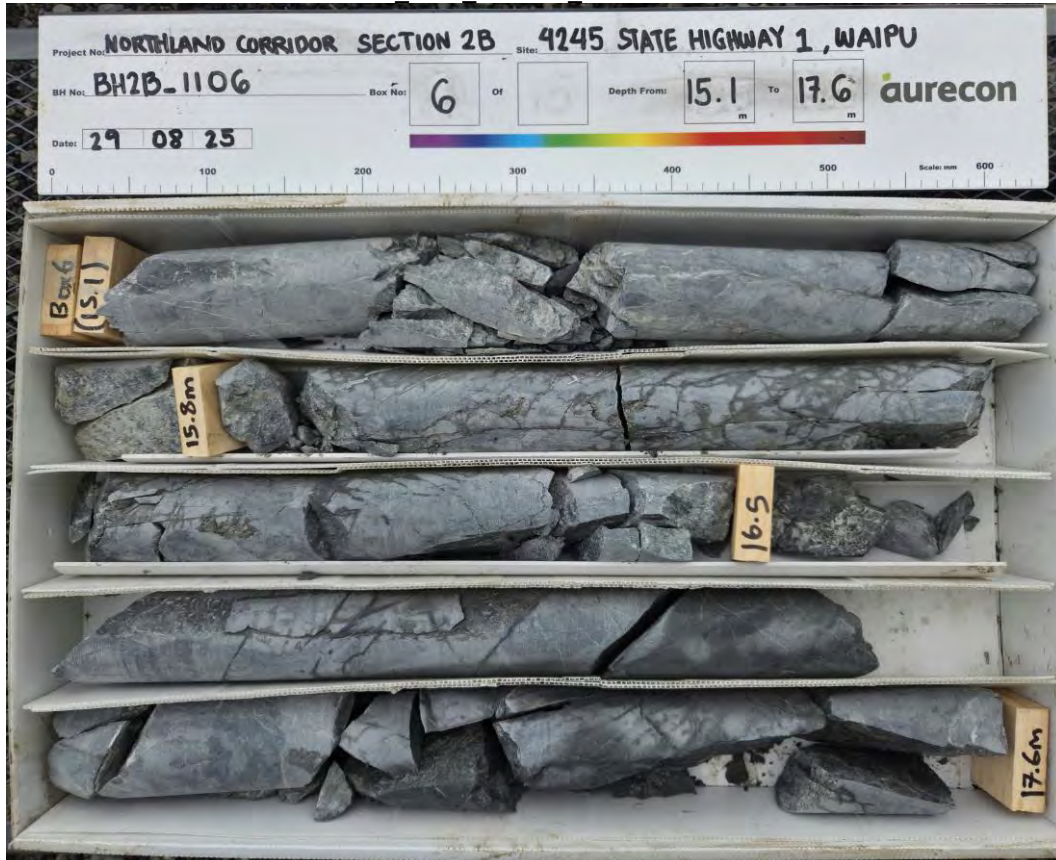
Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B 1106 BOX005 11.95m-15.1m



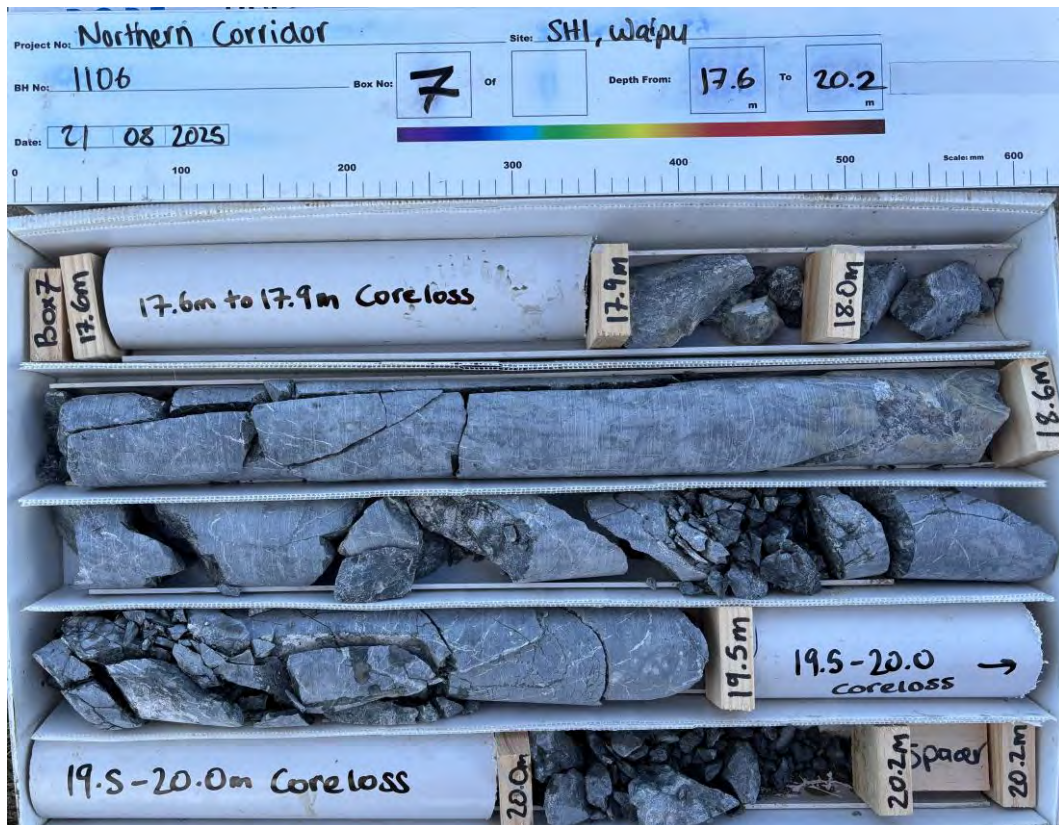
BH2B_1106_BOX006_15.1m-17.6m

Borehole Reference: BH2B_1106

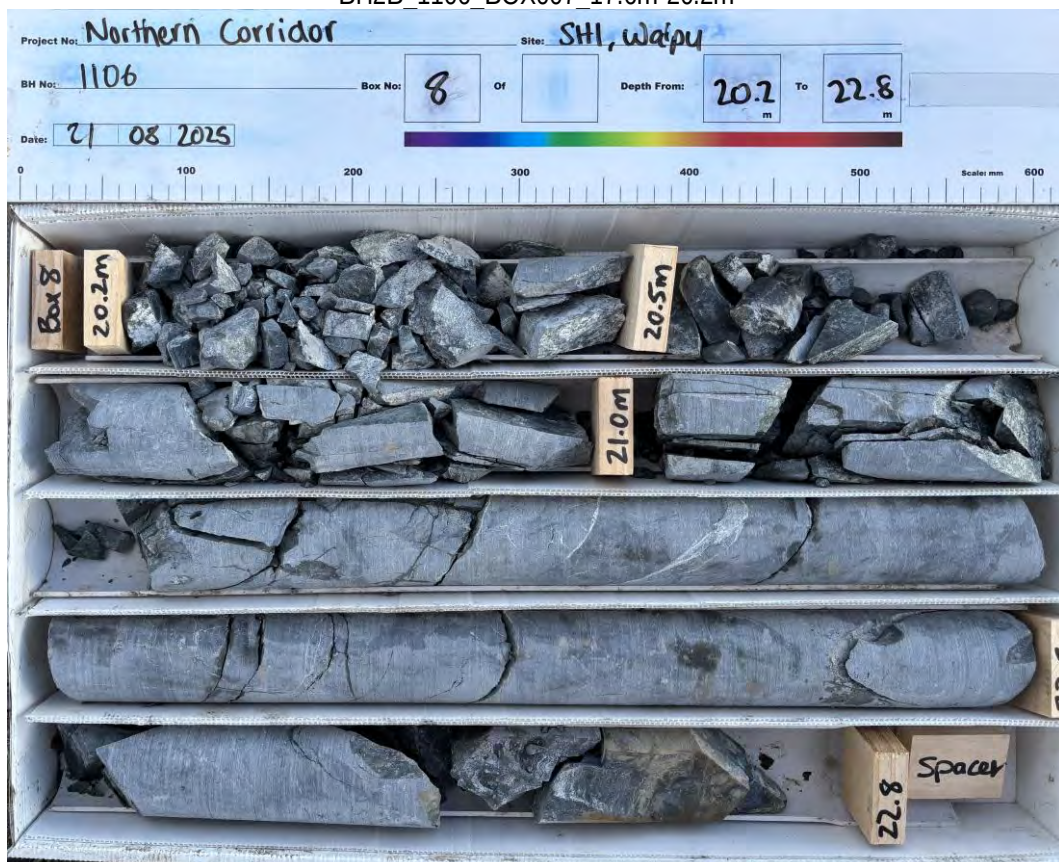
Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX007 17.6m-20.2m



BH2B_1106_BOX008 20.2m-22.8m

Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX009_22.8m-25.6m



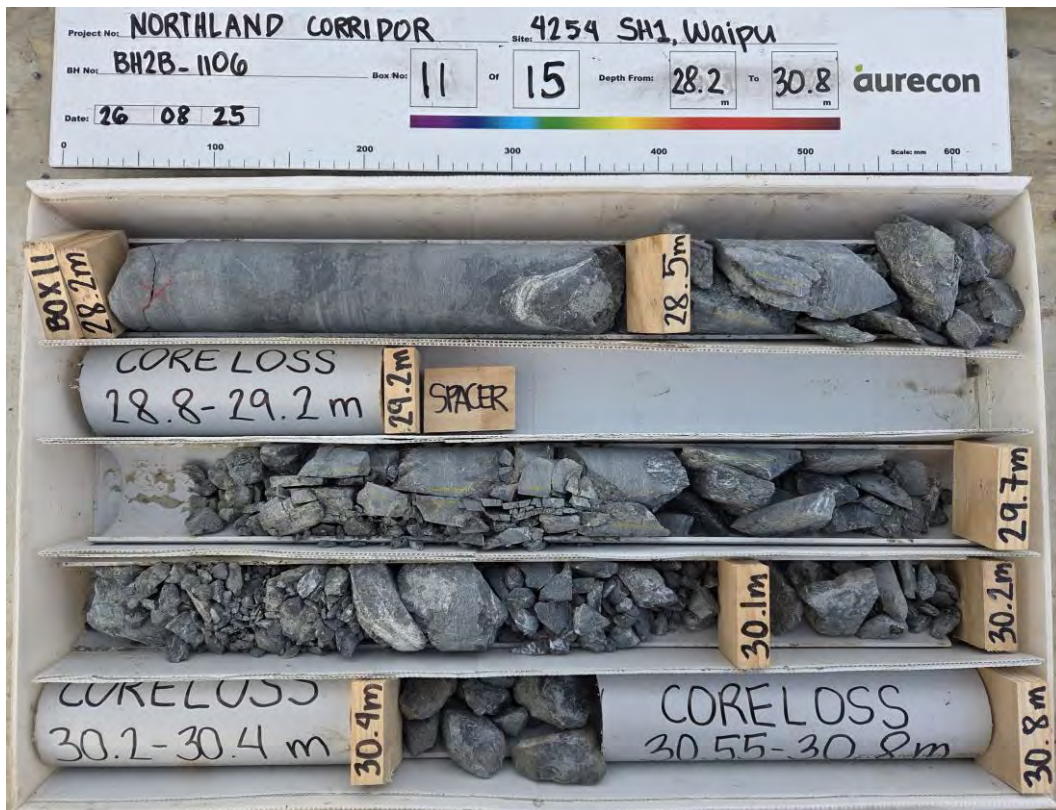
BH2B_1106_BOX010_25.6m-28.2m

Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX011_28.2m-30.8m



BH2B_1106_BOX012_30.8m-33m

Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B 1106 BOX013 33m-35.65m



BH2B_1106_BOX014_35.65m-37.75m

Borehole Reference: BH2B_1106

Photographed By:

Date Photographed:

20/08/2025-27/08/2025



BH2B_1106_BOX015_37.75m-40m

BOREHOLE INFORMATION

Method: Sonic Percussion
Equipment: Fraste SRS
Contractor: Pro-drill (Auck) NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727712.74
Northing: 6011393.82
Ground level: 35.007m (NZVD2016)

Date started: 08/12/2025
Date completed: 08/12/2025
Inclination: 90°
Azimuth: N/A

Logged: A. Pola
Input: A. Pola
Reviewed: R. van Dam
Verified:

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	35			TS	0.00m: SILT with organics; dark brown. Firm, dry, low plasticity. Organics are grass and rootlets. [TOPSOIL] 0.20m: SILT with minor clay; brown. Firm, moist, low plasticity.									
		34	1			0.50m: Silty CLAY; light grey streaked orange. Soft, moist, high plasticity. [RECENT (HOLOCENE) ALLUVIUM]		0.5m: ISHSV 124/36 kPa 1m: ISHSV 51/27 kPa 1.5m: ISHSV 54/33 kPa 1.5m: SPT 0, 0/0, 0, 1 N = 1	100						
2	SNC	33	2			2.05m: ...light grey minor orange mottling									
						2.45m: ...trace sand			100						
						2.75m: ...bluish grey									
		32	3			3.23m: ...red and brown streaks		3m: SPT 0, 0/0, 0, 1 N = 1	100						
3	SNC	31	4						100						
		30	5			5.15m: Silty CLAY with some sand; brown mottled bluish grey and minor red streaks. Soft, moist, high plasticity. Sand fine to medium.		4.5m: SPT 0, 0/1, 0, 1, 0 N = 2	100						
4	SNC	29	6					6m: SPT 0, 0/0, 0, 1, 1 N = 2	100						
						6.30m: ...bluish grey 6.35m: ...greenish grey sandy CLAY									
						6.40m: Slightly weathered, bluish grey, GREYWACKE SANDSTONE. Weak. Recovered as silty fine to medium SAND with some gravels; dense, dry. Gravels are fine to medium weak angular greywacke sandstone. Pyrite throughout core. [SLIGHTLY WEATHERED GREYWACKE]	SW		100						
		28	7			7.00m: Unweathered, bluish grey, GREYWACKE SANDSTONE. Strong. Recovered as fine to medium SAND with some gravel. Dense, dry. Gravel is fine to medium angular greywacke sandstone. [UNWEATHERED GREYWACKE]	UW	7.5m: SPTC 29, 21 for 15mm// N = 50+	0						
	SPT					Terminated at 7.59 m. Target depth.									

Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 30mm and vertical accuracy +/- 74mm.
2. Borehole backfilled upon completion of drilling.
3. This borehole was drilled adjacent to a rotary cored borehole to fill data gaps and to form the basis for the requirement of departure for sonic drilling in this material.

Water Level Readings:
Date/Time: 2025-12-08 11:30
Hole Depth: 7.59m
Water Level: 0.20mbgl

Borehole Reference:

BH2B_1106B

Photographed By:

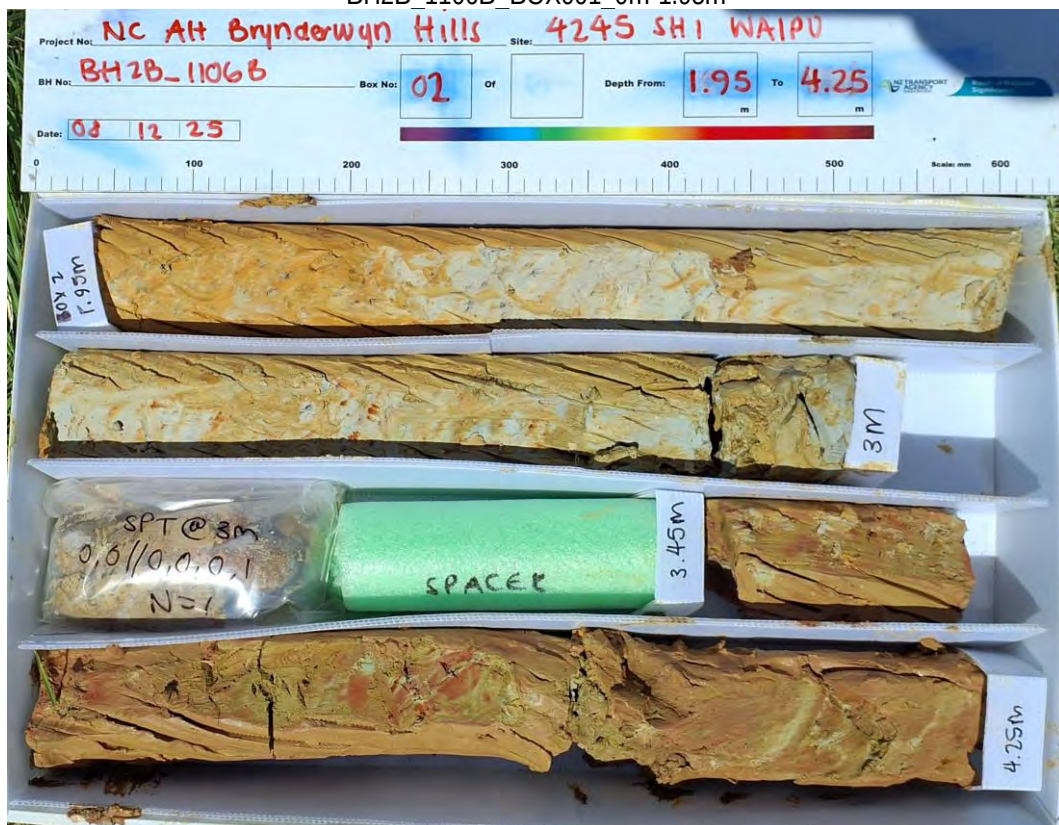
AP

Date Photographed:

10/04/2026



BH2B_1106B_BOX001 0m-1.95m



BH2B_1106B_BOX002 1.95m-4.25m

Borehole Reference:

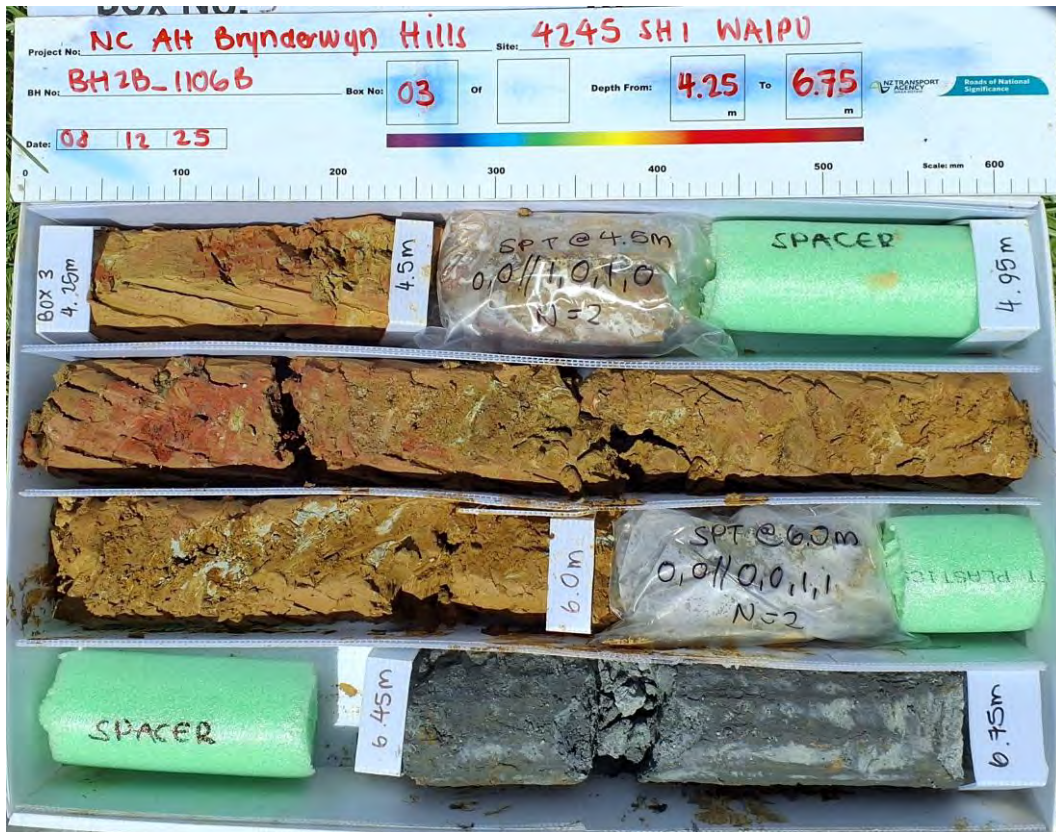
BH2B_1106B

Photographed By:

AP

Date Photographed:

10/04/2026



BH2B_1106B_BOX003_4.25m-6.75m



BH2B_1106B_BOX004_6.75m-7.59m

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 		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 4245 State Highway 1, Waipu, Zone 1 Project Reference: Aurecon WSP JV										BH2B_1107								
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010												Sheet 3 of 7								
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin / D&B 10 Contractor: McMillan (NI) Drilling				CO-ORDINATES: NZTM2000 Easting: 1727868.86 Northing: 6010051.18 Ground level: 105.031m (NZVD2016)				Date started: 08/10/2025 Date completed: 15/10/2025 Inclination: 90° Azimuth: N/A				Logged: B.Griffiths Input: B. Griffiths Reviewed: S. MacKay Verified: A.George								
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	CS	VCS	EC3	FRACUTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	89				16.00-16.03m: ...Slightly weathered, grey, fine GREYWACKE SANDSTONE. Weak. Recovered as angular medium to coarse gravel.			6	0	0									
	HQ3					16.60m: Slightly weathered, grey fine GREYWACKE SANDSTONE. Weak. Recovered as medium to coarse gravel, angular.			0	0	0								16.60-17.20m: CZ, 70°, Cobbles to fine gravel, angular to sub-angular (90%). Fine sandy silt matrix, low plasticity, firm. (10%)	
	HQ3					17.20-17.50m: ...CORE LOSS (300mm) Fines assumed washed away.			100	0	0									
	HQ3	88	17			17.70-18.00m: ...CORE LOSS (300mm) Fines assumed washed away.	SW		40	0	0								17.50-17.70m: CZ, 70°, Cobbles to fine gravel, angular to sub-angular.	
	HQ3								40	0	0									
	HQ3								90	0	0								18.25m: JT, 70°, Sm, Un, Cn	
7	HQ3				WPU	18.50-18.80m: JT, 80°, Sm, Pl, Sn Limonite														
	HQ3					18.90m: Unweathered, grey, fine to medium GREYWACKE SANDSTONE. Weak. Breccia is clast supported with rupture fracturing. Clasts are polymict, fine to coarse gravel, sub-angular, strong (90%). Matrix is sand and silt, firm (10%). Zeolite veining, 1-5mm thick, dipping between 10-80 degrees. Highly fractured, recovered as fine gravel to cobbles.			100	0	0							18.80-19.30m: CZ, 70°, Cobbles to fine gravel, angular to sub-angular (90%). Fine sandy silt matrix (10%)		
	HQ3					18.90m: ...Recovered intact as brecciated GREYWACKE SANDSTONE. Gravel clast supported with some silt infilling matrix.			86	16	0									
	HQ3																		19.50-20.45m: CZ, 90°, Cobbles to fine gravel, angular to sub-angular.	
	HQ3								100	0	0									
	HQ3								90	62	62									
8	HQ3					21.10-21.70m: CZ, 70°, Ro, Pl, Infill is clast supported, clasts are fine to coarse sandstone gravel clasts, sub-angular, strong with fine sand and silt, matrix. Top contact is 70 degrees and bottom contact is 70 degrees.			100	67	60									
	HQ3					21.40m: Unweathered, grey, GREYWACKE SANDSTONE. Weak. Clast supported, fine to coarse sandstone gravel, angular to sub-angular (95%). Matrix of silt with trace fine sand, low plasticity (5%). Extremely closely spaced, steeply dipping jointing.	UW		80	0	0									
	HQ3	83	22			22.00m: CORE LOSS (200mm) Fines assumed washed away.														
	HQ3					22.20m: Unweathered, grey, fine, GREYWACKE SANDSTONE. Moderately strong. Sandstone is variably brecciated with pervasive fracturing and veining infilled with zeolite mineralisation, closely to very closely spaced, dipping 10 - 80 degrees. 1-4mm thick, low tensile strength. Clasts are fine to coarse sandstone gravel, angular, strong (90%). Matrix of silt and trace fine sand, low plasticity (10%). Highly fractured with moderately thin sections of fragmentation.			100	0	0							22.70-23.30m: CZ, 70°, Medium to coarse gravels, angular.		
	HQ3					22.70-23.30m: ...Recovered as cobbles to fine to coarse gravels. Cobbles and gravels are angular.	UW		86	0	0									
	HQ3	82	23			23.30-23.40m: ...Core Loss (100mm) No Recovery													23.55m: JT, 70°, Sm, Un, Cg Zeolite?	
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 76.5mm and vertical accuracy +/- 101.5mm. 2. Two vibrating wire piezometers were installed on 15/10/2025. BH2B_1107_PZ01 was installed at 35m bgl, Serial No. 370782. BH2B_1107_PZ02 was installed at 10m bgl, Serial No. 378312. 3. Falling/rising head testing undertaken with data logger at borehole depth 50.0m on 14/10/2025. 4. RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.																		Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.																				

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000
Easting: 1727868.86
Northing: 6010051.18
Ground level: 105.031m (NZVD2016)

Date started: 08/10/2025
Date completed: 15/10/2025
Inclination: 90°
Azimuth: N/A

Logged: B. Griffiths
Input: B. Griffiths
Reviewed: S. MacKay
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
	HQ3	81												
	HQ3								90	32	32		24.50m: JT, 50°, Sm, Pl, Cg Zeolite	
	HQ3													
	HQ3								100	36	36		24.80m: JT, 50°, Sm, Pl, Cg Zeolite? 24.85m: JT, 20°, Sm, Pl, Cg Zeolite	
9	HQ3	80	25						100	100	100		25.30m: VE, 10°, Pl, 10mm, Zeolite?	
	HQ3													
	HQ3	79	26			26.20-27.15m: ...Recovered as cobbles to medium gravel, trace silt. Cobbles are angular.			100	20	20		26.10m: JT, 50°, Sm, Pl, Cg Zeolite	
	HQ3													
	HQ3	78	27			27.35-27.45m: ...Recovered as cobbles to medium gravel, trace silt. Cobbles are angular.			100	0	0			
	HQ3													
	HQ3	77	28			27.80-27.95m: ...Recovered as fine to coarse gravel, trace silt. Gravels are angular to sub-angular.	UW		100	45	28		27.80-27.95m: CZ, 60°, Medium to coarse gravels, angular. Sandy silt matrix, soft, low plasticity (90% washed away).	
10	HQ3				WPU				70	57	57			
	HQ3													
	HQ3	76	29						100	54	54			
	HQ3													
	HQ3								100	100	100			
	HQ3													
11	HQ3													
	HQ3								100	35	35		30.80-31.30m: CZ, 50°, Angular to subangular fine to coarse sandstone gravel. Matrix is sandy silt, low plasticity. 30.80m: CZ, 60°, Fine to coarse gravels, sub-angular. Silt with some matrix, soft, low plasticity (90% washed away)	
	HQ3	74	31			30.80-31.30m: ...Brecciated zone. Medium to fine gravel with some silty fine sand. Gravel is angular to sub-angular. Fabric dipping 70 degrees. Highly fractured to fragmented. [MOASAIC BRECCIA]								
	HQ3								95	95	95			
12	HQ3												31.75m: JT, 70°, Sm, Pl, Cn 31.85m: BPJT, 20°, Sm, Pl, Cn 31.88m: BPJT, 30°, Sm, Pl, Cn	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 76.5mm and vertical accuracy +/- 101.5mm.
- Two vibrating wire piezometers were installed on 15/10/2025. BH2B_1107_PZ01 was installed at 35m bgl, Serial No. 370782. BH2B_1107_PZ02 was installed at 10m bgl, Serial No. 378312.
- Falling/rising head testing undertaken with data logger at borehole depth 50.0m on 14/10/2025.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.

Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.

Water Level Readings:

Date Time Hole Depth Water Level

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000
Easting: 1727868.86
Northing: 6010051.18
Ground level: 105.031m (NZVD2016)

Date started: 08/10/2025
Date completed: 15/10/2025
Inclination: 90°
Azimuth: N/A

Logged: B. Griffiths
Input: B. Griffiths
Reviewed: S. MacKay
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	73				32.30m: ...Some disseminated pyrite on joint faces. 1-3mm thick.			100	26	0		32.05m: BPJT, 20°, Sm, Pl, Cn 32.10m: BPJT, 20° 32.20-32.45m: BPJT, 20°, Sm, Pl, Cn 32.25-32.55m: Jt set 3x. 45°, Pl, Sm, Cl 32.50m: VE, 20°, Pl, 10mm 32.60m: JT, 45°, Ro, Pl, Cn 32.75m: IS, 60°, Sm, Pl, Cn 32.80m: IS, 60°, Sm, Pl, Cn 32.90m: JT, 45°, Sm, Un, Cn 33.20m: JT, 50°, Sm, Pl, Cn 33.60-33.85m: ...Brecciated zone. Cobbles to fine gravel with minor silty fine sand. Gravel is angular to sub-angular. Fabric dipping 70 degrees. Highly fractured. [CRACKLE BRECCIA]	
13	HQ3	72	33					100	47	33				
	HQ3	71	34					100	20	16			34.10m: JT, 90°, Sm, Pl, Cn 34.20-35.52m: CZ, 80°, Cobbles to fine gravel, angular. 34.30-35.20m: CZ, 60°, Cobbles to fine gravel, minor silty sand. Cobbles are gravel is angular to sub-angular	
	HQ3	70	35					100	0	0				
	HQ3	69	36		WPU		UW	100	35	35			35.20m: JT, 70°, Ro, Un, Cn 35.80m: JT, 50°, Sm, Pl, Cn 35.95m: JT, 80°, Sm, Pl, Cn 36.28m: VE, 30°, Pl, 8mm thick 36.60m: JT, 30°, Sm, Pl, Cn 36.70m: JT, 45°, Sm, Un, Cn 36.85m: BPJT, 60°, Sm, Pl, Cn	
14	HQ3	68	37			36.80-38.30m: ...Brecciated zone. Cobbles to medium gravel, trace silt. Silt is soft, medium plasticity. Cobbles and gravels are sub-angular. Fabric dipping 50 degrees. Fractured. [CRACKLE BRECCIA]		100	25	25			37.20-38.53m: CZ, 70°, Cobbles to fine gravels, angular to sub-angular. Matrix of silty sand. (90% of matrix washed away) Slight green hue on clasts, chlorite?	
	HQ3	67	38					100	0	0				
	HQ3	66	39					100	28	28				
15	HQ3							100	0	0			39.80-40.20m: SZ, Two distinct joint sets. Set 1; 80°, Pl, Sm, Cn. Set 2; 80-90°, Pl, Sm, Cl.	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 76.5mm and vertical accuracy +/- 101.5mm.
- Two vibrating wire piezometers were installed on 15/10/2025. BH2B_1107_PZ01 was installed at 35m bgl, Serial No. 370782. BH2B_1107_PZ02 was installed at 10m bgl, Serial No. 378312.
- Falling/rising head testing undertaken with data logger at borehole depth 50.0m on 14/10/2025.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.

Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.

Water Level Readings:

Date/Time	Hole Depth	Water Level
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BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	08/10/2025	Logged:	B. Griffiths
Method:	Rotary Core Wireline	Easting:	1727868.86	Date completed:	15/10/2025	Input:	B. Griffiths
Equipment:	Hanjin / D&B 10	Northing:	6010051.18	Inclination:	90°	Reviewed:	S. MacKay
Contractor:	McMillan (NI) Drilling	Ground level:	105.031m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
15	HQ3	65												Incipinet fractures dipping 10-20° off main shear planes. Infill for both sets is clast supported, fine to coarse sandstone gravel clasts, sub-angular, strong with sand and silt.	
	HQ3					40.85-41.05m: ...Recovered as medium to coarse gravel, angular to sub-angular.			100	0	0			40.65-40.85m: CZ, 40°, Fine to coarse gravels, angular (90%). Matrix of silt, soft, moderate plasticity, moist. (10%).	
	HQ3	64	41						100	0	0			41.00-41.65m: CZ, 80°, Ro, Pl, Infill is clast supported, clasts are fine to coarse sandstone gravel, angular, strong with silt and minor sand matrix. Top contact is 90 degrees and bottom contact is 70 degrees.	
	HQ3								100	45	45			41.65-41.85m: CZ, 45°, Cobbles to medium gravel. Angular to sub-angular	
	HQ3	63	42						100	31	31			42.10m: JT, 60°, Ro, Un, Vn Limonite	
16	HQ3					42.50-44.05m: ...Brecciated zone. Fine to coarse gravel with some silt with minor sand. Matrix is soft, medium plasticity. Gravel is sub-angular. Fabric dipping 80 degrees. Fractured. [CRACKLE BRECCIA]			100	0	0			42.50-43.60m: SZ, 80°, Slk, Pl, Infill is clast supported, clasts are fine to coarse sandstone gravel and cobbles clasts, sub-angular, strong with fine sand and silt, matrix. Top contact is 20 degrees and bottom contact is 70 degrees.	
	HQ3	62	43						100	0	0				
	HQ3								100	0	0			43.60-45.90m: CZ, 40°, Fine to coarse gravels, angular (80%). Silt matrix, low plasticity. (10%). Majority of matrix washed away.	
	HQ3	61	44						100	0	0				
	HQ3								100	0	0				
17	HQ3					45.30-46.80m: ...Brecciated zone. Fine to coarse gravel with trace sandy silt. Matrix is soft, low plasticity. Gravel is sub-angular. Highly fractured. Fabric dipping 30 degrees. [CRACKLE BRECCIA]			100	0	0			46.05-46.50m: BPJT, 20°, Sm, Pl, Cn	
	HQ3	59	46						100	0	0				
	HQ3								92	15	15			46.65-46.96m: CZ, 70°, Fine to coarse gravels, angular. (90%) Matrix of silt with trace sand, low plasticity (10%).	
18	HQ3					46.80-46.96m: ...Brecciated zone. Fine to medium gravel with minor silt. Gravel is sub-angular. Fabric dipping 40 degrees. Fragmented. [CRACKLE BRECCIA]			92	0	0			47.25-47.45m: DB	
	HQ3	58	47						92	0	0			47.55-47.65m: CZ, 70°, Fine to coarse gravels, angular (90%). Matrix of silt with trace sand, low plasticity (10%)	

Remarks:		Water Level Readings:	
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 76.5mm and vertical accuracy +/- 101.5mm.		Date/Time	Hole Depth
2. Two vibrating wire piezometers were installed on 15/10/2025. BH2B_1107_PZ01 was installed at 35m bgl, Serial No. 370782. BH2B_1107_PZ02 was installed at 10m bgl, Serial No. 378312.			Water Level
3. Falling/rising head testing undertaken with data logger at borehole depth 50.0m on 14/10/2025.			
4. RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.			
Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.			

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES:	NZTM2000
Easting:	1727868.86
Northing:	6010051.18
Ground level:	105.031m (NZVD2016)

Date started:	08/10/2025
Date completed:	15/10/2025
Inclination:	90°
Azimuth:	N/A

Logged:	B.Griffiths
Input:	B. Griffiths
Reviewed:	S. MacKay
Verified:	A.George

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 76.5mm and vertical accuracy +/- 101.5mm.
2. Two vibrating wire piezometers were installed on 15/10/2025. BH2B_1107_PZ01 was installed at 35m bgl, Serial No. 370782. BH2B_1107_PZ02 was installed at 10m bgl, Serial No. 378312.
3. Falling/rising head testing undertaken with data logger at borehole depth 50.0m on 14/10/2025.
4. RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.

Shear Vane (IBHSV + ISHSV) Serial No. 3352, calibration constant 1.75.

DateTime	Hole Depth	Water Level
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Case Name	Case Description	Case Status

Borehole Reference:

BH2B_1107

Photographed By:

BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX001_0m-3.2m



BH2B_1107_BOX002_3.2m-6.5m

Borehole Reference: BH2B_1107

Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX003_6.5m-10.1m



BH2B_1107_BOX004_10.1m-12.93m

Borehole Reference: BH2B_1107

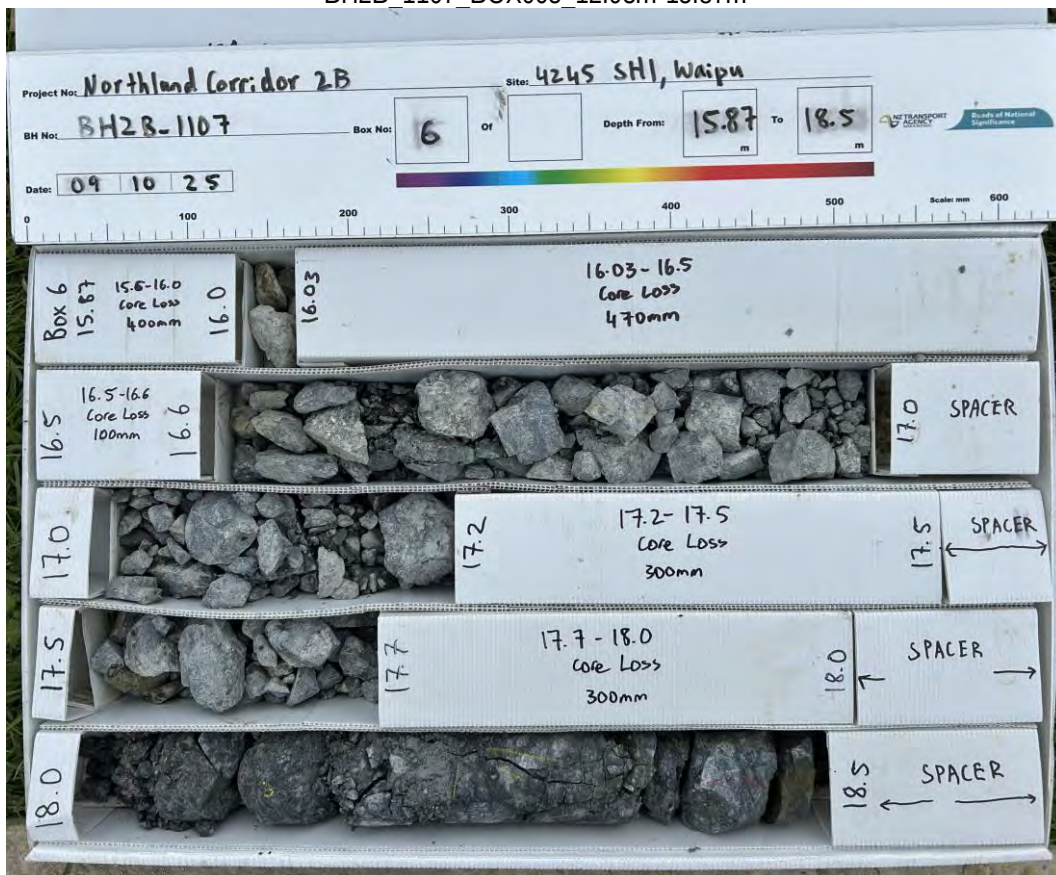
Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX005_12.93m-15.87m



BH2B_1107_BOX006_15.87m-18.5m

Borehole Reference: BH2B_1107

Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX007_18.5m-21.4m



BH2B_1107_BOX008_21.4m-24.03m

Borehole Reference:

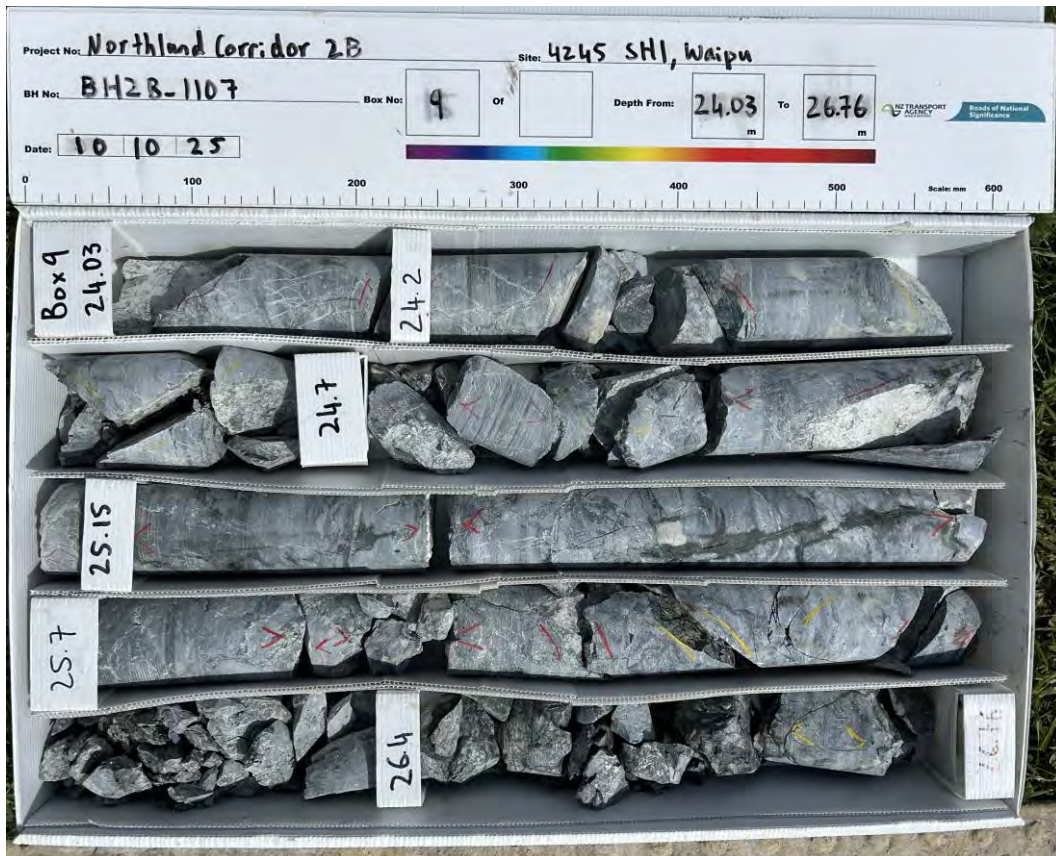
BH2B_1107

Photographed By:

BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX009_24.03m-26.76m



BH2B_1107_BOX010_26.76m-29.25m

Borehole Reference:

BH2B_1107

Photographed By:

BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX011_29.25m-31.7m

Borehole Reference:

BH2B_1107

Photographed By:

BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX012_31.7m-34.2m



BH2B_1107_BOX013_34.2m-36.8m

Borehole Reference:

BH2B_1107

Photographed By:

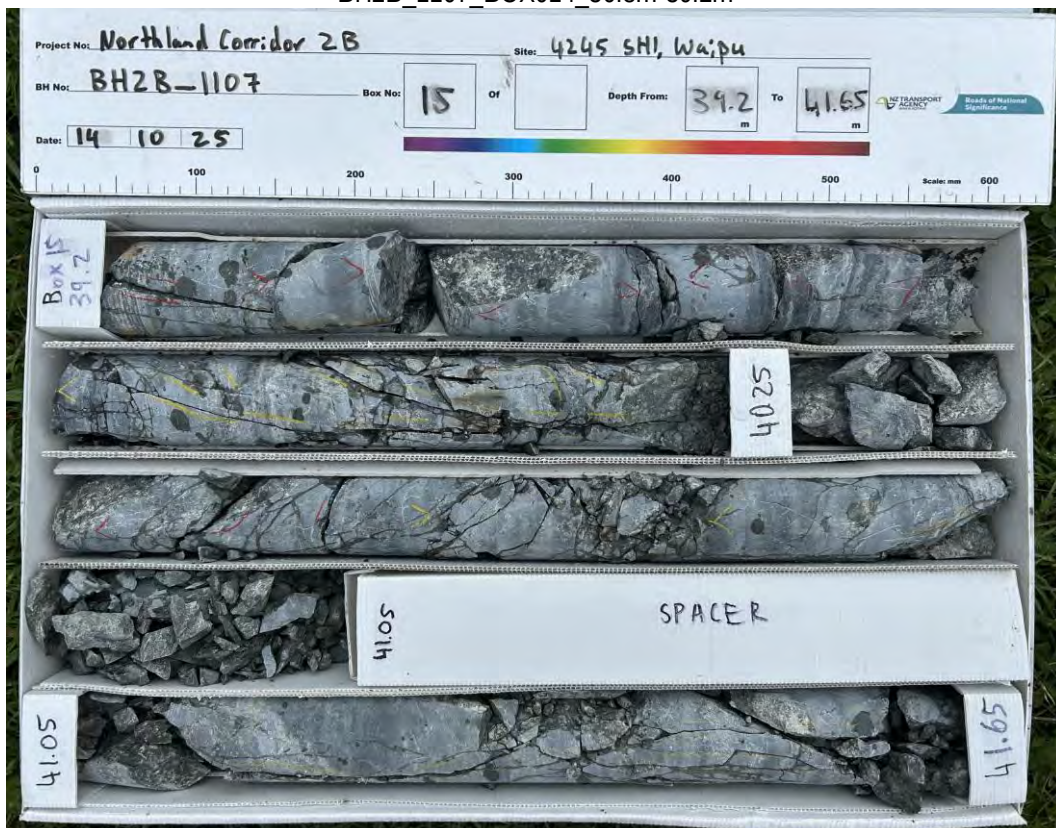
BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX014_36.8m-39.2m



BH2B_1107_BOX015_39.2m-41.65m

Borehole Reference: BH2B_1107

Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX016_41.65m-44.2m



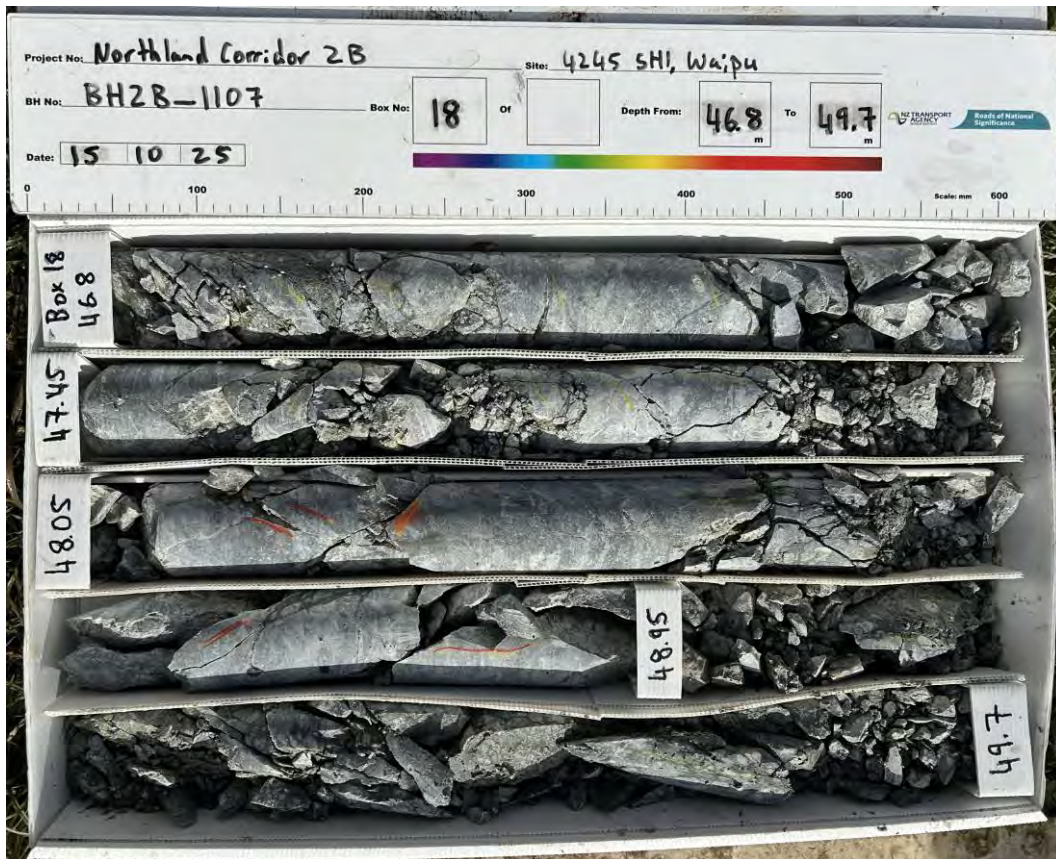
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Borehole Reference: BH2B_1107

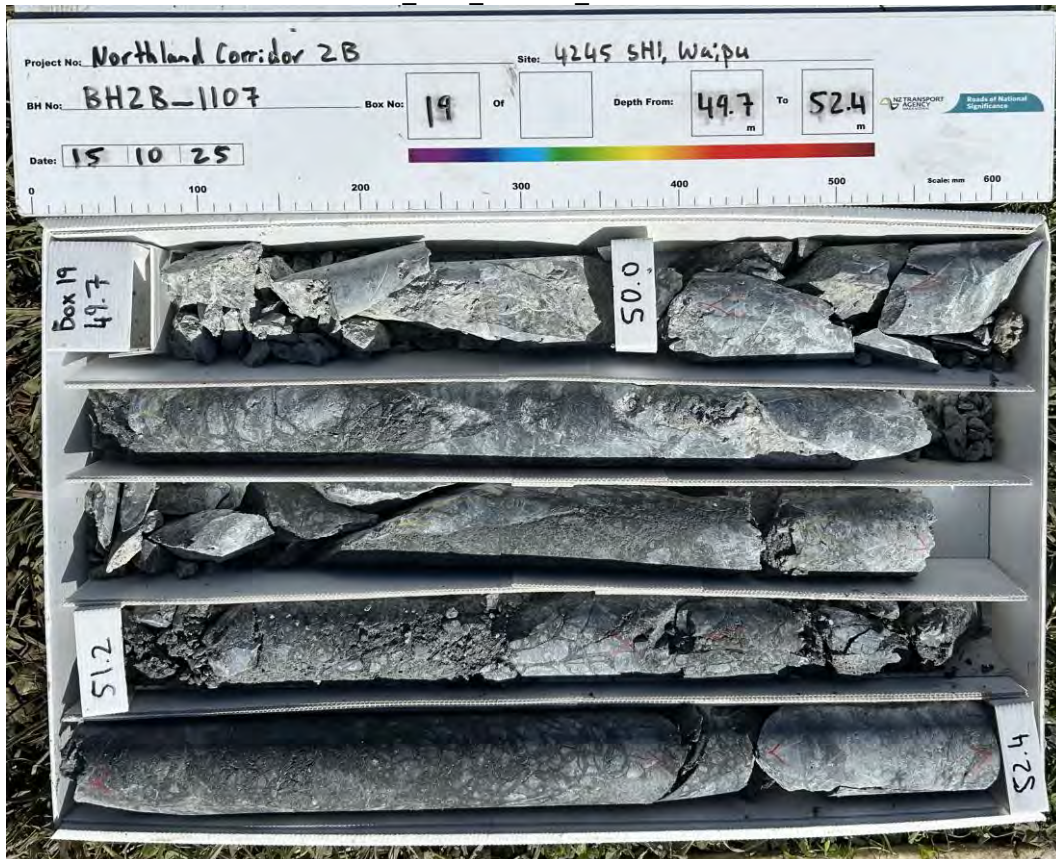
Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX018_46.8m-49.7m



BH2B_1107_BOX019_49.7m-52.4m

Borehole Reference: BH2B_1107

Photographed By: BTG

Date Photographed:

07/10/2025-15/10/2025



BH2B_1107_BOX020_52.4m-54.1m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	17/10/2025	Logged:	B. Griffiths
Method:	Rotary Core Wireline	Easting:	1727937.59	Date completed:	22/10/2025	Input:	B.Griffiths
Equipment:	Hanjin / D&B 10	Northing:	6010675.57	Inclination:	90°	Reviewed:	F. Monteith
Contractor:	McMillan (NI) Drilling	Ground level:	52.145m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
1	HA		52		TS	0.00m: SILT with some clay and rootlets, brown; Very stiff, moist, high plasticity. Rootlets are 1-10mm long. [TOPSOIL]							0.00-40.00m: Water Return - 90-100%			
					QC	0.40m: SILT with some clay, trace rootlets; brown with brownish orange mottling. Very stiff, moist, high plasticity. Rootlets are 3-8mm long. [COLLUVIUM (UNDIFFERENTIATED)]	0.5m: ISHSV 161/109 kPa	100								
						0.60m: Silty CLAY, trace rootlets; light brown with brownish orange streaking. Very stiff, moist, high plasticity. Rootlets are 3-8mm long.	1m: ISHSV 158/91 kPa	100								
						1.20m: CLAY with some silt, trace rootlets; light greyish brown. Very stiff, moist, high plasticity. Rootlets are 3-8mm long.	1.5m: ISHSV 158/88 kPa 1.5m: SPT 0, 1// 1, 2, 2, 2 N = 7	100								
	HQ3		50			2.15m: CORE LOSS (850mm) Fines washed away.			19							
					QC	3.00m: PUSH TUBE (200mm Recovery)	U: 3.00 m	40								
	SPT		49			QC	3.50m: CLAY with some silt; light brown. Firm, moist, high plasticity.	3.5m: SPT 0, 0// 1, 1, 2, 3 N = 7	84							
					3.95m: IBHSV UTP											
	2	HQ3		48		WPM	4.10m: Moderately weathered, grey, very thin, GREYWACKE SANDSTONE. Moderately strong. Bedding dips 5-15 degrees. Dark orange staining on joint faces (Iron oxide staining?) [MODERATELY WEATHERED GREYWACKE]	MW	4.5m: SPTC 9, 10// 50 for 25mm N = 50+	100	0	0				4.10-40.00m: HCl: Nil
								4.70m: Slightly Weathered, grey, laminated to very thin, GREYWACKE SANDSTONE. Weak to moderately strong, moderately fractured, closely spaced, planar to undulating, smooth to rough joints. Indistinct bedding dips 5-15 degrees. Extremely closely spaced incipient fractures infilled with white mineral (quartz and possible zeolite), dipping 10-80 degrees. Drilling breaks parallel to bedding planes and mineralized zones. [SLIGHTLY WEATHERED GREYWACKE]		99	44	35				
SPT			47		WPU	5.00m: ...Light green staining on clasts. Chlorite?		100	73	55		5.84m: CZ, 5°, Fine to coarse gravels, angular. Silt matrix, low plasticity. (90% washed away)				
						6.07-6.17m: ...Recovered as medium to fine gravels, angular. 6.10m: ...Disseminated pyrite, coating most joint faces and incipient joints.	6m: SPTC 50 for 70mm// N = 50+	0				6.17-6.80m: BPJT, 5°, Sm, Pl, Cn 12x 6.25m: VE, 5°, Pl, Quartz, 30mm thick				
HQ3			46		WPU		SW	100	14	14						
3	SPT		45		WPU			100	79	79						
	HQ3							7.5m: SPTC 50 for 55mm// N = 50+								

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37.5mm and vertical accuracy +/- 65mm.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-10-17 12:40	10.70m	1.60mbgl
2025-10-20 08:30	10.70m	2.50mbgl
2025-10-20 16:50	23.20m	0.00mbgl
2025-10-21 07:30	23.20m	1.80mbgl
2025-10-21 16:57	40.00m	0.00mbgl
2025-10-22 08:30	40.00m	1.40mbgl

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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000
Easting: 1727937.59
Northing: 6010675.57
Ground level: 52.145m (NZVD2016)

Date started: 17/10/2025
Date completed: 22/10/2025
Inclination: 90°
Azimuth: N/A

Logged: B. Griffiths
Input: B. Griffiths
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	-20			WPU				95	73	73							32.45m: JT, 45°, Sm, Pl, Cn	
	HQ3		33						100	67	67							32.75-33.20m: DB	
	HQ3	-19																33.20-37.50m: DB	
	HQ3								100	56	33							33.40m: JT, 70°, Sm, Pl, Cn	
	HQ3	-18																33.90m: 60°, Sm, Un, Cn	
	HQ3								100	47	33							34.10m: JT, 20°, Sm, Pl, Cn	
13	HQ3	-17			WPFZ	34.90m: Slightly weathered, grey, brecciated GREYWACKE SANDSTONE. Extremely weak, extremely closely spaced joints. Rubble float breccia, internal fabric dipping 60 degrees. Matrix of silty fine sand (60%). Clasts of sub-angular greywacke sandstone, 2-60mm (40%). Crumbles on handling. [GREYWACKE FAULT ZONE] 35.20-35.20m: ...Core Loss (100mm) Fine assumed washed away.			83	0	0								
	HQ3								100	20	20								
	HQ3	-16				36.08-36.20m: ...Core Loss (120mm) Fines assumed washed away.			70	0	0								
	HQ3																		
	HQ3	-15				36.73m: CORE LOSS (770mm) Fines assumed washed away. Likely brecciated zone.			41	0	0								
14	HQ3	-14			WPU	37.50m: Slightly Weathered, grey, GREYWACKE SANDSTONE. Weak to moderately strong, high fractured, extremely closely spaced to closely spaced, undulating to planar, smooth to rough joints. Indistinct bedding dips 5-15 degrees, laminated to very thin. Extremely closely spaced incipient fractures infilled with white mineral (quartz and possible zeolite), dipping 10-80 degrees, low tensile strength. Drilling breaks parallel to bedding planes and mineralized zones. Recovered as cobbles to fine gravels, angular to sub-angular. [SLIGHTLY WEATHERED GREYWACKE]			91	0	0							37.50-37.64m: CZ, 50°, Ro, Un, Cobbles to fine gravels, sub-angular. Silt matrix, low plasticity. 37.74-38.05m: DB	
	HQ3								95	0	0							38.25m: JT, 45°, Ro, Un, Cn	
	HQ3	-13							100	18	18							38.60m: JT, 45°, Sm, Pl, Cn 38.75m: JT, 80°, Ro, Un, Cn 38.92m: JT, 80°, Ro, Un, Vn Silt	
15	HQ3								100	50	50							39.25m: JT, 30°, Sm, Pl, Cn 39.38m: JT, 36°, Sm, Pl, Cn 39.55-40.00m: DB	

Remarks:

1. Terminated at 40.00 m. Target depth.
2. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 37.5mm and vertical accuracy +/- 65mm.
3. One vibrating wire piezometer was installed on 22/10/2025. BH2B_1108_PZ01 was installed at 26.70m bgl. Serial No. 378257.
4. RQD was calculated excluding incipient fractures, based on an assessment of the likely intact condition of the in-situ rockmass at depth.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-10-17 12:40	10.70m	1.60mbgl
2025-10-20 08:30	10.70m	2.50mbgl
2025-10-20 16:50	23.20m	0.00mbgl
2025-10-21 07:30	23.20m	1.80mbgl
2025-10-21 16:57	40.00m	0.00mbgl
2025-10-22 08:30	40.00m	1.40mbgl

Borehole Reference:

BH2B_1108

Photographed By:

BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX001_0m-3.29m



BH2B_1108_BOX002_3.29m-6.17m

Borehole Reference:

BH2B_1108

Photographed By:

BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX003_6.17m-8.65m



BH2B_1108_BOX004_8.65m-11.3m

Borehole Reference:

BH2B_1108

Photographed By:

BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX005_11.3m-14.1m



BH2B_1108_BOX006_14.1m-16.8m

Borehole Reference: BH2B_1108

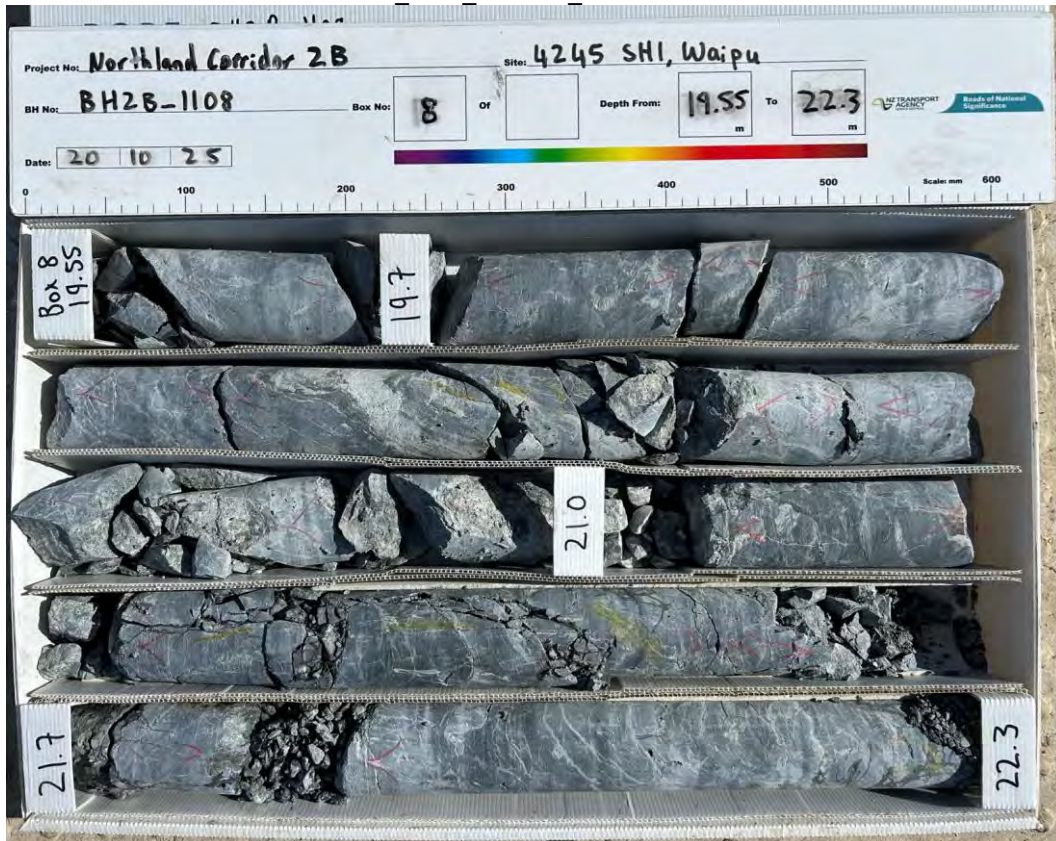
Photographed By: BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX007_16.8m-19.55m



BH2B_1108_BOX008_19.55m-22.3m

Borehole Reference:

BH2B_1108

Photographed By:

BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX009_22.3m-25.2m



BH2B_1108_BOX010_25.2m-28.1m

Borehole Reference: BH2B_1108

Photographed By: BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX011_28.1m-30.85m



BH2B_1108_BOX012_30.85m-33.7m

Borehole Reference:

BH2B_1108

Photographed By:

BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B 1108_BOX013 33.7m-36.73m



BH2B_1108_BOX014_36.73m-39.5m

Borehole Reference: BH2B_1108

Photographed By: BTG

Date Photographed:

16/10/2025-28/10/2025



BH2B_1108_BOX015_39.5m-40m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 15/09/2025	Logged: J. Despojo
Method: Rotary Core Wireline		Easting: 1727411.78mE,		Date Completed: 19/09/2025	Input: J. Despojo
Equipment: Coretech YDX1800		Northing: 6007750.50mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 264.06m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	264			RS	Silty CLAY with some organics; brownish orange. Dry; friable; organics, plants and rootlets. [TOPSOIL].	RS						0.30m - 1.50m: Highly disturbed by hand auger.	
						Silty CLAY; orange. Stiff; dry. [RESIDUALLY WEATHERED GREYWACKE].		0.5m SV FIELD SV 90/21kPa	100	-	-			
		263	1			SILT with minor clay; orange mottled reddish orange, white and brown. Stiff; moist; extremely closely spaced relict joints, manganese coating up to 5mm thick; soft white infill- possible zeolite, up to 10mm thick. [COMPLETELY WEATHERED GREYWACKE].		1m SV FIELD SV 121/14kPa						
						1.00m: Very stiff.		1.5m SV FIELD SV 100/28kPa	100	-	-			
		262	2					1.5m SPT 1, 0/0, 1, 0, 1 N= 2						
									81	-	-			
		261	3					3m SPT 1, 0/0, 1, 2, 2 N= 5	100	-	-			
									100	-	-			
		260	4					4.5m SPT 1, 2/3, 2, 2, 3 N= 10	93	-	-			
									100	-	-			
2	HQ3	259	5					6m SPT 2, 3/4, 5, 6, 6 N= 21	100	-	-		1.95m - 2.15m: 200mm of recovered/disturbed core misinterpreted as SPT overdrill. Portion removed, not core loss.	
									100	-	-			
		258	6						100	-	-			
									100	-	-			
		257	7						100	-	-			
									100	-	-			
									100	-	-			
									100	-	-			
									100	-	-			
									100	-	-			
3	SPT				WPH	6.55m - 6.75m: Mottled light whitish orange.		7.5m SPT 2, 4/5, 6, 8, 11 N= 30	100	-	-			
4	SPT				WPH	Highly weathered, brownish orange, mottled light brown and greyish white, fine GREYWACKE SILTSTONE; very weak; crumbles upon handling; extremely closely spaced to closely spaced incipient	HW							

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.
- Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.
- Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiwer.
- One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.
- Shear Vane Serial No. 3453, calibration constant 1.47.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.
- Breccia classification after Morrow (1982).

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Coretech YDX1800
Contractor: Drill Force NZ Ltd

CO-ORDINATES:

NZTM2000
Easting: 1727411.78mE,
Northing: 6007750.50mN,
Ground level: 264.06m (NZVD2016)

Date Started: 15/09/2025
Date Completed: 19/09/2025
Inclination: 90
Azimuth: N/A

Logged: J. Despojo
Input: J. Despojo
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL		
3	HQ3	256	9		WPH	joints, weak tensile strength; incipient joint surfaces stained with manganese and iron oxide, penetrating up to 10mm into the intact rock. Breaks down to a Gravelly SILT with minor sand; gravel, fine to coarse, sub-angular, can be crushed with finger pressure. [HIGHLY WEATHERED GREYWACKE]. 8.05m - 8.15m: Light greenish white. Possible weathered vein, or bleached zone. 8.60m - 8.85m: Light greenish white. Possible weathered vein, or bleached zone.	HW	9m SPT 4, 5//7, 10, 10, 11 N= 38	100	100	0	WS MS VS CS ES	8.05m - 8.15m: No HCl reaction.			
	HQ3										100		100		0	8.60m - 8.85m: No HCl reaction.
	SPT	255									100		-		-	
4	HQ3	254	10		WPH	9.95-10.50m CORE LOSS (550mm). Inferred wash out of very weak, highly weathered greywacke.		10.5m SPT 3, 5//7, 7, 10, 12 N= 36	48	48	0	WS MS VS CS ES				
	SPT									100	-		-			
	HQ3	253	11								100		100		0	
5	HQ3				WPH	11.65m - 12.00m: Light greenish grey with white veins. Possible bleached/alterd zone.	HW	12m SPT 5, 11//14, 18, 18 for 70mm N = 50+	100	100	0	WS MS VS CS ES				
	SPT	252	12								100		-		-	
	HQ3	251	13							12.55m - 12.95m: Light greenish grey with white veins. Possible bleached/alterd zone.	100		100		0	
6	HQ3				WPH	13.30m - 13.50m: Light greenish grey with white veins. Possible bleached/alterd zone.	HW	13.5m SPT 3, 5//10, 14, 16, 10 for 50mm N = 50+	100	100	0	WS MS VS CS ES				
	SC	250	14								0		-		-	
	HQ3	249	15							14.05m - 14.45m: Light greenish grey with white veins. Possible bleached/alterd zone.	100		100		0	
6	HQ3				WPH		HW	15m SPT 2, 3//5, 7, 10, 10 N= 32	100	100	0	WS MS VS CS ES	16.00-16.50m: JT, 10°-30°, RG , UN , x6, closely to very closely spaced open JTs, FeO and MnO			
	SC									0	-		-			
	HQ3															

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.
- Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.
- Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiewer.
- One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.
- Shear Vane Serial No. 3453, calibration constant 1.47.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.
- Breccia classification after Morrow (1982).

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
15/09/2025 5:00:00 pm	12.37	2.90
16/09/2025 7:15:00 am	12.37	3.31

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 15/09/2025	Logged: J. Despojo
Method: Rotary Core Wireline		Easting: 1727411.78mE,	Date Completed: 19/09/2025	Input: J. Despojo
Equipment: Coretech YDX1800		Northing: 6007750.50mN,	Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 264.06m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3	248				Moderately weathered, light greenish grey and brownish orange, GREYWACKE SILTSTONE; weak to moderately strong; possible bleached or altered zone throughout; extremely closely spaced incipient joints, weak to moderately strong tensile strength; closely to very closely spaced open joints, typically rough; joint surfaces stained with manganese and iron oxide, penetrating up to 15mm into the intact rock; inferred ground water ingress along joints; closely to very closely spaced veins, 1-5mm aperture, white infill- possible zeolite? Breaks down to a Silty fine to coarse GRAVEL; sub-angular to angular. [MODERATELY WEATHERED GREYWACKE].		16.5m SPT 6, 15/36, 14 for 20mm N = 50+	100	100	40	VCS	stained, some tight, some further opened up by drilling, inferred ground water ingress, up to 40 mm discoloured to a brownish orange	
	SC				0				-	-	CS	16.75-18.00m: JT, 10°-30°, RG, UN, x18, closely to very closely spaced open JTs, FeO and MnO stained, some tight and some inferred further opened up by drilling, inferred ground water ingress, up to 100mm discoloured to a brownish orange		
	HQ3	247	17						100	100	32			
	HQ3								100	100	20	CS		
7	SC	246	18			16.10m - 24.95m: Incipient joints, inclined up to 85°.		18m SPT 9, 26/26, 24 for 65mm N = 50+	0	-	-	CS	18.65-18.75m: VN, 40°, UN, 100mm possible weathered zeolite? very closely spaced incipient joints throughout, MnO stained	
	HQ3								100	100	14	VCS		
	HQ3	245	19						100	100	24	CS	19.40m: No HCl reaction.	
	SC								0	-	-	VCS		
8	HQ3	244	20			20.20m - 20.45m: Highly weathered; very weak.	MW	19.5m SPT 7, 17/32, 18 for 35mm N = 50+	100	100	8	CS	20.35m - 20.40m: No HCl reaction. 20.35-20.40m: VN, possible quartz crystals, up to 4 mm in size, no HCl reaction 20.40m: JT, 40°, UN, tight, stained Fe and MnO 20.45-23.42m: JT, 10°-30°, RG, UN, x38, closely to very closely spaced JTs, some tight and some inferred further opened up by drilling, FeO and MnO stained, inferred ground water ingress, up to 130mm discoloured to a brownish orange	
	HQ3								100	100	13	VCS		
	HQ3	243	21						100	100	10	CS	23.45m: JT, 50°, RG, PL, 3mm sandy silt, FeO and MnO stained 23.55-25.20m: JT, 10°-30°, RG, UN, x28, very closely spaced to moderately widely spaced open JTs, FeO and MnO stained, some tight and some inferred opened up by drilling, inferred ground water ingress, up to 80mm discoloured to a brownish orange	
	HQ3	242	22						100	100	10	VCS		
9	HQ3	241	23						100	100	10	VCS		

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.
- Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.
- Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiwer.
- One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.
- Shear Vane Serial No. 3453, calibration constant 1.47.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.
- Breccia classification after Morrow (1982).

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
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BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 15/09/2025	Logged: J. Despojo
Method: Rotary Core Wireline		Easting: 1727411.78mE,		Date Completed: 19/09/2025	Input: J. Despojo
Equipment: Coretech YDX1800		Northing: 6007750.50mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 264.06m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3	240				[CONT] Moderately weathered, light greenish grey and light brownish orange, GREYWACKE SILTSTONE; weak to moderately strong. 24.30m - 20.45m: Highly weathered; weak to very weak; partly washed out by drilling.			100	100	20	VCS	24.00m - 28.50m: 10% water/mud loss while drilling.	
		239	25			Moderately weathered, brownish grey, fine GREYWACKE SANDSTONE; moderately strong; extremely closely spaced incipient joints, moderately strong to strong tensile strength; closely to very closely spaced open joints, typically rough, and iron oxide and manganese stained; inferred ground water ingress along joints; extremely closely spaced veins or veinlets, 0.50-5mm aperture, white to brownish orange infill- possible zeolite?.	MW					CS VCS CS VCS CS	25.26m: JT, 60°, SL, PL, 5-10mm silty fine to coarse sand, FeO and MnO stained 25.32-26.40m: JT, 10°-30°, RG, UN, x14, closely to very closely spaced open JTs, FeO and MnO stained, some inferred further opened by drilling, inferred ground water ingress up to 150mm discoloured to a brownish orange	
	HQ3	238	26						100	100	94	VCS	26.40-27.02m: JT, 30°-70°, UN, x12, closely to very closely spaced JTs, FeO and MnO stained, inferred ground water ingress, up to 100mm discoloured to a brownish orange	
10		237	27			Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong; extremely closely spaced incipient joints, moderately strong to strong tensile strength; moderately widely spaced to very closely open joints, typically rough and iron oxide stained; inferred groundwater ingress along some joints; very to extremely closely spaced veins or veinlets, 0.50-10mm aperture, white infill- possible zeolite? [SLIGHTLY WEATHERED GREYWACKE].			100	100	63	CS CS VCS CS VCS CS	27.12-27.40m: JT, 20°-30°, RG, PL, x2, 100-120mm spaced, FeO and MnO stained 27.43m: JT, 30°, RG, UN, FeO stained 27.60-27.97m: JT, 10°-30°, RG, UN, some 1-2 mm FeO, x4, 50-180mm spaced	
	HQ3	236	28									MWS CS VCS CS	28.20-28.30m: JT, 30°, RG, UN, x3, 30mm spaced, FeO stained, inferred GW ingress, up to 15mm discoloured to a greyish brown 28.40m: JT, 10°, UN, FeO stained, tight	
		235	29						100	100	94	MWS CS MWS CS	28.70m: JT, 45°, RG, PL, 1mm FeO 28.94m: JT, 60°, RG, PL, 1mm FeO 29.15m: JT, 30°, RG, UN, FeO and MnO stained, inferred GW ingress, 40mm discoloured to a greyish orange 29.25m: JT, 10°, RG, UN, 2mm FeO 29.46m: JT, 40°, RG, PL, 1mm FeO 29.55-29.65m: JT, 40°, RG, UN, x2, 100mm spaced, inferred GW ingress, 60mm discoloured to orange and crumbles with finger pressure	
	HQ3	234	30									MWS CS VCS MWS CS	30.05m: JT, 10°, RG, PL, coated FeO 30.25m: JT, 20°, UN, FeO stained, tight 30.45-30.63m: JT, 30°, UN, x4, 30-60mm spaced, FeO stained, tight	
		233	31						100	100	83	MWS CS MWS CS	30.68m: JT, 40°, RG, UN, 1mm FeO 30.75m: JT, 30°, RG, UN, coated FeO 31.00m: JT, 40°, RG, UN, 1mm FeO 31.08m: JT, 30°, FeO stained 31.35m: JT, 70°, RG, UN, FeO stained 31.45m: JT, 80°, RG, UN, FeO stained	
12	HQ3								100	100	100	VWS	31.50m - 33.00m: 10-20% water/mud loss while drilling.	

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.		16/09/2025 5:30:00 pm	28.50	1.20
3. Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiwer.		17/09/2025 8:00:00 am	28.50	7.10
4. One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.				
5. Shear Vane Serial No. 3453, calibration constant 1.47.				
6. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.				
7. Breccia classification after Morrow (1982).				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 15/09/2025	Logged: J. Despojo
Method: Rotary Core Wireline		Easting: 1727411.78mE,		Date Completed: 19/09/2025	Input: J. Despojo
Equipment: Coretech YDX1800		Northing: 6007750.50mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 264.06m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
12	HQ3	232				[CONT] Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong.			100	100	100		32.10m: DB, 65°, RG, UN, clean, inferred incipient JT opened up by drilling	
		231	33		WPU		SW							
	HQ3	230	34			33.70m: Veins or veinlets, increasing in aperture, up to 20mm.			100	100	80		34.10m: JT, 70°, RG, PL, FeO stained	
13		229	35		WPFZ	Unweathered, light blueish grey with greenish grey, GREYWACKE FAULT BRECCIA; weak to very weak, crumbles upon handling; indistinct sheared fabric at 40-70°; mosaic packbreccia, 2-20mm clasts, sub-angular; sandy silt matrix, 0.50-1mm thick or silty clay matrix 0.50-5mm thick, high plasticity; extremely closely spaced veins or veinlets, 0.50-30mm aperture, white infill- possible zeolite? [GREYWACKE FAULT ZONE].			100	100	8		34.35m: Fault Breccia plane, inclined 70°.	
	HQ3	228	36			Unweathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong; extremely closely spaced to very closely spaced incipient joints, moderately strong to strong tensile strength; very to extremely closely spaced veins or veinlets, 0.50-3mm aperture, white infill- possible zeolite? [UNWEATHERED GREYWACKE].							35.32m: Fault Breccia plane, inclined 40°.	
		227	37		WPU	36.15m - 37.20m: Veins or veinlets, increasing in aperture, up to 30mm.							35.45m - 44.55m: Logged JTs, possibly incipient JTs opened up by drilling.	
14		226	38		WPFZ	Unweathered, light blueish grey with greenish grey, GREYWACKE FAULT BRECCIA; weak to moderately strong, some zones disintegrate upon handling; sheared fabric at 40-70°; mosaic packbreccia, 2-40mm clasts, sub-angular; sandy silt matrix 0.50-1mm thick; extremely closely spaced incipient joints, weak to moderately strong tensile strength; very to extremely closely spaced veins or veinlets, 0.50-10mm aperture, white infill- possible zeolite? [GREYWACKE FAULT ZONE].							35.40-35.65m: JT, 20°-45°, RG, PL, x5, 20-120 mm spaced	
	HQ3	225	39			38.10m - 38.25m: Very weak; clayey silt matrix, up to 2mm thick, disintegrates upon handling.			100	96	63		35.65-36.00m: JT, 40°-70°, RG, PL, x6, 20-80 mm spaced	
						38.40m - 38.55m: Fine GREYWACKE SANDSTONE; moderately strong.							36.05m: JT, 70°, RG, UN	
15						39.45m - 39.65m: Very weak; clayey silt matrix, 0.50-2mm thick, disintegrates upon handling.	UW						36.40m: VN, 40°, UN, 10-30mm possible zeolite?	
	HQ3												36.52-36.75m: JT, 50°, RG, PL, 1-2mm silt and clean, x2, 130mm spaced	
													37.15m: No HCl reaction.	
													37.15m: VN, 65°, PL, 5-30mm possible zeolite?, x2, 30mm spaced	
													37.30m: JT, 75°-85°, RG, UN, coated silt	
													37.40m: CZ, fine to medium gravel, angular. Further crushed by handling	
													37.50m - 38.10m: Inferred re-mineralised. Generally stays intact upon handling despite brecciated fabric.	
													37.50m - 40.00m: 10% water/mud loss while drilling.	
													37.75-38.05m: JT, 60°, RG, PL, x3, 120-200mm spaced	
													38.25m - 39.45m: Inferred re-mineralised. Generally stays intact upon handling despite brecciated fabric.	
													38.60m: JT, 70°, RG, PL, and SL, x2, 50mm spaced, intersecting.	
													38.60m - 44.55m: JT surfaces slickensided (SL) or mineral lineation?	
													39.35m: JT, 70°, SL, UN	
													39.65m - 39.85m: Inferred re-mineralised. Generally stays intact upon handling despite brecciated fabric.	

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.		Date/Time	Hole Depth (m)	Water Level (m)
2. Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.		17/09/2025 5:30:00 pm	37.50	1.21
3. Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiewer.		18/09/2025 7:30:00 am	37.50	10.72
4. One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.				
5. Shear Vane Serial No. 3453, calibration constant 1.47.				
6. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.				
7. Breccia classification after Morrow (1982).				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 15/09/2025	Logged: J. Despojo
Method: Rotary Core Wireline		Easting: 1727411.78mE,		Date Completed: 19/09/2025	Input: J. Despojo
Equipment: Coretech YDX1800		Northing: 6007750.50mN,		Inclination: 90	Reviewed: F. Monteith
Contractor: Drill Force NZ Ltd		Ground level: 264.06m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
15	HQ3	224				[CONT] Unweathered, light blueish grey with greenish grey, GREYWACKE FAULT BRECCIA; weak to moderately strong, some zones disintegrate upon handling; sheared fabric at 40-70°; mosaic packbreccia, 2-40mm clasts, sub-angular; sandy silt matrix 0.50-1mm thick; extremely closely spaced incipient joints, weak to moderately strong tensile strength; very to extremely closely spaced veins or veinlets, 0.50-10mm aperture, white infill- possible zeolite? [GREYWACKE FAULT ZONE].							40.25-40.42m: JT, 45°-60°, SL, PL, x6, clean, 10-80mm spaced, possibly incipient joints opened up by drilling?	
		223	41		WPFZ	41.65m: Crackle packbreccia.			100	100	30	CS	40.60m: JT, 70°, RG, PL, 2mm silt	
	H								100	100	0	VCS	41.50m - 41.65m: Core bound. Drilling induced breaks.	
16	HQ3	222	42			42.25m - 44.50m: Incipient joints, predominantly inclined 60-80°, some sub-parallel, extremely closely spaced. 42.30m - 42.80m: Very weak; disintegrates upon handling.	UW		100	60	6	CS		
		221	43		WPU	Unweathered, bluish grey, fine GREYWACKE SANDSTONE; weak to moderately strong; very closely spaced incipient joints, weak to moderately strong tensile strength; possible open joints, clean and rough; very closely spaced veins, up to 1mm aperture, white infill- possible zeolite? [UNWEATHERED GREYWACKE].							42.90m: VN, 50°, UN, 20-40mm possible zeolite? 43.00-44.55m: JT, 60°-70°, RG, UN, some 30°, ~x18, closely to very closely spaced JTs, possibly open or further opened up by drilling	
17	HQ3	220	44			43.40m - 44.55m: Crumbles along incipient joints upon handling.			100	100	13	VCS		
						End Of Hole: 44.55m								
		219	45											
		218	46											
		217	47											

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 100mm and vertical accuracy +/- 160mm.
- Terminal/Straddle packer testing undertaken between 25 to 28.50m on 17/09/2025.
- Geophysical profiling was undertaken on 18/09/2025, comprising optical and acoustic televiewer.
- One vibrating wire piezometer was installed on 19/09/2025. BH2B_1109-PZ01 was installed at 34m bgl, Serial No. P250939.
- Shear Vane Serial No. 3453, calibration constant 1.47.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.
- Breccia classification after Morrow (1982).

Water Level Readings:

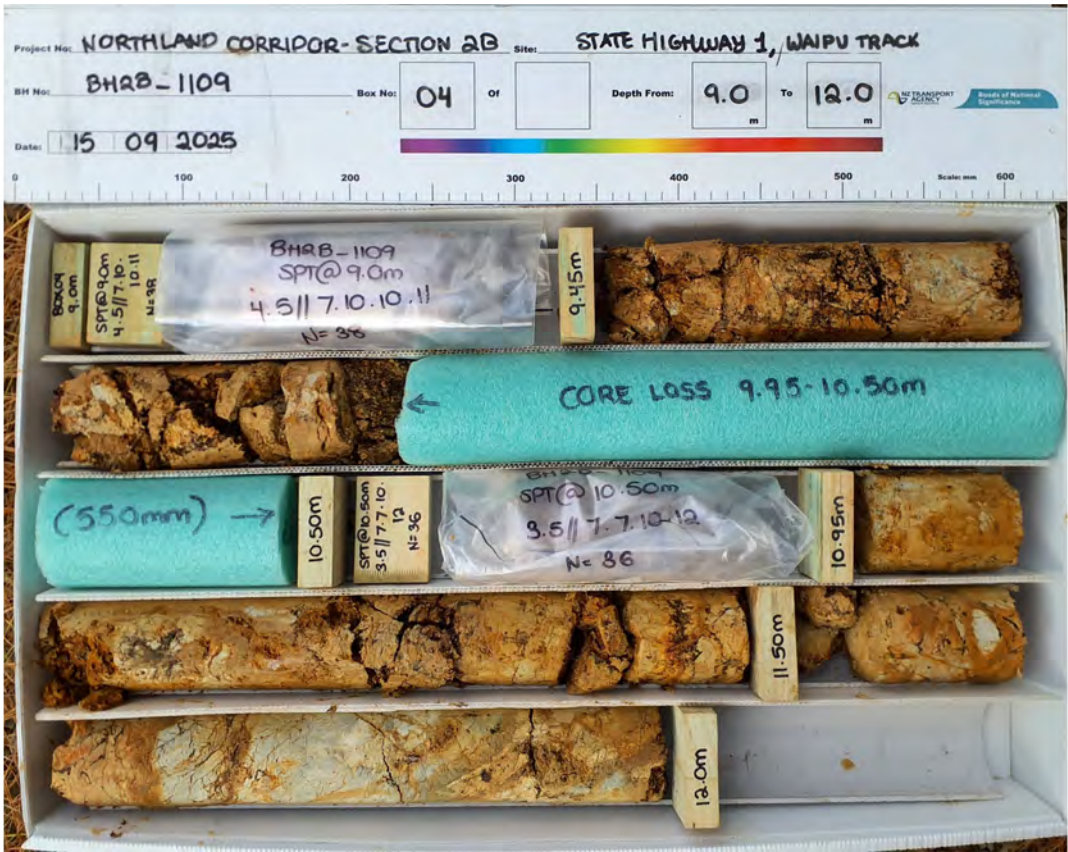
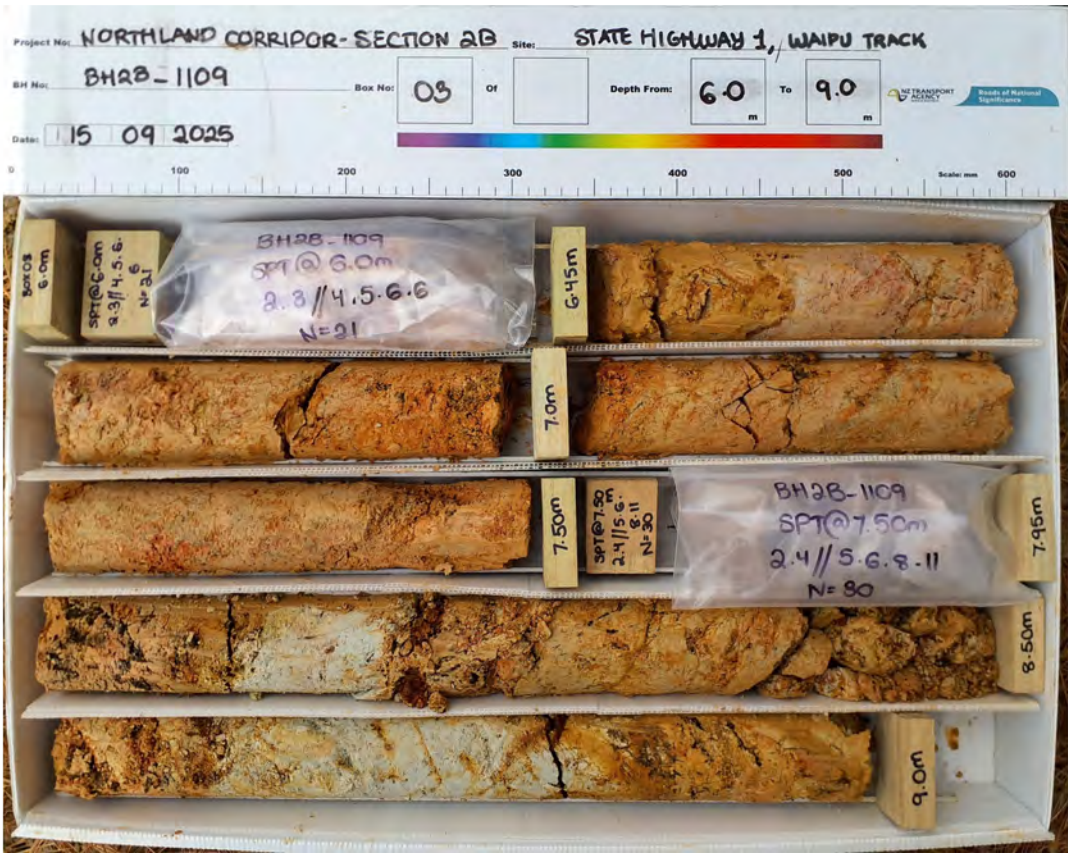
Date/Time	Hole Depth (m)	Water Level (m)
18/09/2025 1:00:00 pm	44.50	9.71
19/09/2025 9:00:00 am	44.50	17.42

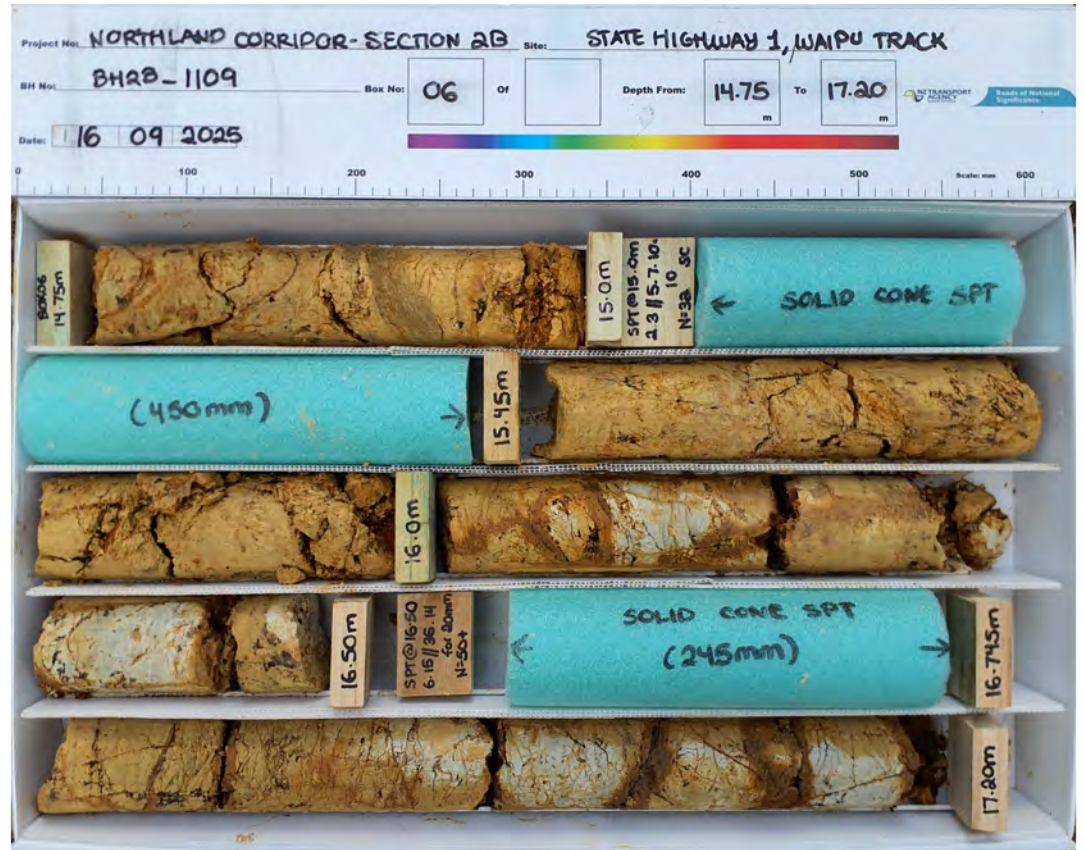


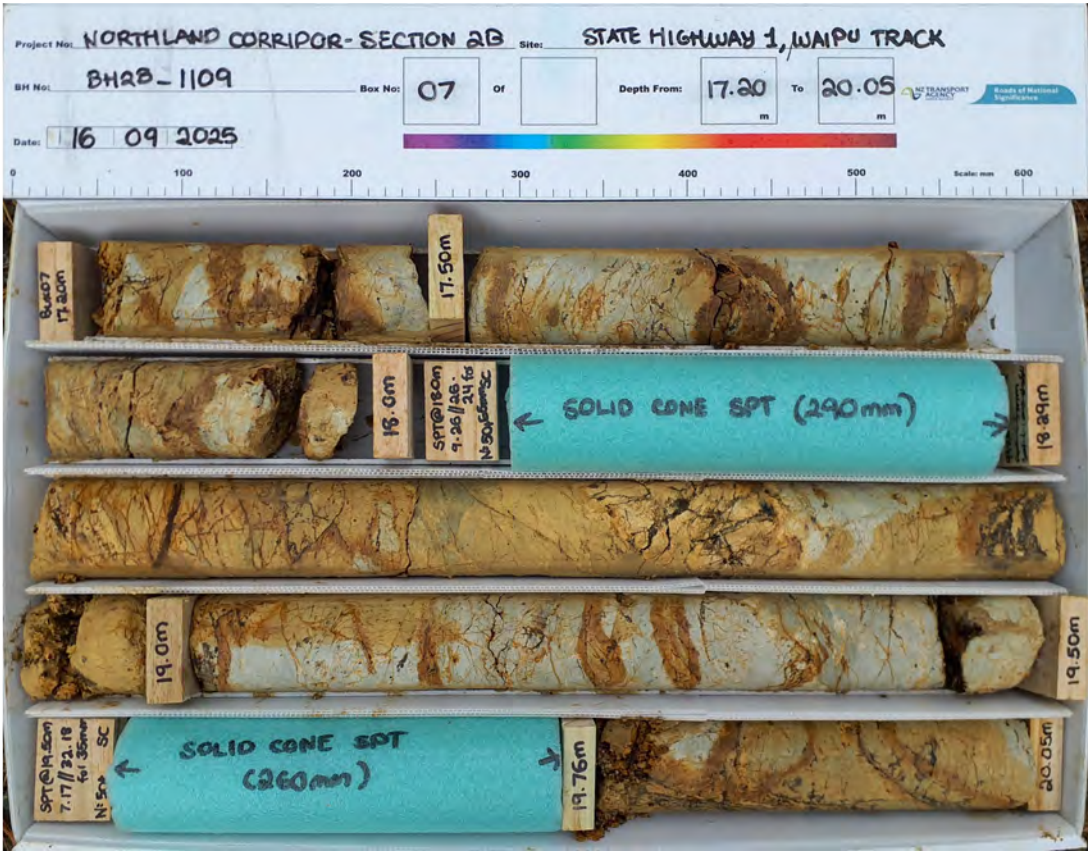
Box 01. Depth- 0.00 - 3.45m



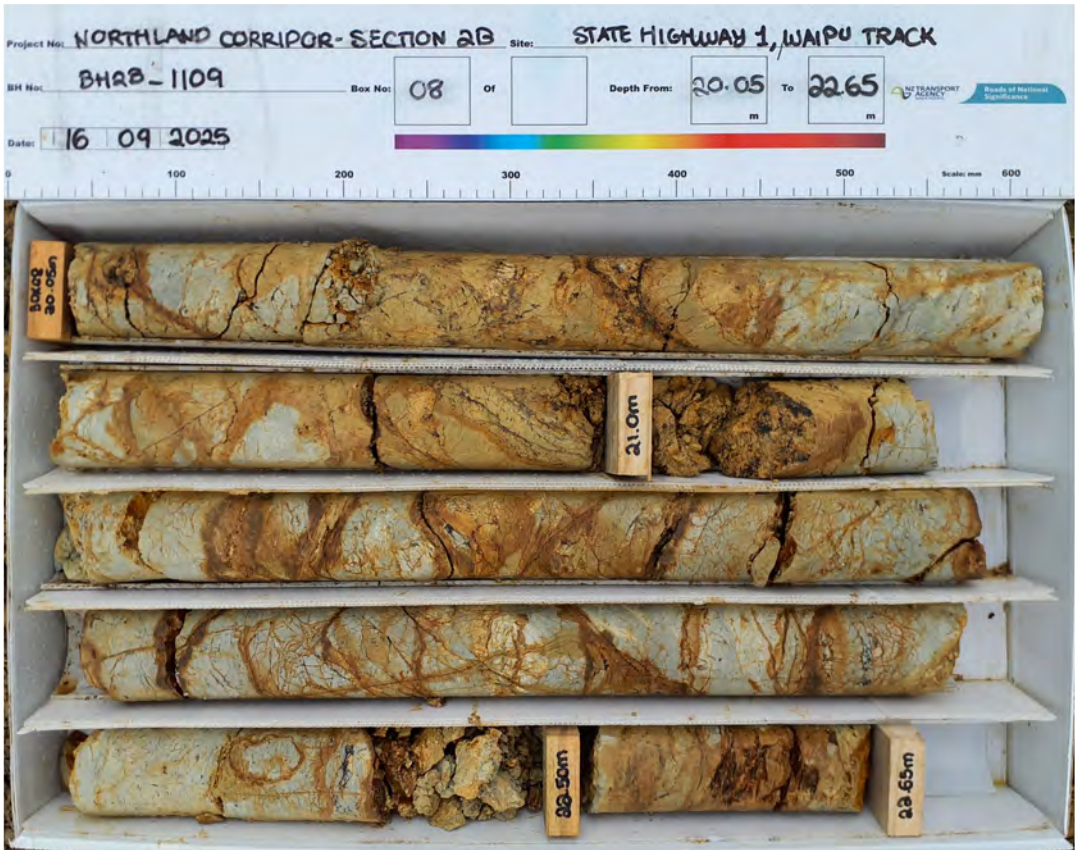
Box 02. Depth- 3.45 - 6.00m







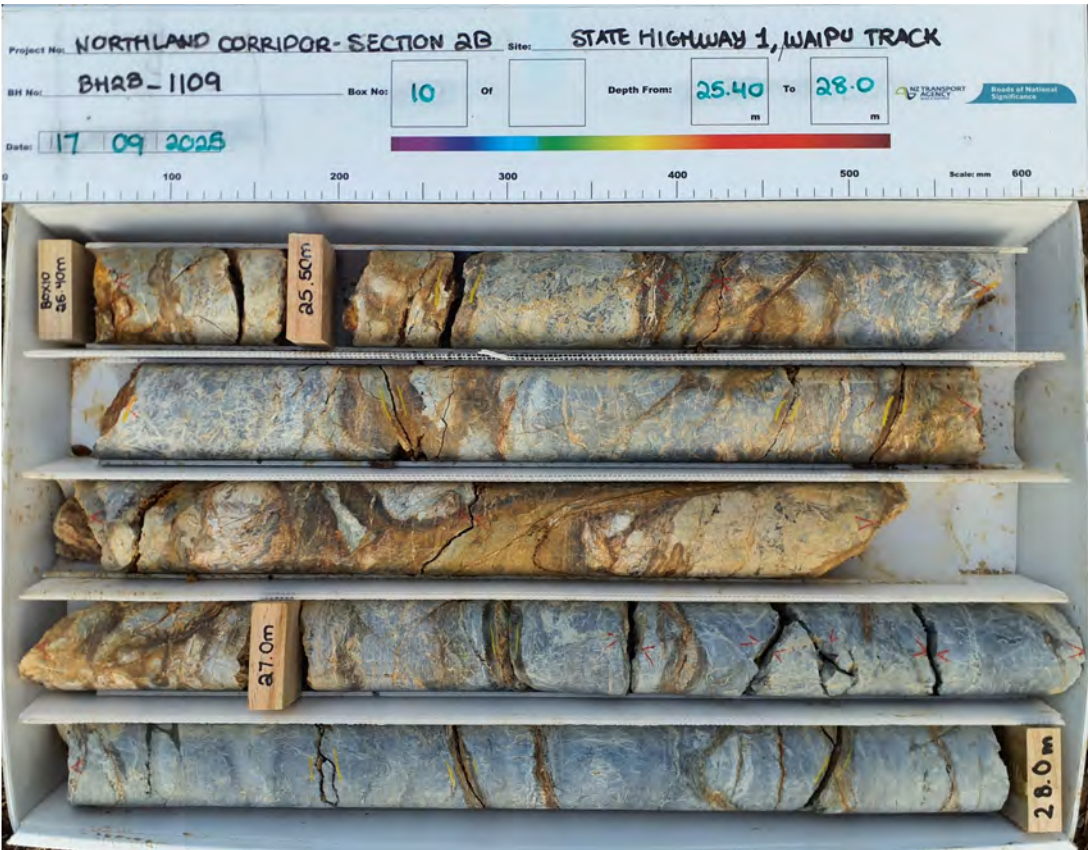
Box 07. Depth- 17.20 - 20.05m



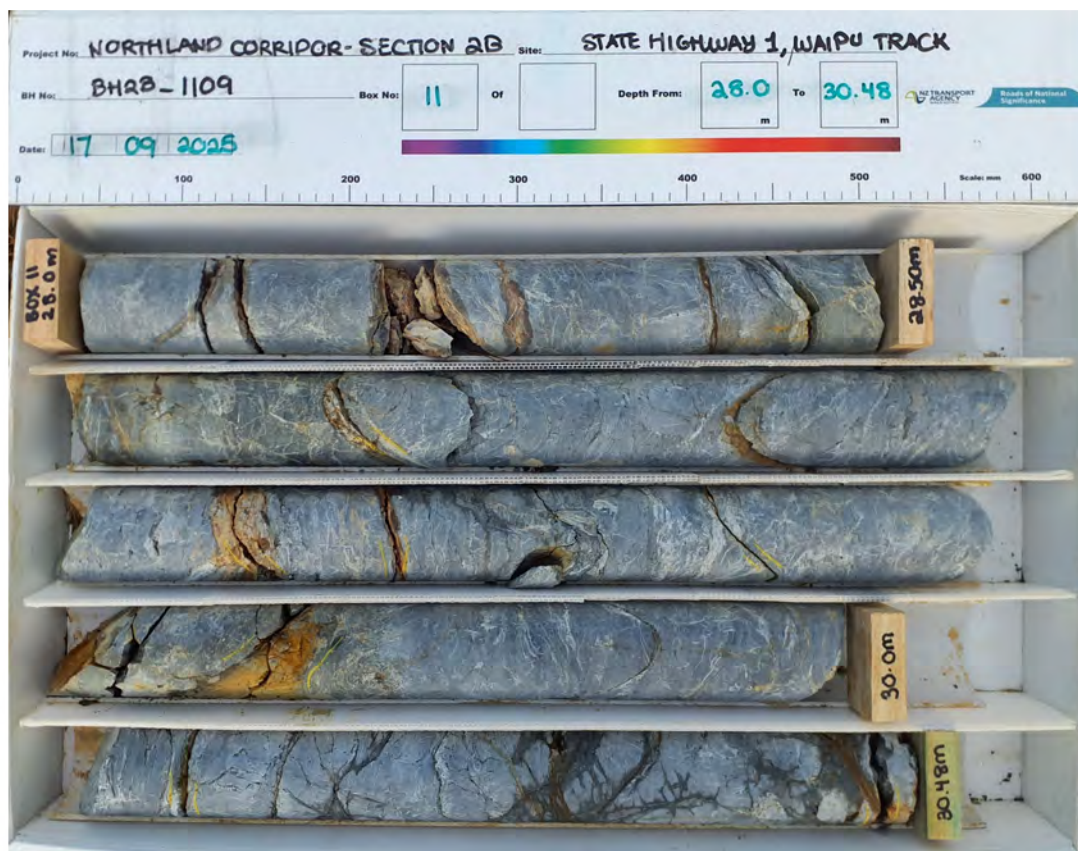
Box 08. Depth- 20.05 - 22.65m



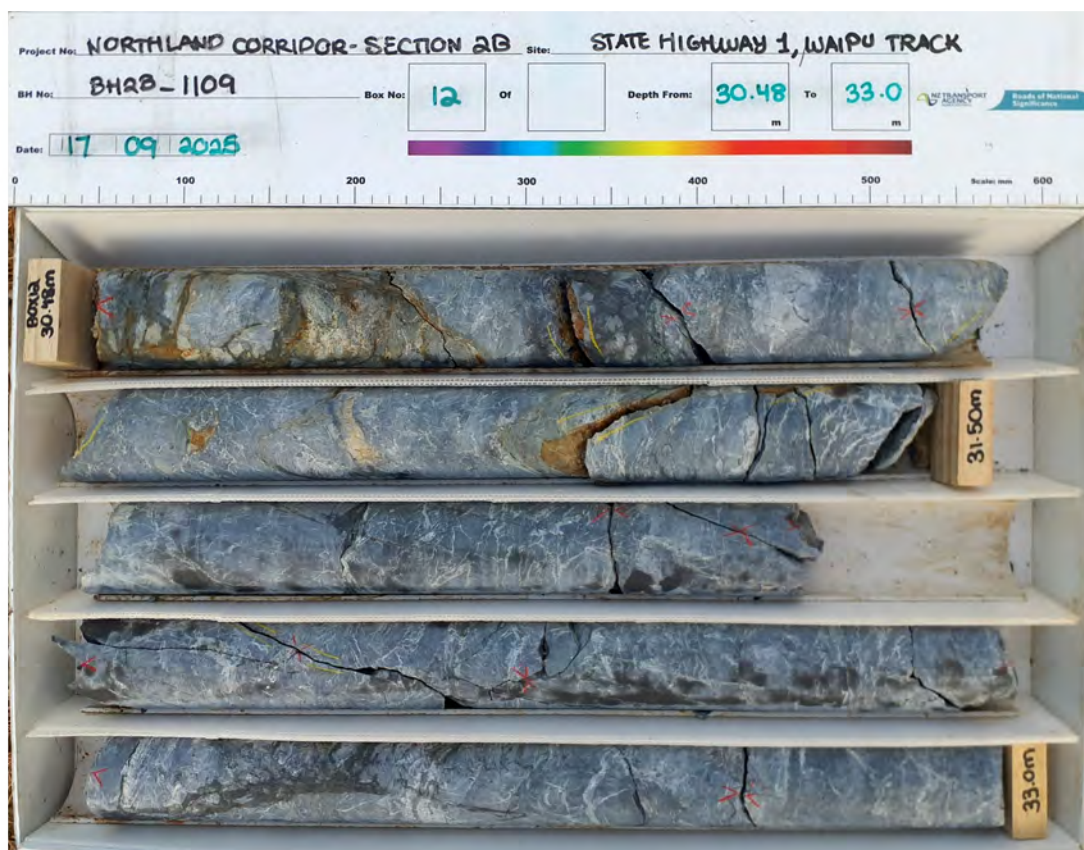
Box 09. Depth- 22.65 - 25.40m



Box 10. Depth- 25.40 - 28.00m



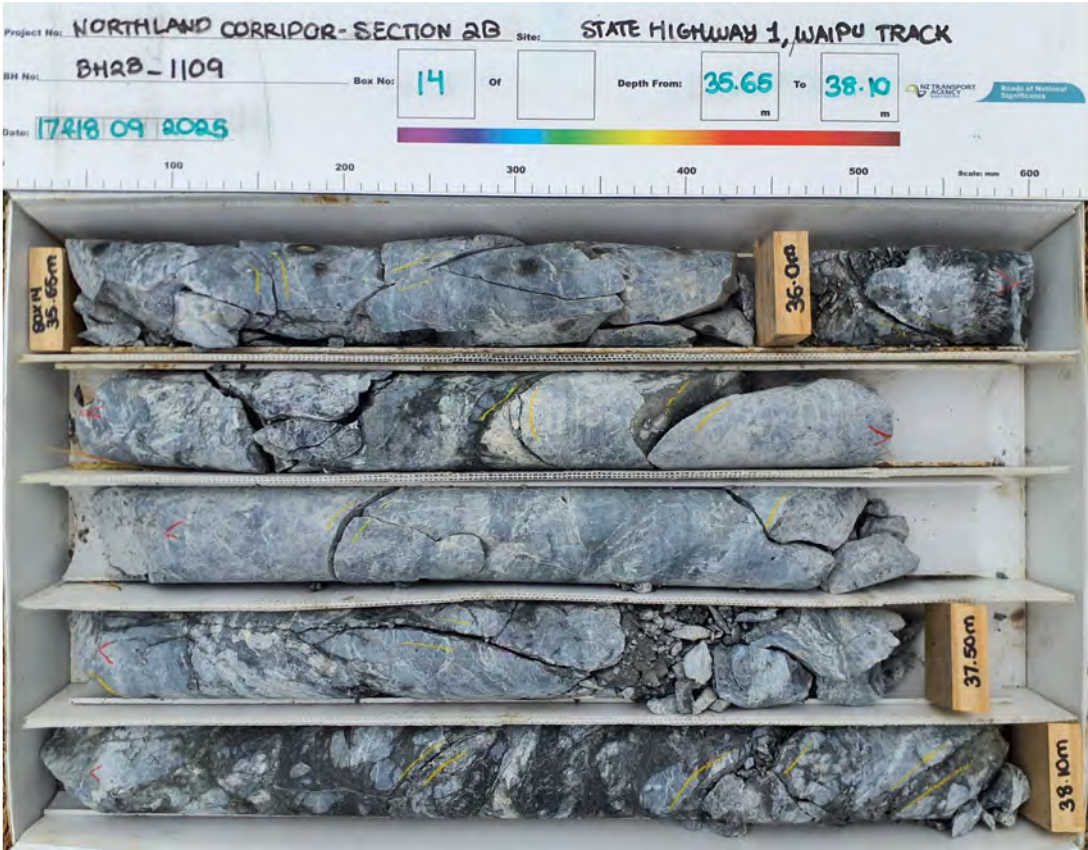
Box 11. Depth- 28.00 - 30.48m



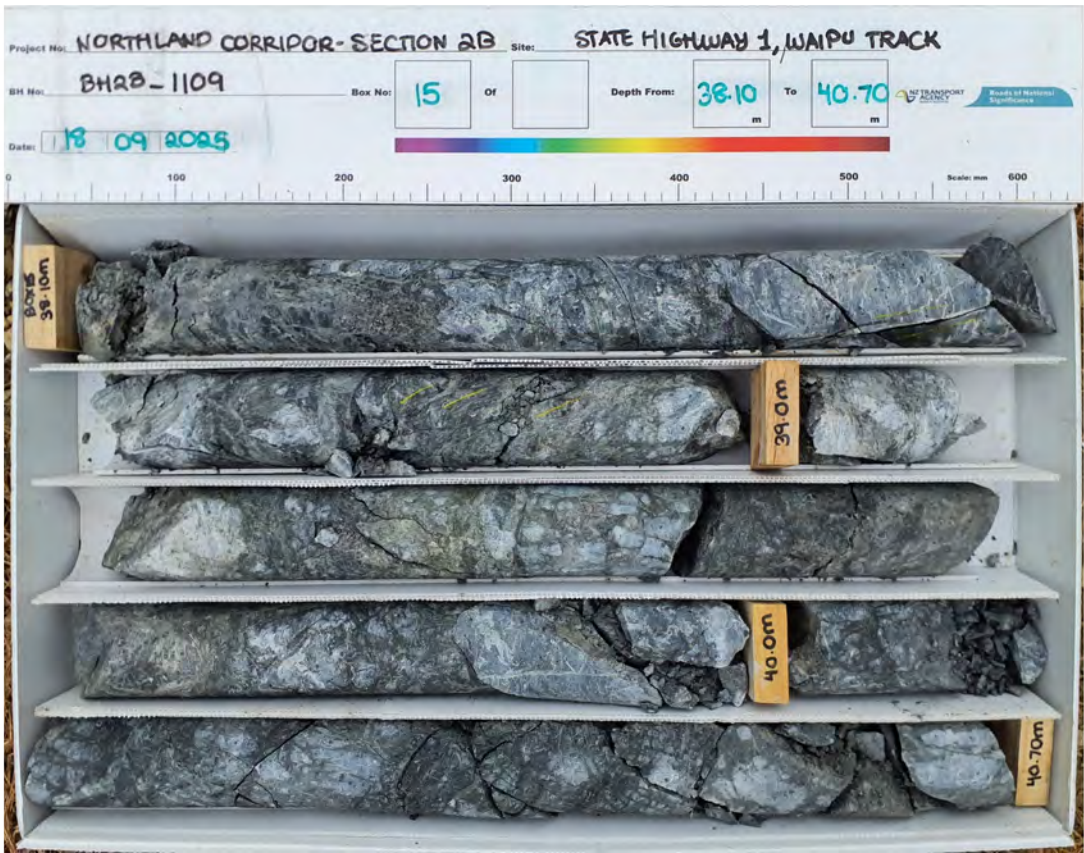
Box 12. Depth- 30.48 - 33.00m



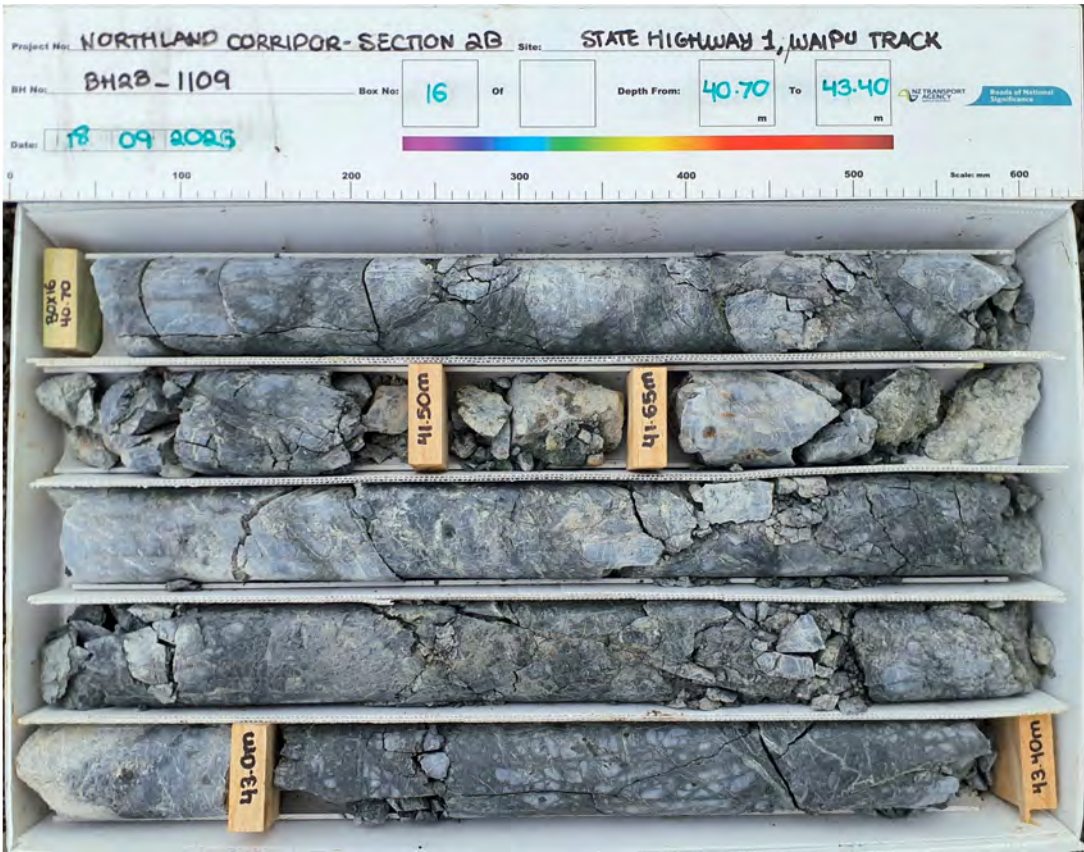
Box 13. Depth- 33.00 - 35.65m



Box 14. Depth- 35.65 m to 38.10 m 35.65 - 38.10m



Box 15. Depth- 38.10 m to 40.70 m 38.10 - 40.70m



Box 16. Depth- 40.70 m to 43.40 m 40.70 - 43.40m



Box 17. Depth- 43.40 m to 44.55 m 43.40 - 44.55m

Borehole Reference:

BH2B_1109

Photographed By:

JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX001_0m-3.45m



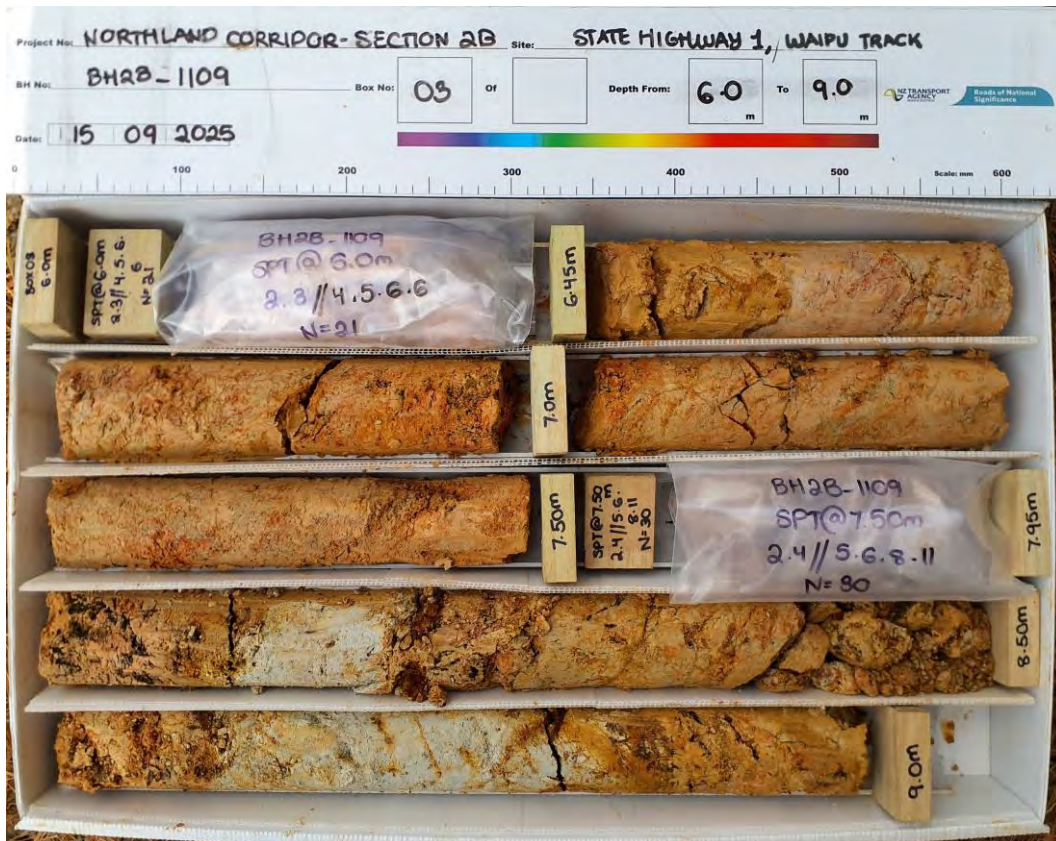
BH2B_1109_BOX002_3.45m-6m

Borehole Reference: BH2B_1109

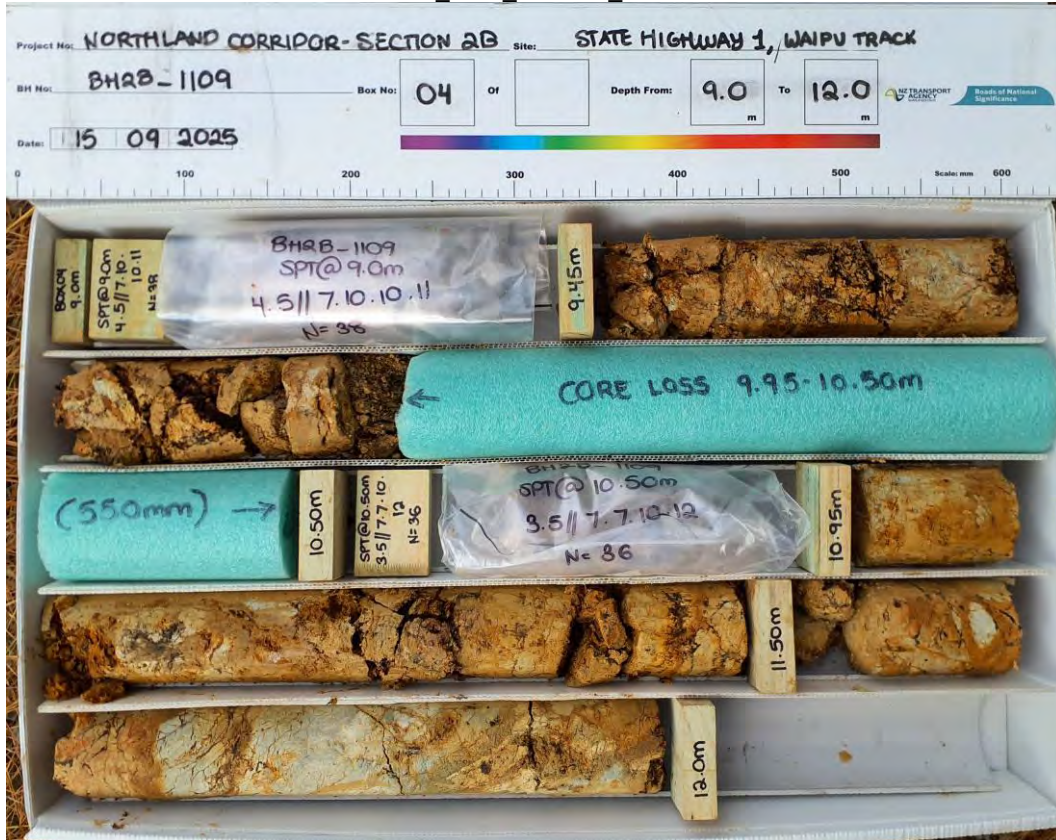
Photographed By: JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX003_6m-9m



BH2B_1109_BOX004_9m-12m

Borehole Reference: BH2B_1109

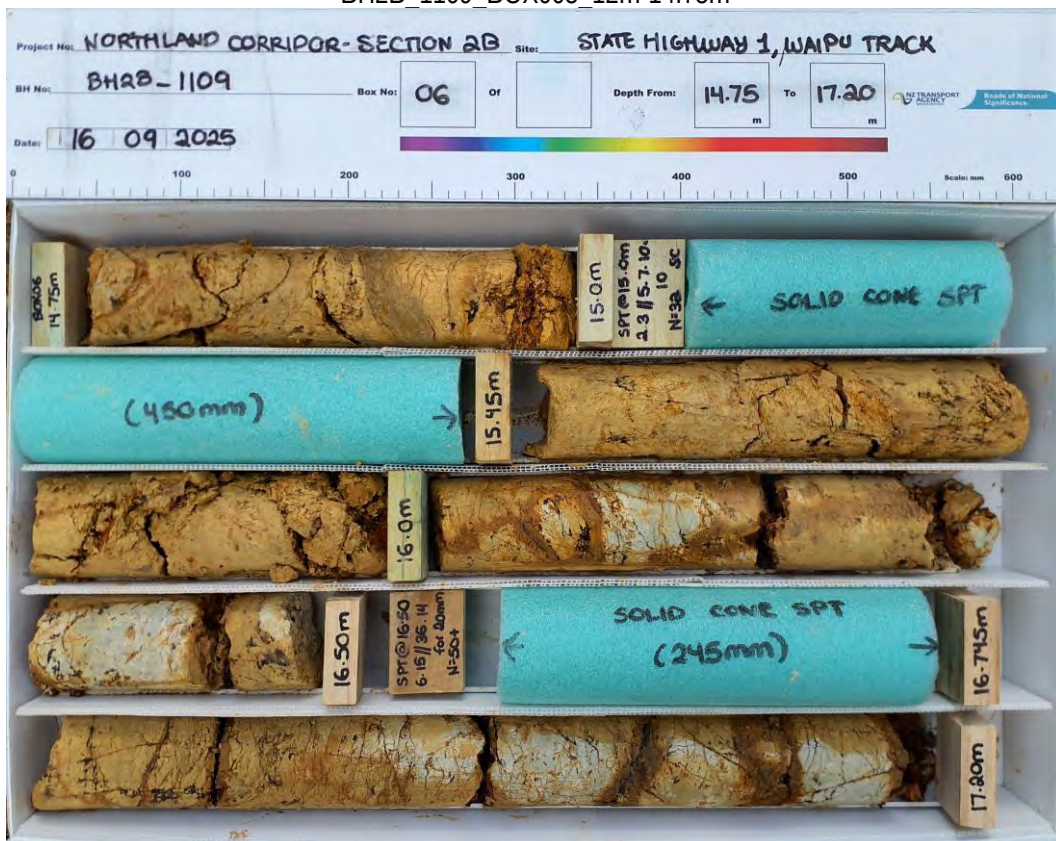
Photographed By: JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX005_12m-14.75m



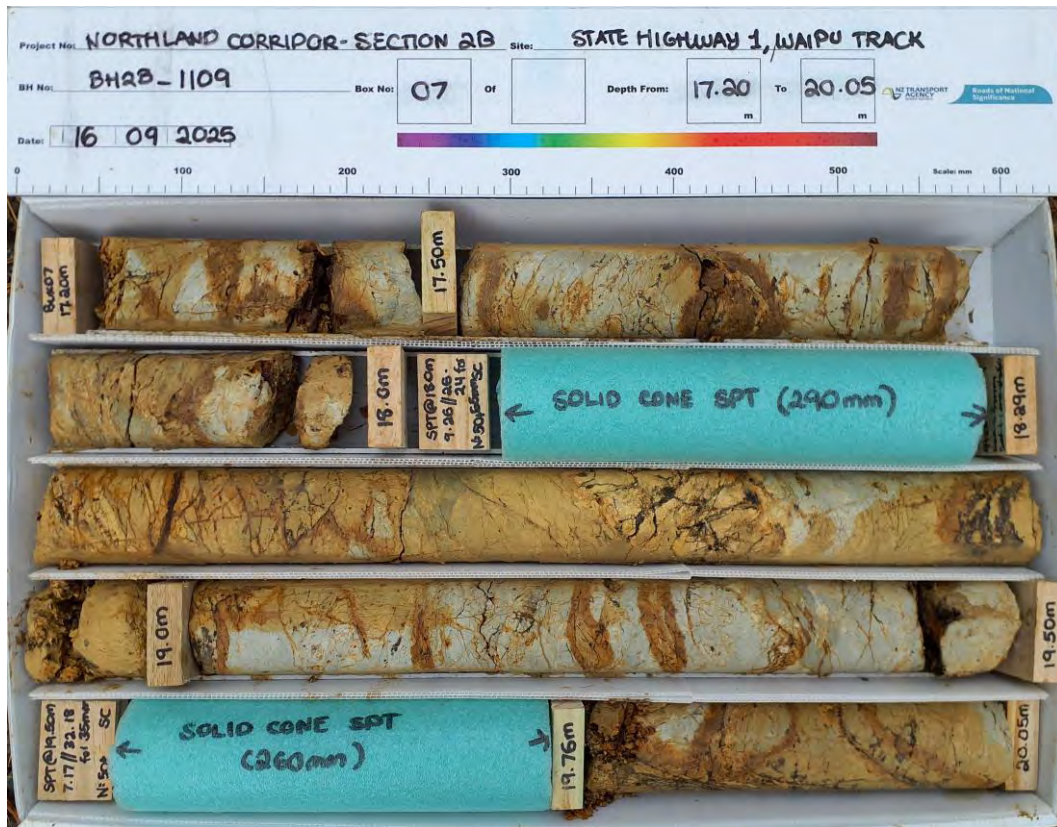
BH2B_1109_BOX006_14.75m-17.2m

Borehole Reference: BH2B_1109

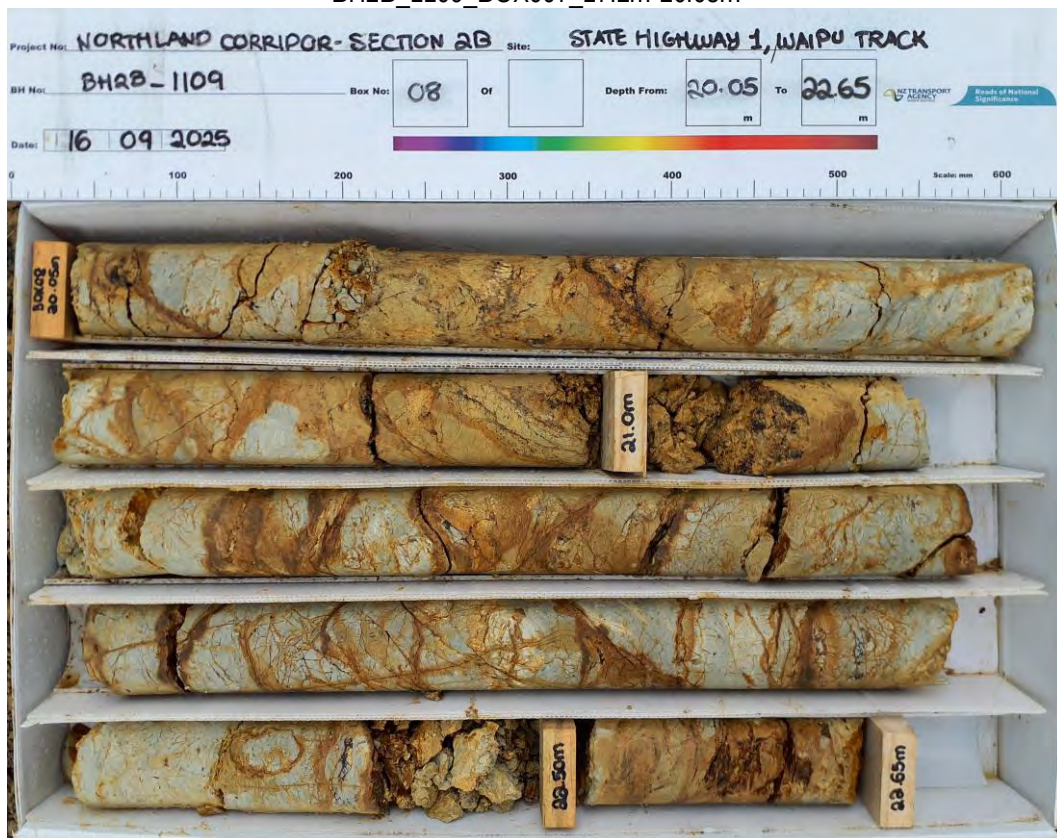
Photographed By: JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX007_17.2m-20.05m



BH2B_1109_BOX008_20.05m-22.65m

Borehole Reference:

BH2B_1109

Photographed By:

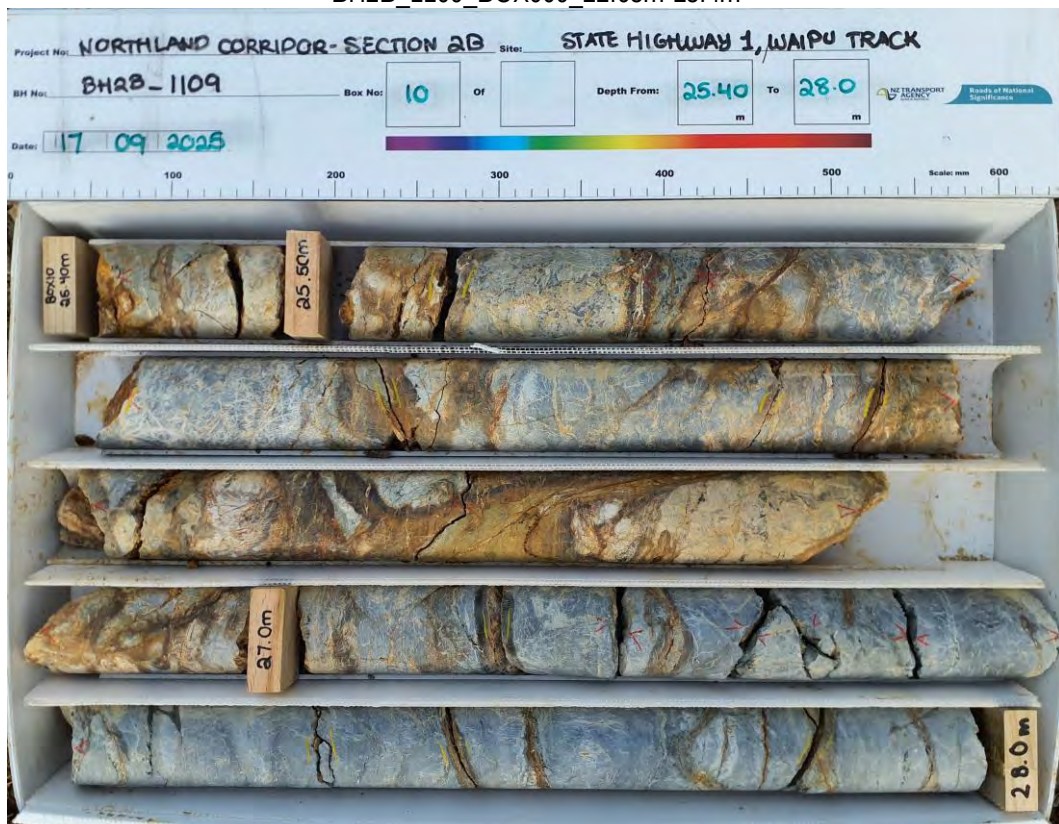
JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX009_22.65m-25.4m



BH2B_1109_BOX010_25.4m-28m

Borehole Reference:

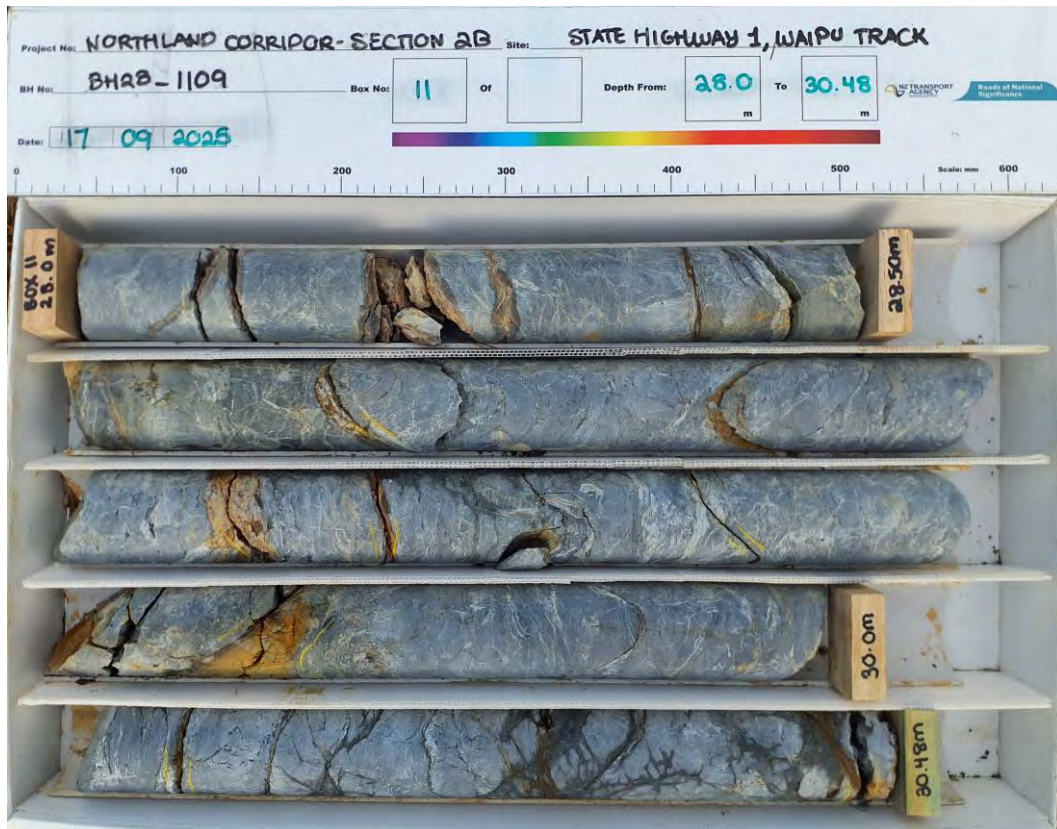
BH2B_1109

Photographed By:

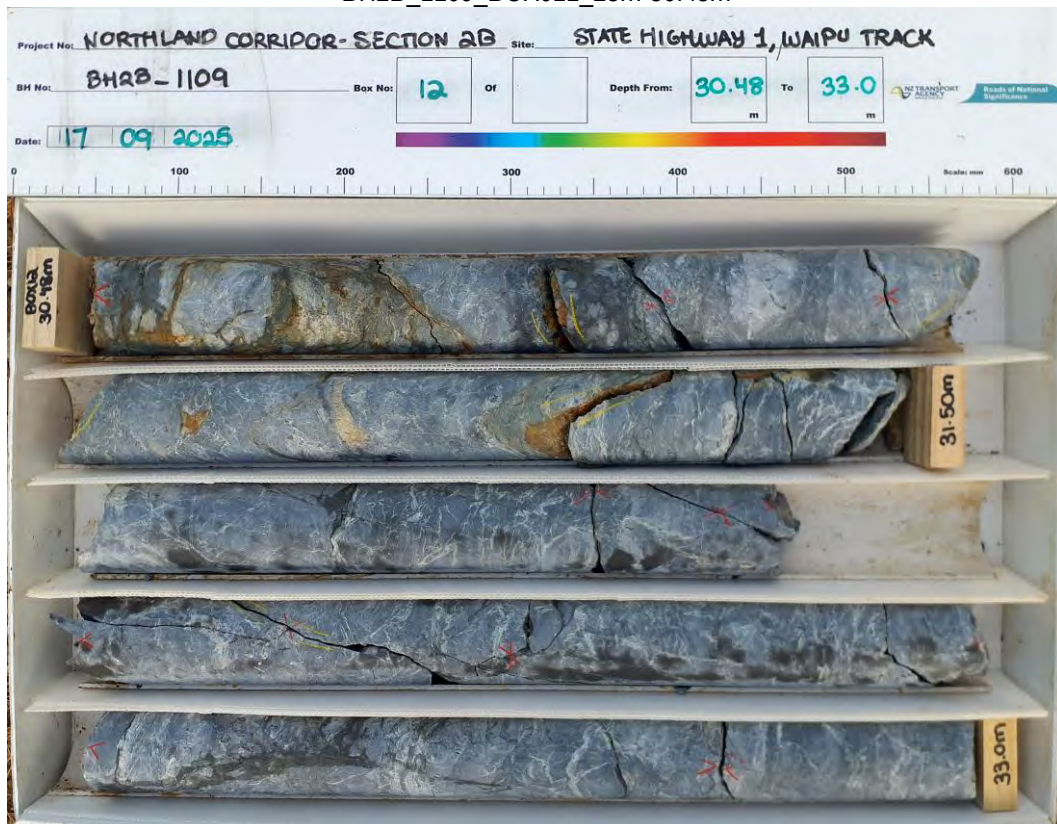
JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX011_28m-30.48m



BH2B_1109_BOX012_30.48m-33m

Borehole Reference:

BH2B_1109

Photographed By:

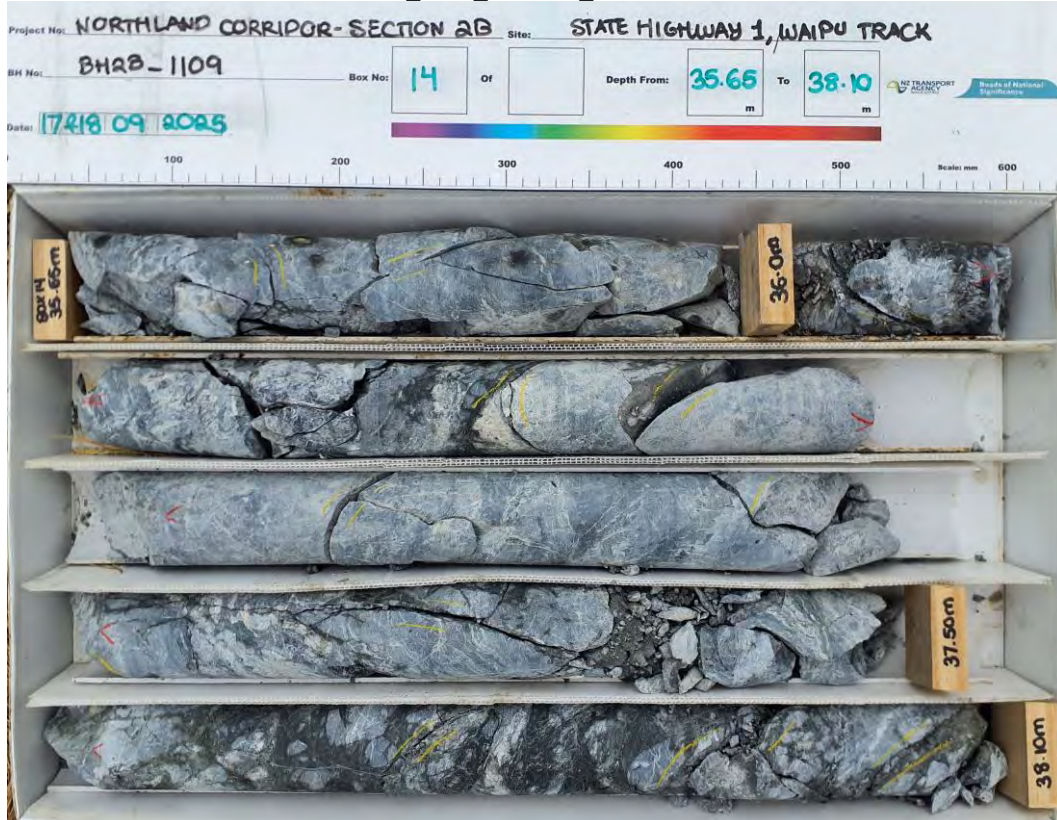
JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX013_33m-35.65m



BH2B_1109_BOX014_35.65m-38.1m

Borehole Reference:

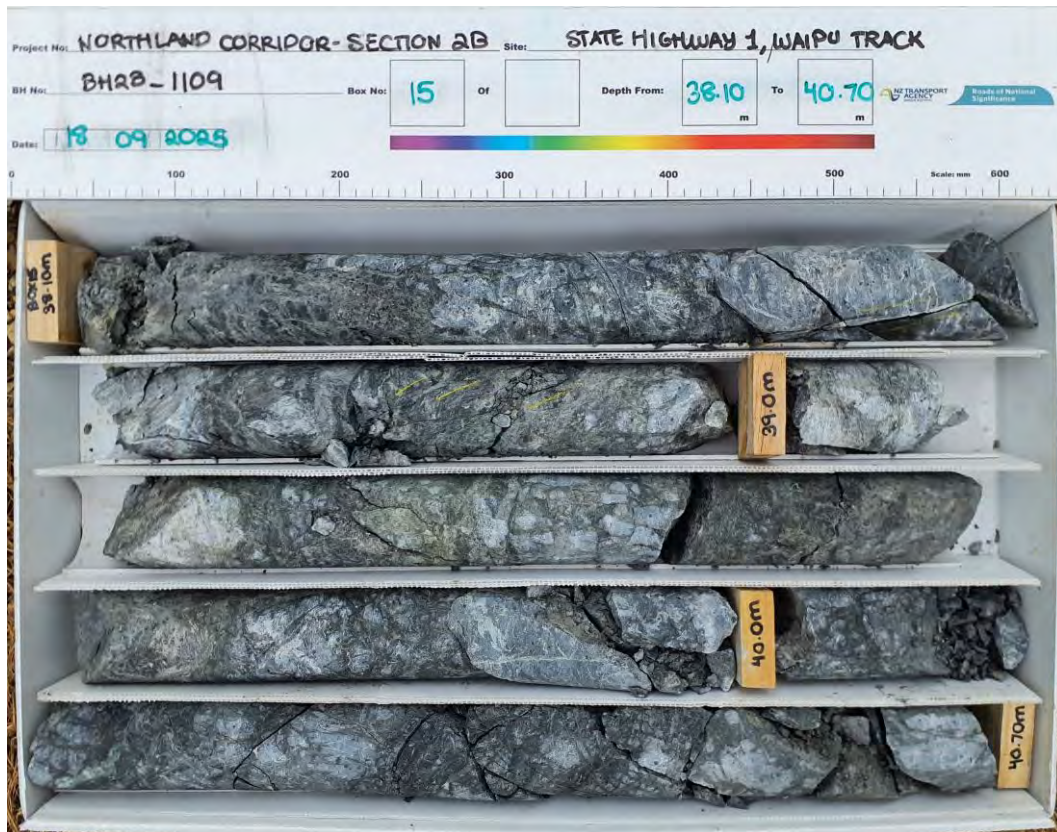
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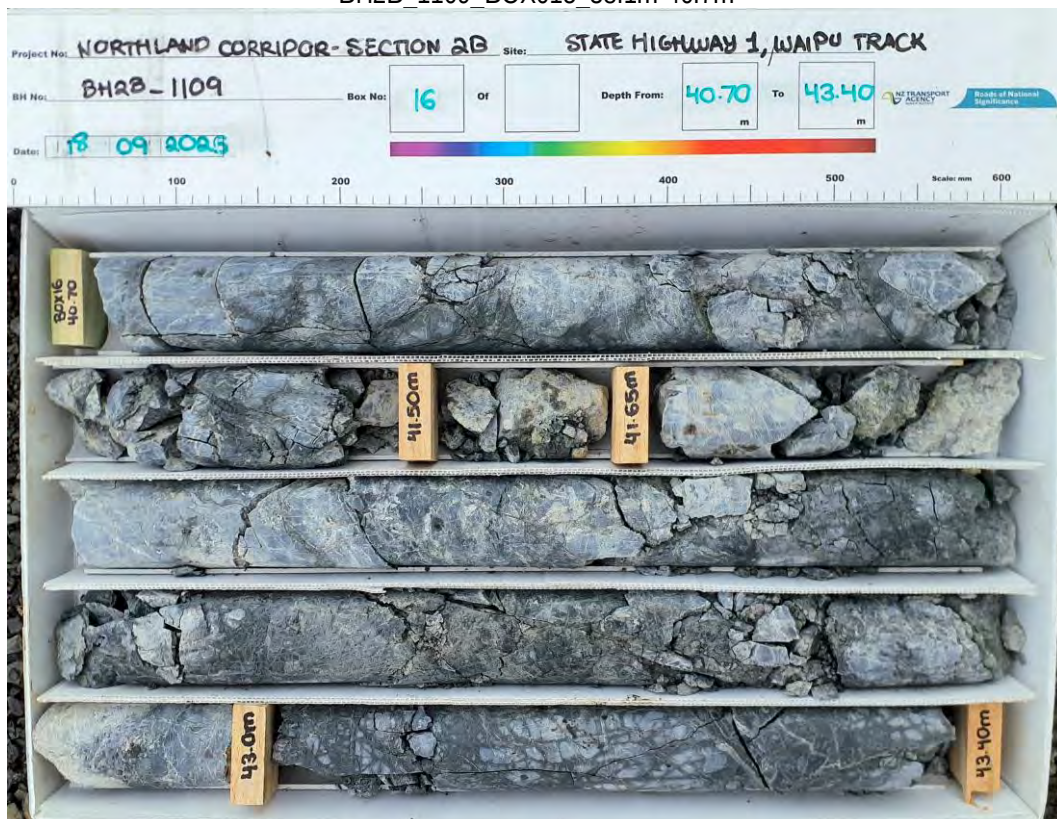
JD

Date Photographed:

15/09/2025-18/09/2025



BH2B_1109_BOX015_38.1m-40.7m



BH2B_1109_BOX016_40.7m-43.4m

Borehole Reference: BH2B_1109

Photographed By: JD

Date Photographed: 15/09/2025-18/09/2025



BH2B_1109_BOX017_43.4m-44.5m

 		Client: New Zealand Transport Agency				Project: Northland Corridor, Alternative to Brynderwyn Hills				BH2B_1110												
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Location: State Highway 1, Waipu Track				Project Reference: Aurecon WSP JV				Sheet 1 of 6												
BOREHOLE INFORMATION						CO-ORDINATES: NZTM2000		Date Started: 28/10/2025		Logged: J.Despojo/K.Rozmus												
Method: Rotary Core Wireline						Easting: 1727453.99mE,		Date Completed: 05/11/2025		Input: J.Despojo/K.Rozmus												
Equipment: Coretech YDX1800						Northing: 6007194.11mN,		Inclination: 90		Reviewed: R. van Dam												
Contractor: Drill Force NZ Ltd						Ground level: 252.64m (NZVD2016)		Azimuth: N/A		Verified: A. George												
CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL								
1	HA	252	1			CLAY with some silt; yellowish orange, mottled white. Soft; moist; high plasticity. [RESIDUALLY WEATHERED GREYWACKE]. SILT with some clay; brownish orange, mottled dark brown and white. Very stiff; moist; low plasticity; relict rock mass fabric preserved, with weathered FeO and MnO cementation along relict defect surfaces [COMPLETELY WEATHERED GREYWACKE].	RS	0.5m SV FIELD SV 180/62kPa 1m SV FIELD SV 134/30kPa	100	-	-											
	SPT	251	2			SILT with minor clay; reddish orange, mottled white, light brownish orange and dark brown. Stiff; moist; relict rock mass fabric preserved, with weathered FeO and MnO cementation. 1.95m - 2.05m: CORE LOSS (100mm) inferred disturbed by SPT and washed out. 2.05m - 3.00m: Clayey SILT; high plasticity.		1.5m SV FIELD SV 103/27kPa 1.5m SPT 1, 1/2, 1, 2, 1 N= 6	100	-	-											
	HQ3	250	3			3.00m: Hard.	CW	3m SV BH SV >210 kPa 3m SPT 1, 1/2, 1, 1, 2 N= 6	100	-	-											
	SPT	249	4			3.45m - 3.65m: CORE LOSS (200mm) inferred disturbed by SPT and washed out.																
	HQ3	248	5			5.00m - 5.82m: Breaks down to a silt with finger pressure; light orange, inferred bleached from hydrothermal alteration.							5.50m - 6.00m: 10% water/mud loss while drilling									
	HQ3	247	6			5.82-6.0m CORE LOSS (180mm) inferred wash out of extremely weak material.							6.00m - 7.50m: 20% water/mud loss while drilling									
2	SPT	246	7			6.45m - 7.95m: Some fine sand.	CW															
	HQ3	245	8			7.0-7.18m CORE LOSS (180mm) inferred wash out of very weak material.																
3	SPT	245	9			7.50m - 9.45m: Stiff.	CW	7.5m SPT 2, 1/2, 2, 2, 4 N= 10	88	-	-		7.50m - 9.00m: 10% water/mud loss while drilling									
REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 81mm. 2. Falling/rising head testing undertaken with data logger at borehole depth 16.85m on 31/10/2025 to 02/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 27.0m on 03/11/2025. 3. Geophysical profiling was undertaken on 04/11/2025, comprising optical and acoustic televiwer. 4. One vibrating wire piezometer was installed on 05/11/2025. BH2B_1110_PZ01 was installed at 42m bgl, Serial No. P252864. 5. Shear Vane Serial No. 3151, calibration constant 1.501. 6. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC									Water Level Readings: <table><tr><th>Date/Time</th><th>Hole Depth (m)</th><th>Water Level (m)</th></tr><tr><td>28/10/2025 5:00:00 pm</td><td>3.45</td><td>0.00</td></tr><tr><td>29/10/2025 7:30:00 am</td><td>3.45</td><td>0.90</td></tr></table>					Date/Time	Hole Depth (m)	Water Level (m)	28/10/2025 5:00:00 pm	3.45	0.00	29/10/2025 7:30:00 am	3.45	0.90
Date/Time	Hole Depth (m)	Water Level (m)																				
28/10/2025 5:00:00 pm	3.45	0.00																				
29/10/2025 7:30:00 am	3.45	0.90																				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 28/10/2025	Logged: J.Despojo/K.Rozmus
Method: Rotary Core Wireline		Easting: 1727453.99mE,		Date Completed: 05/11/2025	Input: J.Despojo/K.Rozmus
Equipment: Coretech YDX1800		Northing: 6007194.11mN,		Inclination: 90	Reviewed: R. van Dam
Contractor: Drill Force NZ Ltd		Ground level: 252.64m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3					7.95m - 9.00m: Mottled dark reddish orange.								
	HQ3	244				[CONT] SILT with minor clay; reddish orange, mottled white, light brownish orange and dark brown. Stiff; moist; relict rock mass fabric preserved, with weathered FeO and MnO cementation.	CW		100	-	-			
	SPT		9					9m SPT 2, 3//2, 2, 3, 3 N= 10	93	-	-		9.00m - 10.50m: 30% water/mud loss while drilling	
4	HQ3	243				9.45-9.80m CORE LOSS (350mm) inferred disturbed by SPT and washed out.								
	HQ3		10				CW		86	-	-			
	HQ3					10.0-10.50m CORE LOSS (500mm) run washed out and not recovered.			0	-	-			
	SPT	242						10.5m SPT 1, 3//1, 1, 2, 1 N= 5	100	-	-		10.50m - 11.50m: 20% water/mud loss while drilling	
	HQ3		11			10.95m - 11.05m: CORE LOSS (100mm) inferred disturbed by SPT and washed out.	CW		81	-	-		11.05m - 11.50m: light orange zones possible bleached/alterd zones	
5	HQ3	241				11.50-11.65m CORE LOSS (150mm) inferred washed out.			70	-	-		11.50m - 12.00m: 10% water/mud loss while drilling	
	HQ3		12				CW							
	SPT					Highly weathered, light yellowish brown speckled dark brown, orange, and black, fine GREYWACKE SANDSTONE; extremely weak; highly fractured; joints, typically 1-3mm of FeO and MnO cementation/infill. (SILT, some sand, minor clay. Stiff to hard, moist, low plasticity on remolding with water; sand, fine). [HIGHLY WEATHERED GREYWACKE].	HW	12m SPT 2, 2//2, 3, 3, 4 N= 12	100	-	-	WS	12.00m - 13.00m: 20% water/mud loss while drilling	
	HQ3	240							72	-	-			
	HQ3		13			12.45-12.60m CORE LOSS (150mm) inferred disturbed by SPT and washed out.			90	90	-	WS	13.00m - 13.50m: 30% water/mud loss while drilling	
	SPT	239						13.5m SPT 3, 3//4, 4, 4, 4 N= 16	100	-	-		13.50m - 14.50m: 20% water/mud loss while drilling	
	HQ3		14				HW		91	91	-			
6	HQ3	238				14.50m - 15.00m: Zone of increased MnO staining.			100	100	-	WS	14.50m - 16.50m: 10% water/mud loss while drilling	
	SPT		15					15m SPT 4, 7//8, 8, 11, 11 N= 38	100	-	-			
	HQ3	237				15.45m - 15.55m: CORE LOSS (100mm) inferred disturbed by SPT and washed out.			81	82	-	WS	15.90m - 16.00m: disintegrated upon removal	

REMARKS:

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- Geophysical profiling was undertaken on 04/11/2025, comprising optical and acoustic televiwer.
- One vibrating wire piezometer was installed on 05/11/2025. BH2B_1110_PZ01 was installed at 42m bgl, Serial No. P252864.
- Shear Vane Serial No. 3151, calibration constant 1.501.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date Started: 28/10/2025	Logged: J.Despojo/K.Rozmus
Method: Rotary Core Wireline	Easting: 1727453.99mE,	Date Completed: 05/11/2025	Input: J.Despojo/K.Rozmus
Equipment: Coretech YDX1800	Northing: 6007194.11mN,	Inclination: 90	Reviewed: R. van Dam
Contractor: Drill Force NZ Ltd	Ground level: 252.64m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3					Highly weathered, light yellowish brown speckled dark brown, orange, and black, fine GREYWACKE SANDSTONE; extremely weak; highly fractured; joints, typically 1-3mm of FeO and MnO cementation/infill. (SILT, some sand, minor clay. Stiff to hard, moist, low plasticity on remolding with water; sand, fine).							from catcher	
	SPT	236				16.10m: Intact rock material grades to very weak.		16.5m SPT 6, 8/12, 16, 22 for 75mm N = 50+	100	100	-	WS	16.50m - 17.50m: 20% water/mud loss while drilling	
	HQ3		17			16.88m - 17.00m: CORE LOSS (125mm) inferred disturbed by solid cone SPT and washed out.			100	-	-		17.00m - 17.15m: inferred disturbed by solid cone	
	HQ3	235							80	80	-	WS	17.40m - 17.50m: disintegrated upon removal of catcher	
	HQ3								90	90	-	WS	17.50m - 19.00m: 30% water/mud loss while drilling	
	SC		18			18.00m - 18.39m: Solid cone SPT, no recovery (385mm).		18m SPT 4, 9/14, 14, 18, 4 N= 50	0	-	-			
	HQ3	234							100	100	-	WS		
	HQ3		19						90	90	-	MWS	19.00m - 20.45m: 40% water/mud loss while drilling	
	SC		20			19.50m - 19.95m: Solid cone SPT, no recovery (450mm).	HW	19.5m SPT 3, 4/5, 5, 6, 6 N= 22	0	-	-		19.40m - 20.30m: Inferred weathered Fault/Crush Zone	
	HQ3	232				19.95m - 20.30m: Recovered as a fine to coarse gravel with minor sand and silt, slightly plastic.			100	100	-	CS		
	HQ3		21						100	100	-	WS	20.45m - 21.00m: 50% water/mud loss while drilling	
	SC		22			21.00m - 21.31m: Solid cone SPT, no recovery (310mm).		21m SPT 3, 6/16, 22, 10 for 75mm N = 50+	0	-	-		21.00m - 23.90m: 60% water/mud loss while drilling	
	HQ3	231							100	100	-	WS		
	SC		23			22.50m - 22.63m: Solid cone SPT, no recovery (130mm).		22.5m SPT 7, 43 for 55mm N = 50+	0	-	-	ECS	22.75-22.80m: JT, 60°, SM, UN, FeO and MnO stained, x2	
	HQ3	229				Moderately weathered, light brownish orange, fine GREYWACKE SANDSTONE. Weak; extremely closely spaced incipient joints with moderate tensile strength; very closely spaced to widely spaced joints, undulating rough with 1-3mm FeO and MnO cementation [MODERATELY WEATHERED GREYWACKE].	MW		83	83	0	CS	22.92-22.95m: JT, 70°, RG, UN, FeO and MnO stained, x3, intersecting	
						23.10m - 23.68m: Recovered as a fine to coarse gravel, angular; unable to be crushed with finger pressure.						ECS	23.15m JT, 80°, SM, UN, FeO and MnO stained	
						23.68m - 23.90m: CORE LOSS (220mm) assumed core bound preventing fractured material entering the barrel.			0	-	-		23.25m JT, 80°, SM, PL, FeO and MnO stained up to 5mm into joint wall	

REMARKS:

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- One vibrating wire piezometer was installed on 05/11/2025. BH2B_1110_PZ01 was installed at 42m bgl, Serial No. P252864.
- Shear Vane Serial No. 3151, calibration constant 1.501.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
29/10/2025 5:15:00 pm	16.88	4.53
30/10/2025 7:30:00 am	16.88	4.63
30/10/2025 5:30:00 pm	23.90	3.20
31/10/2025 7:30:00 am	23.90	11.85

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Coretech YDX1800
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727453.99mE,
Northing: 6007194.11mN,
Ground level: 252.64m (NZVD2016)

Date Started: 28/10/2025
Date Completed: 05/11/2025
Inclination: 90
Azimuth: N/A

Logged: J.Despojo/K.Rozmus
Input: J.Despojo/K.Rozmus
Reviewed: R. van Dam
Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	SO					23.90-24.0m CORE LOSS (100mm) run inferred washed out.		24m SPT 35, 15 for 10mm N = 50+	0	-	-	WVS WS MWS VCS ECS	24.09m - 24.85m: 70% water/mud loss while drilling	
9	HQ3	228	25			Slightly to moderately weathered, light grey and dark bluish grey, stained light and dark brown, fine GREYWACKE SANDSTONE. Moderately strong to strong; Highly fractured rock mass, joints are closely spaced, moderately to steeply inclined with 1-2mm FeO cementation on surfaces, staining penetrates 2-10 mm into joint wall; Incipient fractures have moderate to strong tensile strength, typically infilled with 1-2 mm of hard white mineral. Core breaks along discrete fractures under single blow of the hammer. [SLIGHTLY TO MODERATELY WEATHERED GREYWACKE].		100	78	13		CS VCS CS ECS	24.44m JT, 80°, RG, PL, FeO stained 24.50-24.55m: JT, 50°, RG, PL, FeO stained 24.70-24.85m: CZ, recovered as: fine to medium GRAVEL with some sand and silt; dark grey. Saturated, gap graded; gravel angular; sand, fine to coarse.	
	HQ3	227	26			24.00m - 24.09m: Solid cone SPT, no recovery (85mm).		100	12	-		VCS CS VCS	25.80-26.60m: CZ, recovered as silty medium to coarse GRAVEL, with some fine to coarse sand. Disintegrates when handled.	
	HQ3	226	27					100	88	-		CS VCS ECS	26.20m JT, 30°, SM, UN, FeO and MnO stained	
	HQ3	225	28			27.20m - 27.60m: Zone of increased fracturing, multiple defects in multiple orientations, dominant fabric, closely spaced, steeply dipping joints, undulating, FeO coating < 1 mm.	SW - MW	80	23	-		CS ECS	26.90-27.20m: CZ, recovered as fine to coarse GRAVEL, some silt; disintegrates on handling.	
	HQ3	224	29			27.60m - 27.90m: Fault Gauge: recovered as: Sandy SILT with some gravel; grey with orangey brown. Firm, wet, low plasticity; sand, fine to coarse; gravel fine to medium, angular.		100	89	-		VCS	27.33m JT, 30°, SM, UN, fine gravel 27.60-27.91m: FZ, 42°, SM, UN, firm silt and crushed rock infill	
10	HQ3	223	30			29.50m - 30.00m: Crackle breccia grading into mosaic breccia; silt matrix confined to the seams.		100	90	-		ECS	28.25m JT, 45°, SM, UN, FeO stained 28.30m - 28.40m: Disturbed during removal of core catcher 28.66-28.88m: CZ, recovered as a gravelly SILT with some sand and clay; light grey. Soft, saturated, low plasticity; gravel, fine to medium, angular; sand, fine to coarse.	
	HQ3	222	31			Slightly weathered, dark bluish grey, fine GREYWACKE SANDSTONE. Strong; brecciated and sheared fabric common throughout the core; closely spaced joints, sub-horizontal to sub-vertical, FeO staining and white mineral coatings on defect surfaces [SLIGHTLY WEATHERED GREYWACKE].		81	71	-		MWS CS MWS	29.40m - 29.50m: Disturbed during removal of core catcher 30.00-30.27m: CZ, recovered as: Silty fine to coarse GRAVEL; light grey. Saturated, well graded; gravel, angular	
	HQ3	221				30.27m - 30.45m: CORE LOSS (180mm).	SW	100	90	-		ECS MWS CS VCS	30.90-31.30m: CZ, recovered as: Fine to coarse GRAVEL, some silt; dark grey. Saturated, well graded; gravel, angular; silt, slightly plastic.	

REMARKS:

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- Shear Vane Serial No. 3151, calibration constant 1.501.
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Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
31/10/2025 3:15:00 pm	27.00	0.10
3/11/2025 10:37:00 am	27.00	17.67

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 28/10/2025	Logged: J.Despojo/K.Rozmus
Method: Rotary Core Wireline		Easting: 1727453.99mE,		Date Completed: 05/11/2025	Input: J.Despojo/K.Rozmus
Equipment: Coretech YDX1800		Northing: 6007194.11mN,		Inclination: 90	Reviewed: R. van Dam
Contractor: Drill Force NZ Ltd		Ground level: 252.64m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3	220	33			[CONT] Slightly weathered, dark bluish grey, fine GREYWACKE SANDSTONE. Strong; brecciated and sheared fabric common throughout the core; closely spaced joints, sub-horizontal to sub-vertical, FeO staining and white mineral coatings on defect surfaces [SLIGHTLY WEATHERED GREYWACKE]. 32.30m - 44.00m: Matrix supported BRECCIA; Silt matrix (low plasticity) with fine to medium, angular to sub-rounded gravel clasts.			100	100	-	WS	32.80m JT, 62°, SM, UN,	
12	HQ3	219	34						100	100	-	CS	33.40m JT, 50°, RG, PL, FeO stained 33.50m JT, 65°, RG, PL, FeO stained	
												MWS	33.80m JT, 65°, RG, UN, FeO stained	
												VCS	34.00m JT, 65°, RG, PL, FeO stained	
	HQ3	218	35						100	93	-	WS	35.20-35.40m JT, 65°, RG, PL, white mineral coating, x3	
		217	36									CS	36.20-36.70m SZ, 65°, RG, UN, 3-5 mm cemented green minerals, x3	
13	HQ3	216	37			37.10m - 37.20m: CORE LOSS (100mm).			93	87	-			
	HQ3	215	38			37.90m: Slight green discoloration on joint surfaces, dominant joints are parallel, closely spaced, steeply dipping.			100	0	-	ECS	37.20-37.50m CZ, no disenable fabric, recovered as; Silty fine to coarse GRAVEL; light grey; gravel, angular.	
	HQ3	214	39						100	77	-	MWS		
14	HQ3	213				39.66-40.0m CORE LOSS (340mm).			100	100	-		39.25-39.35m CZ, no disenable fabric, recovered as fine to medium GRAVEL, with some sand and silt; gravel angular, sand fine to coarse.	
									66	55	-	ECS		
												MWS		

REMARKS:

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- Shear Vane Serial No. 3151, calibration constant 1.501.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
3/11/2025 6:03:00 pm	39.99	3.12
4/11/2025 9:00:00 am	39.99	28.30

 Roads of National Significance		Client: New Zealand Transport Agency		Project: Northland Corridor, Alternative to Brynderwyn Hills		BH2B_1110									
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Location: State Highway 1, Waipu Track		Project Reference: Aurecon WSP JV		Sheet 6 of 6									
BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 28/10/2025		Logged: J.Despojo/K.Rozmus									
Method: Rotary Core Wireline		Easting: 1727453.99mE,		Date Completed: 05/11/2025		Input: J.Despojo/K.Rozmus									
Equipment: Coretech YDX1800		Northing: 6007194.11mN,		Inclination: 90		Reviewed: R. van Dam									
Contractor: Drill Force NZ Ltd		Ground level: 252.64m (NZVD2016)		Azimuth: N/A		Verified: A. George									
CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL	
14	HQ3		212			Slightly weathered, dark grey, fine GREYWACKE SANDSTONE. Strong; breacciaded and sheared fabric, clasts 10-35mm in size, angular; matrix sandy silt, low plasticity. Core crumbles on handling to a fine to coarse gravel.			100	80	-	VCS ECS			
	HQ3		41						100	85	-	VCS ECS	41.40m - 41.50m: Disturbed during removal of core catcher		
15	HQ3		211		WPU		SW		100	100	-	VCS	41.90m - 42.00m: Disturbed during removal of core catcher		
	HQ3		42												
	HQ3		210						100	90	-				
			43			43.10m: Clast size grades to 10 - 50 mm diameter.						ECS			
16	HQ3		209						100	100	-	VCS ECS VCS ECS			
			44			End Of Hole: 44.00m									
			208												
			45												
			207												
			46												
			206												
			47												
			205												
REMARKS:										Water Level Readings:					
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 81mm. 2. Falling/rising head testing undertaken with data logger at borehole depth 16.85m on 31/10/2025 to 02/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 27.0m on 03/11/2025. 3. Geophysical profiling was undertaken on 04/11/2025, comprising optical and acoustic televiwer. 4. One vibrating wire piezometer was installed on 05/11/2025. BH2B_1110_PZ01 was installed at 42m bgl, Serial No. P252864. 5. Shear Vane Serial No. 3151, calibration constant 1.501. 6. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC										DateTime 5/11/2025 9:00:00 am		Hole Depth (m) 44.00		Water Level (m) 26.24	

Borehole Reference:

BH2B_1110

Photographed By:

JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX001_0m-3m



BH2B_1110_BOX002_3m-6m

Borehole Reference:

BH2B_1110

Photographed By:

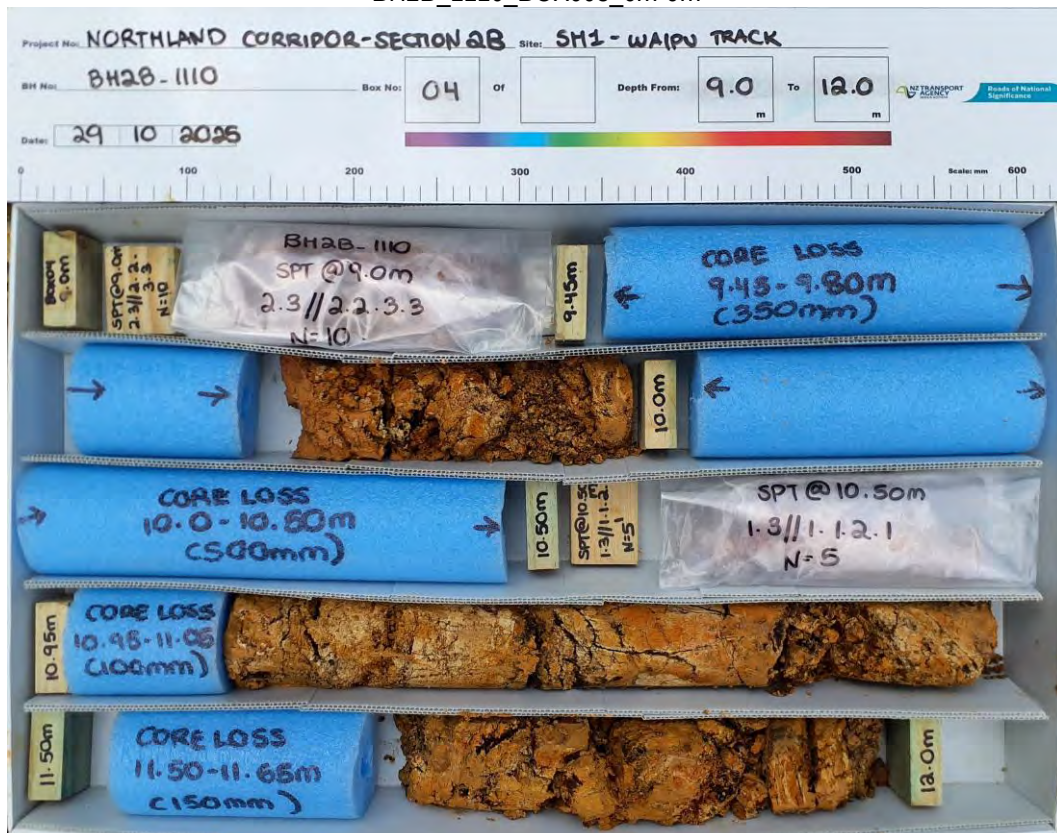
JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX003_6m-9m



BH2B_1110_BOX004_9m-12m

Borehole Reference:

BH2B_1110

Photographed By:

JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX005_12m-15m



BH2B_1110_BOX006_15m-18m

Borehole Reference:

BH2B_1110

Photographed By:

JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX007_18m-21.56m



BH2B_1110_BOX008_21.56m-24.09m

Borehole Reference:

BH2B_1110

Photographed By:

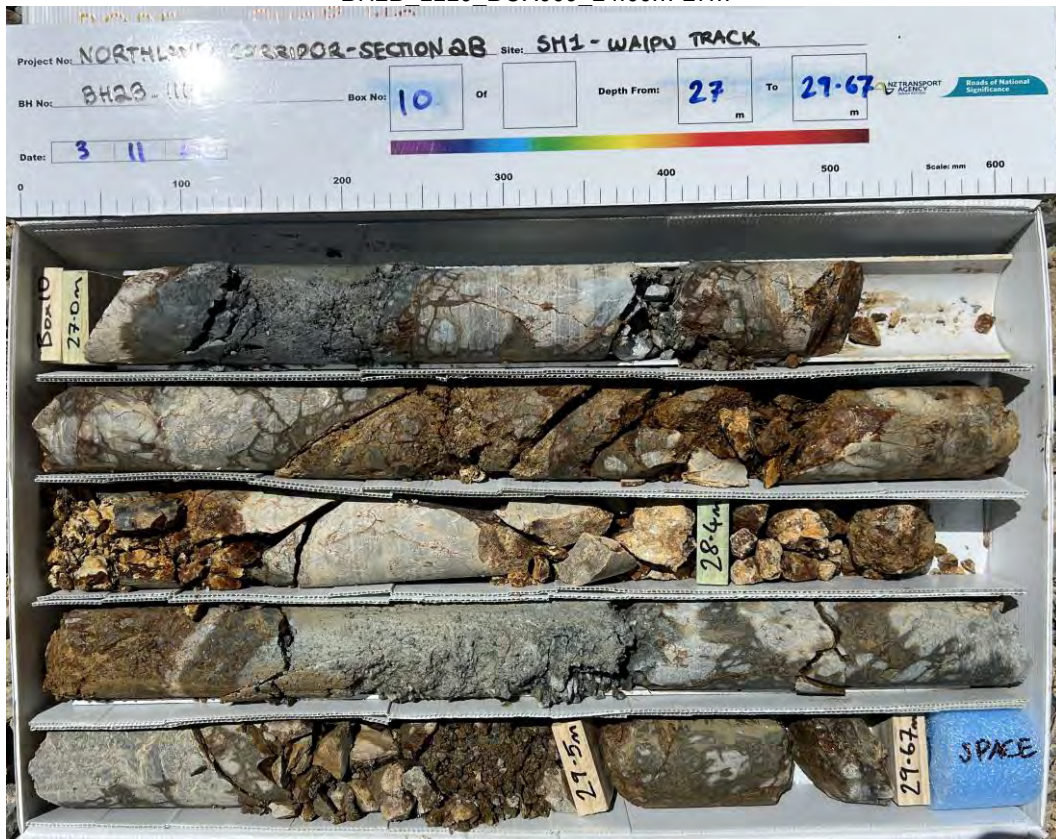
JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B 1110 BOX009 24.09m-27m



BH2B_1110_BOX010_27m-29.67m

Borehole Reference:

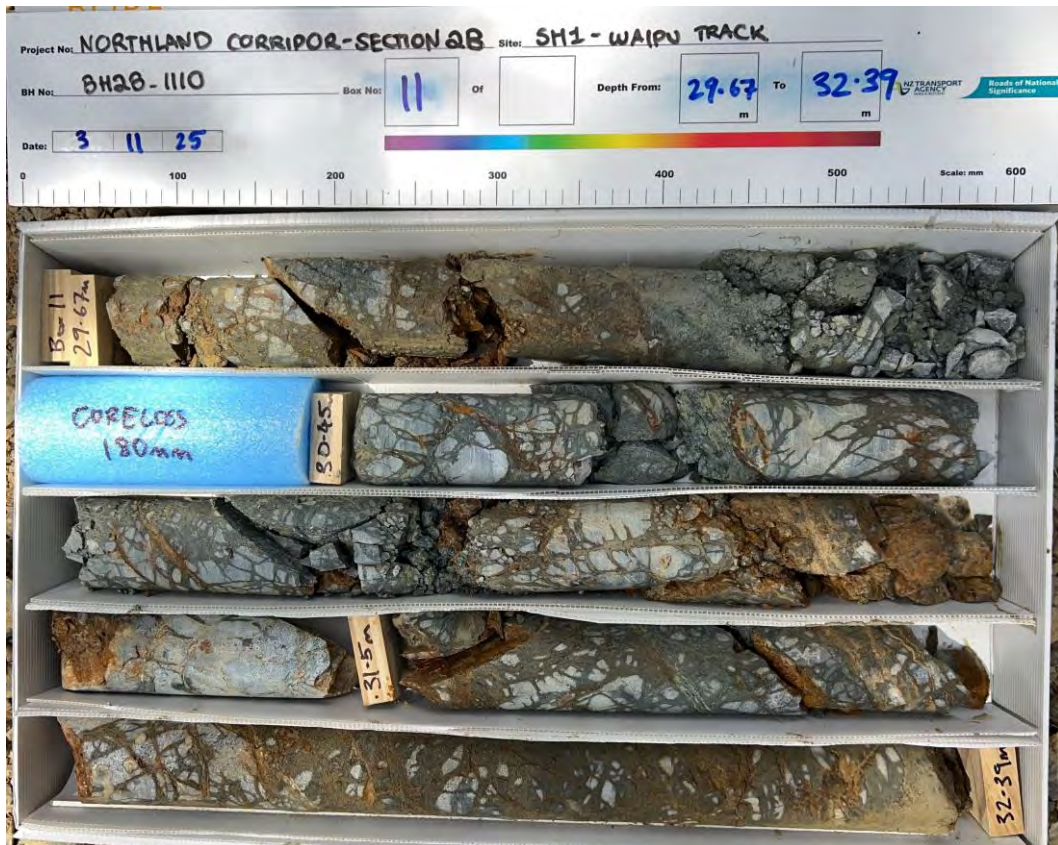
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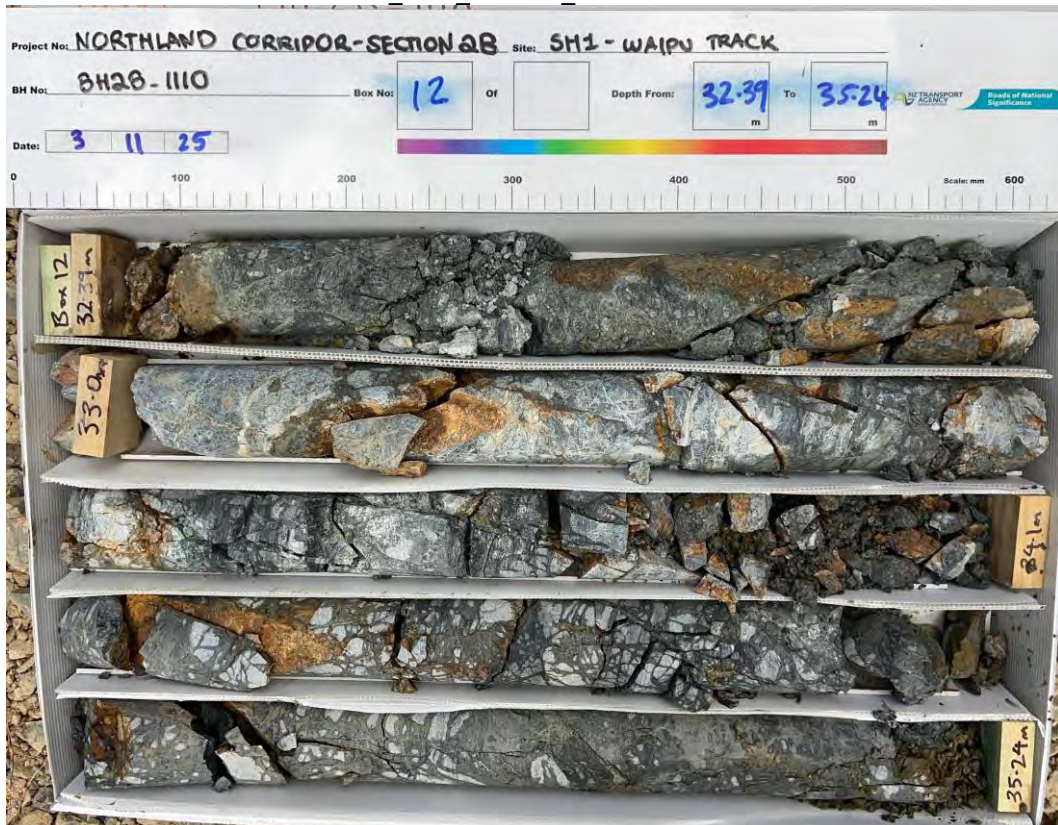
JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX011_29.67m-32.39m



BH2B_1110_BOX012_32.39m-35.24m

Borehole Reference:

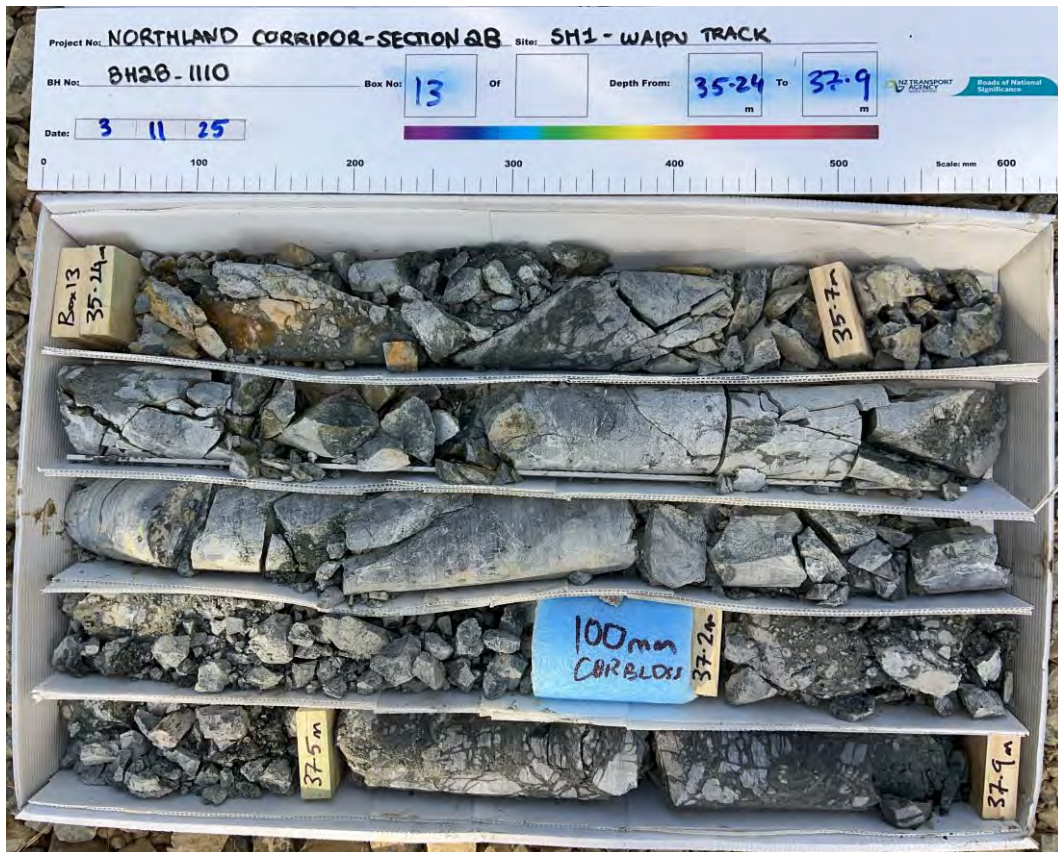
BH2B_1110

Photographed By:

JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX013_35.24m-37.9m



BH2B_1110_BOX014_37.9m-40.72m

Borehole Reference:

BH2B_1110

Photographed By:

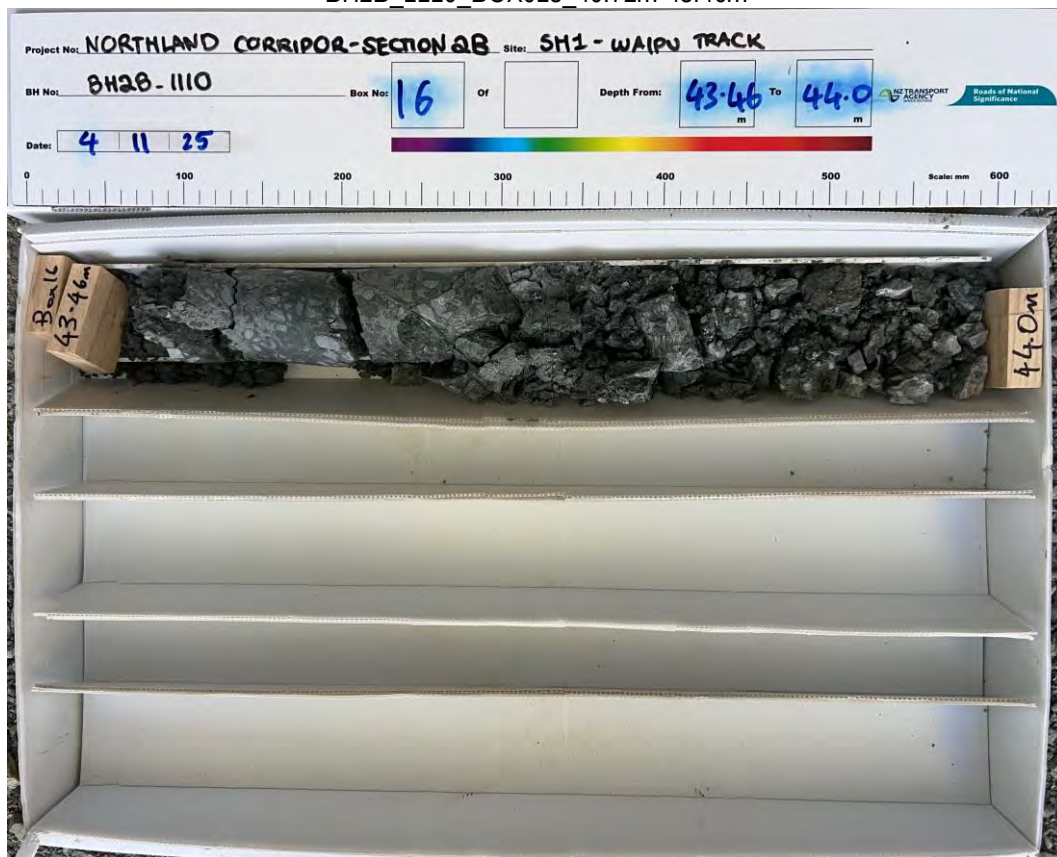
JD, KR

Date Photographed:

28/10/2025-03/11/2025



BH2B_1110_BOX015_40.72m-43.46m



BH2B_1110_BOX016_43.46m-44m

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1		HA		287		WPR	0.00m: CLAY with minor silt and sand; orange brown with red streaks. Moist, hard, low plasticity; sand is fine to medium [RESIDUALLY WEATHERED GREYWACKE].	RS	0.5m: ISHSV 196/44 kPa	100									
		SPT		286			1.30m: Fine to medium SAND with minor silt; reddish brown with grey streaks. Moist, tightly packed, well graded. Relict rock fabric, weak tensile strength [COMPLETELY WEATHERED GREYWACKE]. 1.40m: ...with trace gravel; angular to sub-angular, extremely weak, highly weathered, Greywacke sandstone.	CW	1m: ISHSV 220 kPa 1.5m: ISHSV 220 kPa 1.5m: SPT 1, 3// 4, 4, 5, 5 N = 18	89									
2		HQ3		285		WPH	2.20m: Highly weathered, brownish grey, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, 20° to sub-vertical, planar to undulating, tight to very narrow joints. Iron staining along joints, weak incipient joints (Sandy fine to coarse GRAVEL; angular to sub-angular, extremely weak, Greywacke sandstone). [HIGHLY WEATHERED GREYWACKE]	HW		100							2.20m: JT, 45°, Un, Ro, >2mm, Sn FeO, sandy gravel infill 2.50m: JT, 20°, Pl, Ro, 2mm, Sn FeO		
		SPT		284			3.60-4.00m: ...Persistent 70° - sub-vertical incipient joints. Very weak with moderately strong incipient joints. 3.90-4.00m: ...Soft white infill - possibly zeolite. 4.15m: ...10 - 30mm of weathering penetration.		3m: SPT 2, 2// 3, 3, 4, 5 N = 15	100								3.50-3.60m: JT set x2, 30°, Pl, Ro, 2mm, Sn FeO	
		HQ3		283					4.5m: SPT 1, 2// 2, 3, 3, 3 N = 11	100								4.15m: JT, 65°, Pl, Ro, 1mm, Sn FeO 4.35m: JT, 7°, Pl, Ro, 2mm, Sn FeO	
		SPT		282														5.10m: JT, sub-horizontal, Pl, Ro, 1mm, Sn FeO 5.20m: JT, 70°, Pl, Ro, 1mm, Sn FeO	
3		HQ3		281		WPM	5.45-6.00m: ...up to 5 mm of weathering penetration. Becomes pinkish greyish brown.	MW		100	86	86					5.70-5.90m: JT set x3, 70°, Pl, Ro, 1mm, Sn FeO		
		SPT		280			6.70-7.00m: ...Persistent sub - vertical incipient joints with up to 30 mm of weathering penetration.		6m: SPT 1, 2// 3, 3, 3, 5 N = 14	100								7.00m: JT, 35°, Pl-Un, Ro, 2mm, Sn FeO	
		SPT					7.95-8.75m: ...up to 2 mm of weathering penetration along all incipient joints.		7.5m: SPT 2, 4// 5, 3, 5, 6 N = 19	100							7.35m: JT, 45°, Un, Ro, Sn FeO		

WaterTime	Hole Depth	Water Level
2025-09-23 16:21	18.00m	4.11mbgl
2025-09-24 08:22	18.00m	14.13mbgl
2025-09-24 14:22	28.50m	0.90mbgl
2025-09-25 06:23	28.50m	0.40mbgl
2025-09-25 17:23	43.50m	2.10mbgl
2025-09-26 06:24	43.50m	13.30mbgl
2025-09-26 16:24	51.00m	1.10mbgl
2025-09-29 06:25	51.00m	18.69mbgl

Logged:	M. Crighton
Input:	M. Crighton
Reviewed:	A. George/ B.
Verified:	O'Loughlin A. George

[illegible]

DateTime	Hole Depth	Water Level
2025-09-29 18:25	63.00m	0.60mbgl
2025-09-30 07:26	63.00m	11.28mbgl
2025-09-30 17:00	79.50m	1.43mbgl
2025-10-01 08:00	79.50m	22.11mbgl
2025-10-01 17:00	90.00m	1.30mbgl
2025-10-02 07:30	90.00m	20.80mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	22/09/2025	Logged:	M. Crighton
Method:	Rotary Core Wireline	Easting:	1727579.40	Date completed:	02/10/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007397.39	Inclination:	90°	Reviewed:	A. George/ B.
Contractor:	Drill Force NZ Ltd	Ground level:	287.46m (NZVD2016)	Azimuth:	N/A	Verified:	O'Loughlin A. George

[illegible]

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm.
2. Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808.
3. Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiewer.
4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

[illegible]

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	22/09/2025	Logged:	M. Crighton
Method:	Rotary Core Wireline	Easting:	1727579.40	Date completed:	02/10/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007397.39	Inclination:	90°	Reviewed:	A. George B.
Contractor:	Drill Force NZ Ltd	Ground level:	287.46m (NZVD2016)	Azimuth:	N/A	Verified:	O'Loughlin A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRAC TMS VMS MMS CS VCS ECs	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3				WPM	25.30m: Alternating pockets of slightly weathered, bluish grey and moderately weathered, greyish brown, fine to coarse GREYWACKE SANDSTONE. Very weak to strong, highly fractured, closely spaced, planar to undulating, tight to very narrow joints. Iron staining along joints, moderately strong to strong incipient joints. 25.40m: ...Fracture Zone: Extremely closely spaced, fragmented, recovered as; silty sandy fine to medium GRAVEL; angular, weak, moderately weathered, Greywacke sandstone. 25.50m: ...Incipient joints have 1-2mm of weathering penetration. 26.70-26.85m: ...Fracture Zone: Extremely closely spaced, fragmented, recovered as; silty sandy fine to medium GRAVEL; angular, very weak, moderately weathered, Greywacke sandstone.	MW		100	93	67			24.05m: JT set x2, 10°, Pl, Ro, 1mm, Sn FeO, 10mm of weathering penetration	
														24.55m: JT, 15°, St, Ro, 1mm, Sn FeO	
														24.75-24.80m: JT set x2, 45°, Pl, Ro, 2mm, Sn FeO	
														25.40-25.50m: Fracture zone, controlled by 70° joints, Pl, Ro, clay veneer on joint face	
														25.70-26.20m: JT set x6, 40°, Pl, Ro, 1-2mm, Sn FeO	
														26.40m: JT, 70°, Un-St, Ro, 2mm, Sn FeO	
														26.60m: JT, 70°, Pl, Ro, 1mm, Sn FeO 26.70-26.85m: Crush zone, controlled by 45° joints, Pl, Ro-Sl	
														27.20m: JT, 7°, Pl, Ro, 2mm, Sn FeO	
														27.50m: JT set x2, 45°, Pl, Ro, 2mm, Sn FeO	
														28.10m: JT, 45°, Pl-St, Ro, 1mm, Sn FeO	
10	HQ3				WPM	27.50m: ...Weak incipient joints, crumble easily when handling. 28.35m: ...Crush Zone: recovered as silty sandy fine to coarse GRAVEL; angular, very weak, moderately weathered, Greywacke sandstone. 28.70m: ...Persistent sub-vertical incipient jointing. Up to 10 mm of weathering penetration.	MW		100	73	73			27.50m: JT set x2, 45°, Pl, Ro, 2mm, Sn FeO	
														28.10m: JT, 45°, Pl-St, Ro, 1mm, Sn FeO	
														28.35-28.55m: Crush zone, controlled by 45° joints, Pl, Ro-Sl, clay veneer	
														29.20m: Slightly weathered, bluish grey, fine to coarse GREYWACKE SANDSTONE. Strong, highly fractured, closely spaced, planar to undulating, tight to very narrow joints. Iron staining along joints, moderately strong to strong incipient joints. Moderately veined. [SLIGHTLY WEATHERED GREYWACKE]	
														29.50m: JT, sub-vertical, Pl-St, Ro, 1mm, Sn FeO	
														29.60m: JT, 70°, Pl, Ro, 1mm, Sn FeO	
														29.90m: JT set x2, 80°, Pl, Ro, >2mm, Sn FeO with white and green mineralisation	
														30.00m: JT, sub-vertical, Pl-St, Ro, >2mm, Sn FeO, green and white mineralisation	
														30.20m: JT, 10°, Pl, Ro, 1mm, Sn FeO	
														30.70m: JT, sub-vertical, Un, Ro, 1mm, Sn FeO	
11	HQ3				WPU	30.00-36.00m: ...Persistent sub-vertical moderately strong to strong incipient joints with iron staining along joint faces. 31.70-32.00m: ...Moderately weathered zone controlled by 70° and 45° joints. Fragmented, weak incipient joints.	SW		100	100	100			31.30m: JT, 50°, Pl, Ro, 1mm, Sn FeO	
														31.40m: JT, 70°, Pl, Ro, 2mm, Sn FeO	
														31.70-32.00m: Fracture zone, controlled by 70° joints, Pl-Un, Ro, Sn FeO	

Remarks:

- Remarks:
- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm.
 - 2. Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808.
 - 3. Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiewer.
 - 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569

Water Level Readings:

DateTime	Hole Depth	Water Level
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[illegible]

BOREHOLE INFORMATION			CO-ORDINATES:		Date started:		Logged:	
Method:	Rotary Core Wireline		Easting:	NZTM2000	22/09/2025		M. Crighton	
Equipment:	Rig 5 YDX1800		Northing:	1727579.40	02/10/2025		A. George/ B.	
Contractor:	Drill Force NZ Ltd		Ground level:	6007397.39	90°		O'Loughlin	
				287.46m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
14	HQ3		247				UW						Pl-Un, Ro-Sm, 1mm, Cn	
15	HQ3		41			41.10m: Unweathered, grey to dark grey INTERBEDDED SANDSTONE/ ARGILLITE. Strong to very strong, highly fractured, closely spaced, planar to stepped, tight to very narrow joints. Strong incipient joints, Presence of white soft and hard infill on incipient joints - possibly zeolite and quartz (?).			100	87	87		40.90m: JT, 70°, Un, Ro, 1mm, Cn	
			246			41.10-42.00m: ...intensely veined.							41.30-41.40m: JT set x2, 60°, Pl, Ro, 1mm, white and green mineralisation	
			42			42.00-43.50m: ...moderately veined.							41.55m: JT, 30°, Pl, Ro, 1mm, Cn	
	HQ3		245						100	100	93		41.75m: JT, 50°, Pl, Ro, 1mm, Cn	
			43										41.80m: JT, 45°, Pl, Ro, >2mm, hard white mineralisation	
			244			43.50m: ...intensely veined.							42.20m: JT, 70°, Pl, Ro, 1mm, clay veneer	
16	HQ3		44		WPU								42.90m: JT set x2, 40°, Pl, Ro, 1mm, clay veneer	
			243			44.50-45.00m: ...moderately strong incipient joints.	UW		100	100	97		43.15m: JT, 75°, Pl-Un, Ro, 1mm, clay veneer	
			45			45.00m: ...Strong incipient joints dominated by 45°, intensely veined, up to 10 mm thick.							43.70m: JT, 35°, Un, Ro, <1mm, soft white mineralisation	
			242										43.85-44.00m: JT set x2, 45-55°, Pl, Ro, 1mm, Cn	
	HQ3		46						100	100	69		44.15m: JT, 40°, Pl, Ro, 1mm, white and green mineralisation	
			241										44.70m: JT, sub-vertical, Pl-St, 1mm, clay veneer	
17	HQ3		47										45.10m: JT, sub-vertical, Pl-Un, Ro, 1mm, Cn	
			240										45.25m: JT, 40°, Pl, Ro, >2mm, green and white mineralisation	
													45.50-45.75m: JT set x2, 45°, Pl, Ro, 1mm, green and white mineralisation	
													46.65m: JT, 45°, Pl, Ro, 2mm, hard white infill	
									100	99	99		47.50m: JT, 70°, Pl, Ro, 1mm, clay veneer	

Remarks:			Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm.	2. Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808.	3. Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiewer.	Date/Time	Hole Depth	Water Level
4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.					
Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.					

BOREHOLE INFORMATION		CO-ORDINATES:		Date started:		Logged:	
Method:	Rotary Core Wireline	Easting:	NZTM2000 1727579.40	Date completed:	22/09/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007397.39	Inclination:	02/10/2025	Reviewed:	M. Crighton A. George/ B.
Contractor:	Drill Force NZ Ltd	Ground level:	287.46m (NZVD2016)	Azimuth:	90°	Verified:	O'Loughlin A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS VGS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
18	HQ3	239	49						100	100	100			48.60-49.10m: JT set x4, 70°, PL, Ro, 1mm, Cn	
	HQ3	238	50				UW		100	100	100				
	HQ3	237	51			51.00m: ...Intensely veined, strong incipient joints, dominated by 45° and 70°. Up to 3mm of white hard infill - possible quartz (?) throughout.								51.30m: JT, 70°, Pl-St, Ro, 1mm, white and green mineralisation	
19	HQ3	236	52		WPU				100	100	100			52.20m: JT, 45°, St, Ro, 1mm, white and green mineralisation	
	HQ3	235	53			52.30m: Unweathered, bluish grey, fine to coarse GREYWACKE SANDSTONE. Strong to very strong, highly fractured, closely spaced, planar to stepped, tight to very narrow joints. Strong incipient joints. Presence of white soft and hard infill on incipient joints - possible zeolite and quartz (?).			100	100	100				
	HQ3	234	54			53.30m: ...minor pitting through soft white infill - possible zeolite(?). 53.50-54.00m: ...weak to moderately strong incipient joints. Recovered as fine to coarse angular GRAVEL.			100	0	0			53.50m: JT, 70°, Pl, Sm, 1mm, clay veneer	
20	HQ3	233	55				UW		100	100	93			55.10m: JT, 50°, Pl, Ro, 2mm, green and white mineralisation	
	HQ3	232				55.10m: ...minor pitting in soft white infill - possible zeolite(?). 55.50-56.40m: ...Strong incipient joints dominated by 30-60°.								55.45m: JT set x2, 50°, Pl-Un, Ro, 1mm, green and white mineralisation	
21	HQ3													55.80m: JT, sub-vertical, Pl-St, Ro, 1mm, Cn	

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm. 2. Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808. 3. Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiwer. 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation. Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.	Water Level Readings:		
	Date/Time	Hole Depth	Water Level

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	22/09/2025	Logged:	M. Crighton
Method:	Rotary Core Wireline	Easting:	1727579.40	Date completed:	02/10/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007397.39	Inclination:	90°	Reviewed:	A. George/ B.
Contractor:	Drill Force NZ Ltd	Ground level:	287.46m (NZVD2016)	Azimuth:	N/A	Verified:	O'Loughlin A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
21	HQ3		231		WPU	56.40-57.00m: ...Incipient joints dominated by 70°.	UW		100	67	57	WVS WVS WVS CS VCS ECS	56.50-57.20m: JT set x3, 70°, Pl, Ro, 1mm, clay veneer 56.50m: JT, 70°, Pl, Ro, 2mm, hard white infill - possible quartz(?)	
			57			57.00m: ...Intensely veined, strong incipient joints dominated by 30-60°.								
			230											
			58					100	87	87			57.80m: JT, 35°, Pl, Ro, 2mm, green and white mineralisation 58.00m: JT set x2, 45°, Pl, Ro, >2mm, green and white mineralisation	
			229											
			59					100	100	100				
			228											
			60			59.80-61.20m: ...Medium to coarse GREYWACKE SANDSTONE.					60.00m: JT, 15°, Pl, Sm, 1mm, Cn			
			227			60.30m: ...Incipient joints dominated by 70° with hard white veins at 45°. 60.50-63.10m: ...Intensely veined, strong incipient joints. Veins cutting through original fabric.		100	100	100			62.05-62.40m: JT set x2, 45°, Pl-Stm Ro, 1mm, green and white mineralisation	
			61			60.95m: ...minor pitting in soft white vein - possible zeolite(?).								
22	HQ3		226	WPU		UW					WVS WVS WVS CS VCS ECS			
			62				100	100	67					
			225											
			63											
			224		63.10m: ...dark green inclusions - mudstone (argillite?).		100	100	100			63.35m: JT, 55°, Pl, Ro, 1mm, Cn		

Remarks:

- Remarks:**
- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm.
 - Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808.
 - Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiewer.
 - Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

[illegible]

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Rig 5 YDX1800
Contractor: Drill Force NZ Ltd

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727579.40
Northing:	6007397.39
Ground level:	287.46m (NZVD2016)

Date started: 22/09/2025

Date completed: 02/10/2025
Inclination: 90°
Azimuth: N/A

Logged:	M. Crighton
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Input: M. Crighton
Reviewed: A. George/ B.
Verified: O'Loughlin
A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS WVS MVS CS VCS EGS	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
26	HQ3		215 73 214			72.60-74.15m: ...Moderately strong incipient joints dominated by 30° and sub-vertical angles. Core disturbed during drilling.			100	80	80		72.20m: JT, sub-horizontal, Pl, Ro, 2mm, green and white mineralisation	
27	HQ3		213 74 212			75.00-75.90m: ...Intensely veined with moderate tensile strength. 75.60m: ...Highly fractured. 75.90m: ...Strong incipient joints.	UW		100	100	100		74.25m: JT, sub-horizontal - 8°, Un, Ro, 1mm, Cn 75.10m: JT, sub-vertical, Pl-Un, Ro, >2mm, silty sand infill	
28	HQ3		211 76 210		WPU	76.50-90.00m: ...rock fabric dipping between 10-45°.			100	53	53		76.00m: JT, 45°. Pl, Ro, 1mm, hard white infill - possible quartz(?) 76.30m: JT, 45°, Pl-St, Ro, 1-2mm, white and green mineralisation	
29	HQ3		77 209 78 208			79.10m: ...Moderate tensile strength.			100	100	100		77.30m: JT, 45°, Pl-Un, Ro, 1mm, Cn 79.75m: JT, 70°, Pl-Un, Ro, >2mm	

Remarks:

- Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 60mm and vertical accuracy +/- 90mm.
 2. Two vibrating wire piezometers were installed on 02/10/2025. BH2B_1111_PZ01 was installed at 38.5m bgl, Serial No. P250953. BH2B_1111_PZ02 was installed at 81m bgl, Serial No. P252808.
 3. Geophysical profiling was undertaken on 02/10/2025, comprising optical and acoustic televiever.
 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

[illegible]

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	22/09/2025	Logged:	M. Crighton
Method:	Rotary Core Wireline	Easting:	1727579.40	Date completed:	02/10/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007397.39	Inclination:	90°	Reviewed:	A. George B.
Contractor:	Drill Force NZ Ltd	Ground level:	287.46m (NZVD2016)	Azimuth:	N/A	Verified:	O'Loughlin A. George

[illegible][illegible]

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX001_0m-2.7m



BH2B_1111_BOX002_2.7m-6m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX003_6m-9m



BH2B_1111_BOX004_9m-12m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX005_12m-15m



BH2B_1111_BOX006_15m-18m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX007_18m-20.7m



BH2B_1111_BOX008_20.7m-23.65m

Borehole Reference:

BH2B_1111

Photographed By:

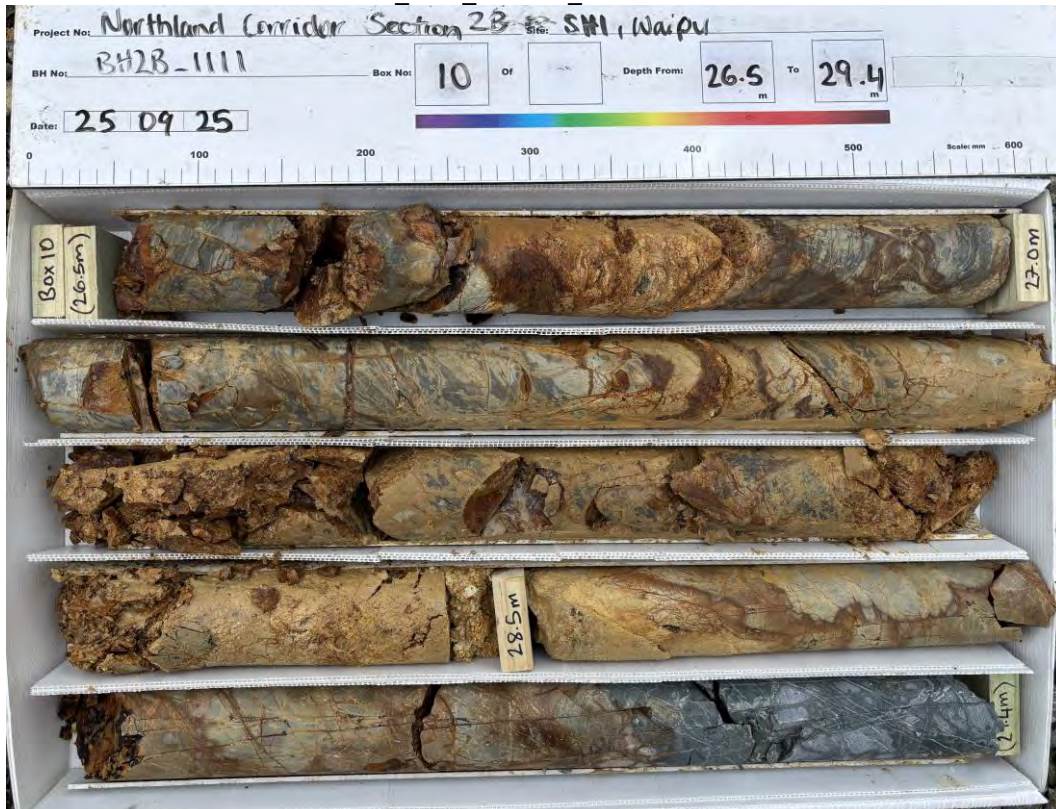
MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX009_23.65m-26.5m



BH2B_1111_BOX010_26.5m-29.4m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX011_29.4m-32.1m



BH2B_1111_BOX012_32.1m-34.5m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX013_34.5m-37.4m



BH2B_1111_BOX014_37.4m-40.5m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX015_40.5m-42.9m



BH2B_1111_BOX016_42.9m-45.6m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX017_45.6m-48m



BH2B_1111_BOX018_48m-50.7m

Borehole Reference:

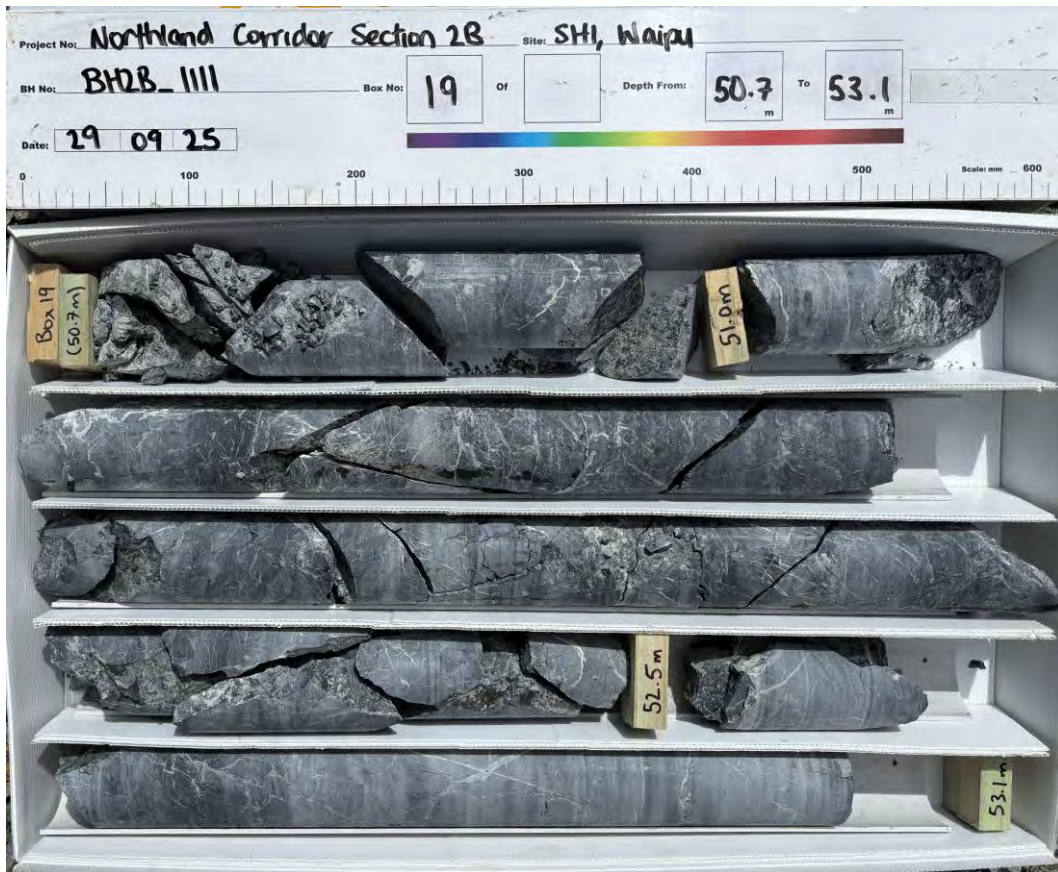
BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX019_50.7m-53.1m



BH2B_1111_BOX020_53.1m-55.8m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX021_55.8m-58.7m



BH2B_1111_BOX022_58.7m-61.5m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX023_61.5m-64.35m



BH2B_1111_BOX024_64.35m-67m

Borehole Reference:

BH2B_1111

Photographed By:

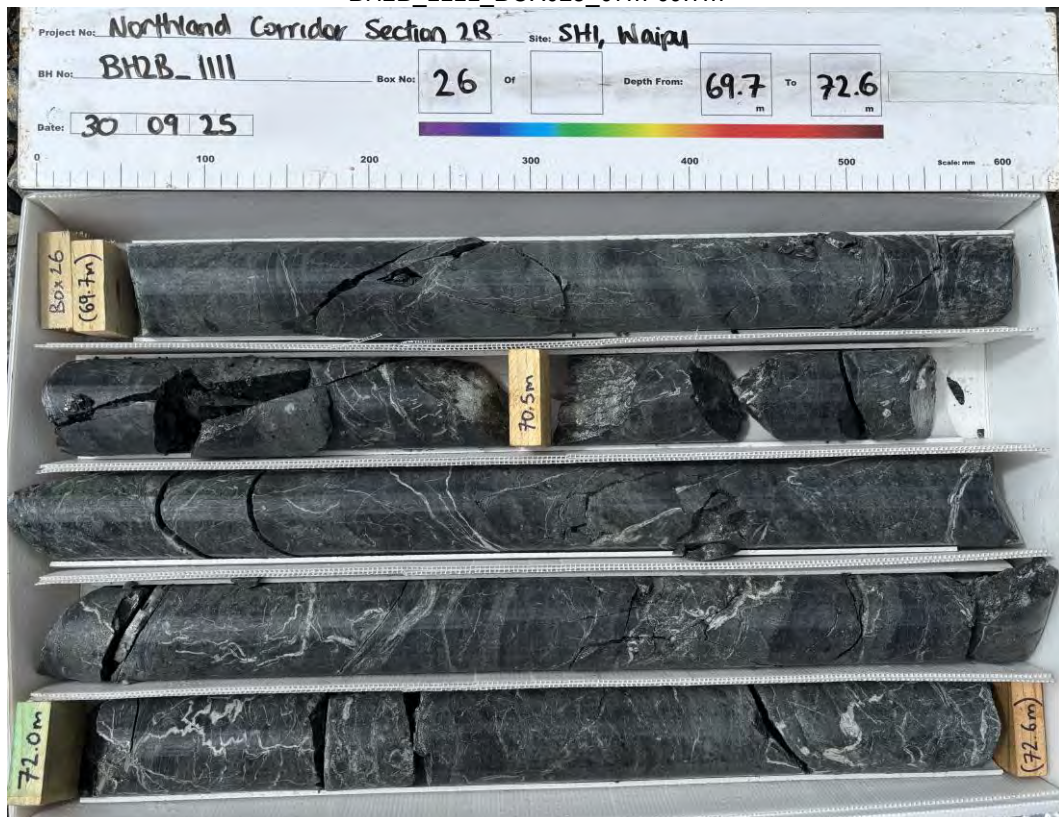
MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX025_67m-69.7m



BH2B_1111_BOX026_69.7m-72.6m

Borehole Reference:

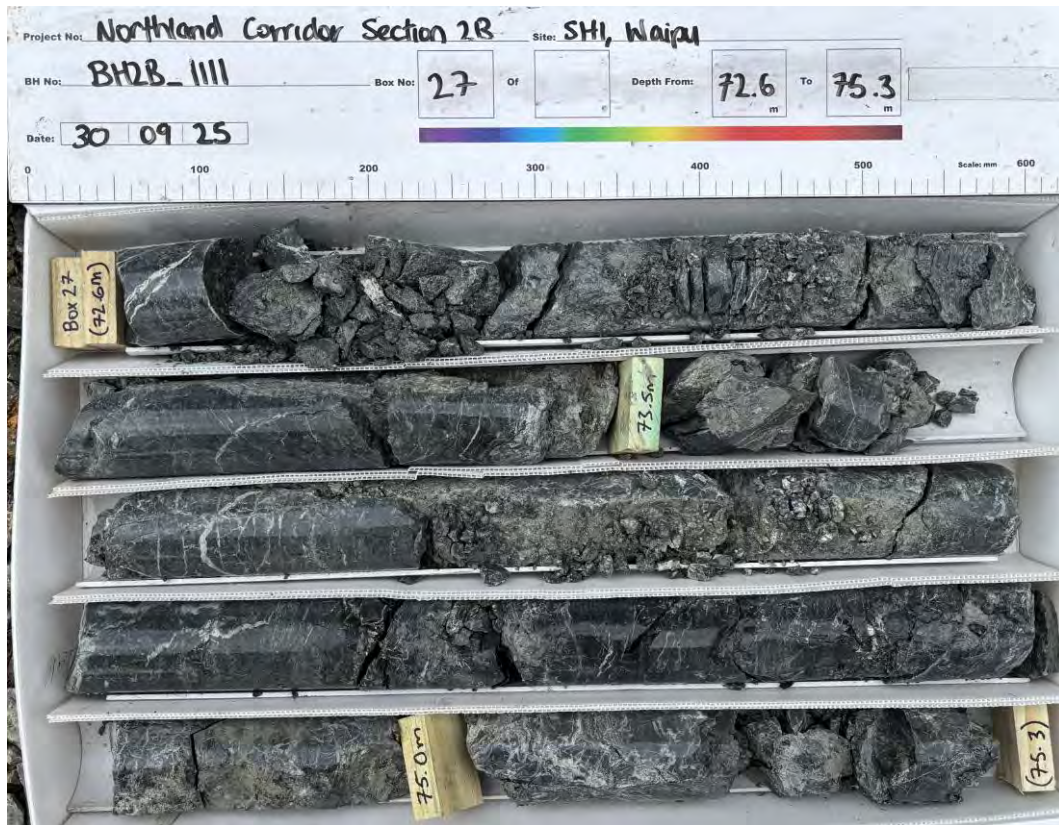
BH2B_1111

Photographed By:

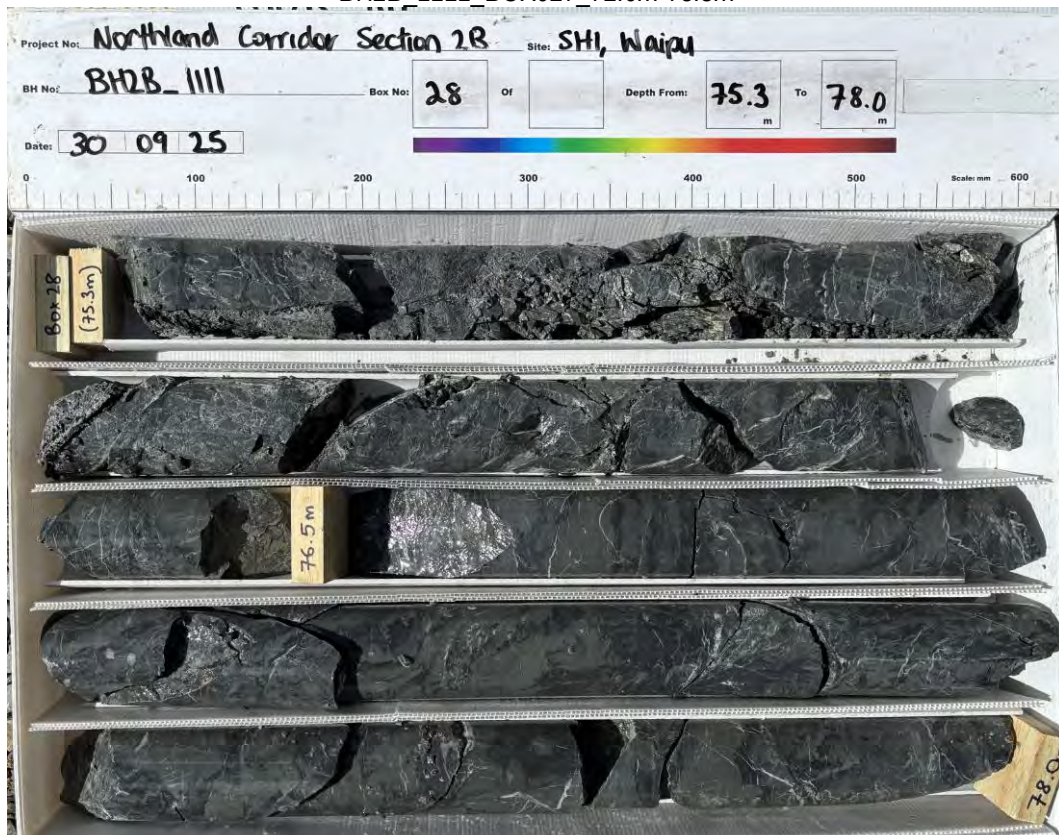
MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX027_72.6m-75.3m



BH2B_1111_BOX028_75.3m-78m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B 1111 BOX029 78m-80.75m



BH2B_1111_BOX030_80.75m-83.5m

Borehole Reference:

BH2B_1111

Photographed By:

MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX031_83.5m-86.1m



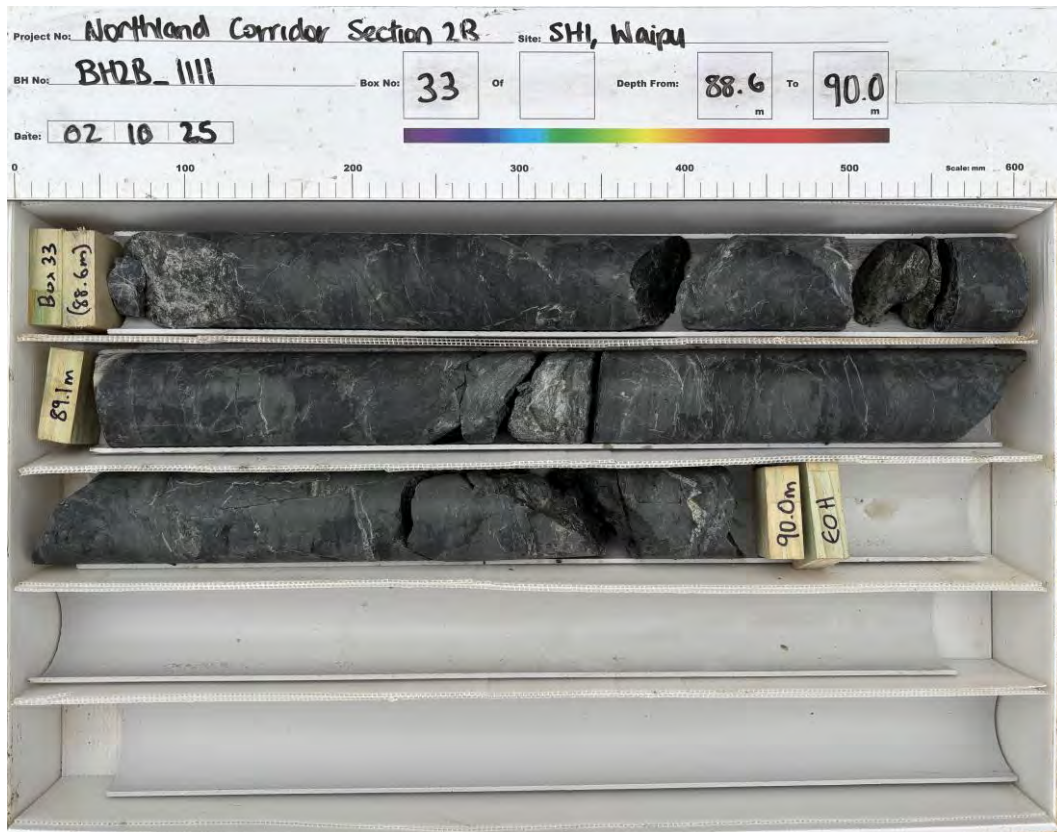
BH2B_1111_BOX032_86.1m-88.6m

Borehole Reference: BH2B_1111

Photographed By: MC, SH

Date Photographed:

23/09/2025-01/10/2025



BH2B_1111_BOX033_88.6m-90m

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES:	NZTM2000
Easting:	1727719.87
Northing:	6006363.58
Ground level:	114.216m (NZVD2016)

Date started:	29/10/2025
Date completed:	06/11/2025
Inclination:	90°
Azimuth:	N/A

Logged:	M.Zhang/B.Griffiths
Input:	B.Griffiths
Reviewed:	N. Crampton
Verified:	C. Parkes

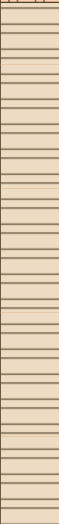
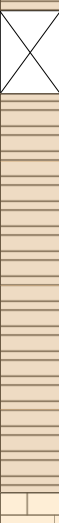
Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.
2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113_PZ01 was installed at 16.35m bgl. Serial No. 378230.
3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.
4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence.
5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded

Shear Vane (IBHSV) Serial No. 2183, calibration constant 1.482

Water Level Readings:		
Date/Time	Hole Depth	Water Level
2025-10-29 17:10	6.45m	2.10mbgl
2025-10-30 07:39	6.45m	1.50mbgl
2025-10-30 17:02	22.60m	1.00mbgl
2025-10-31 07:00	22.60m	-0.70mbgl
2025-11-03 08:30	22.60m	1.90mbgl
2025-11-03 16:50	42.00m	3.40mbgl
2025-11-04 07:46	42.00m	2.10mbgl
2025-11-04 16:13	60.00m	2.00mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	29/10/2025	Logged:	M.Zhang/B.Griffiths
Method:	Rotary Core Wireline	Easting:	1727719.87	Date completed:	06/11/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6006363.58	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	McMillan (NI) Drilling	Ground level:	114.216m (NZVD2016)	Azimuth:	N/A	Verified:	C. Parkes

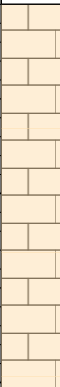
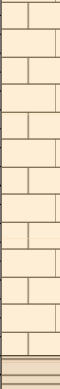
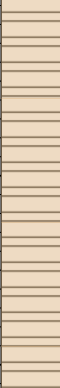
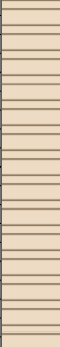
CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	VMS VSS MWS CS VCS ECs	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
3		HQ3		106		NAM	8.05m: Slightly weathered, greenish grey with grey banding and brown mottling, pervasively sheared, calcareous SILTSTONE. Very weak. Shear fabric dipping 10-30 degrees with polished surfaces parallel to shear fabric. Incipient joints parallel to shear fabric, low tensile strength with silt infill. [MELANGE BLOCK]	SW	9m: SPT 4, 8// 10, 10, 13, 13 N = 46	100	79	0						
		SPT		105							71							
		HQ3		9														
4		HQ3		10		NAM	9.64m: Moderately weathered, brownish grey, pervasively sheared, slightly calcareous MUDSTONE. Extremely weak. Shear fabric dipping 20-60 degrees with polished surfaces parallel to shear fabric. Incipient joints parallel to shear fabric, low tensile strength. (Silty CLAY. Hard, moist, high plasticity) [MELANGE MATRIX]		10.5m: SPT 3, 5// 8, 7, 9, 10 N = 35	100	100	0			10.50m: Weak HCl reaction			
		SPT		104							51					10.95m: Core swell 60mm		
		HQ3		11							100	100						
		SPT		103			11.05m: ...Greenish grey with light grey banding. Trace limestone, fine to medium gravel, subrounded. Shear fabric contorted.	MW	12m: SPT 1, 3// 3, 5, 6, 6 N = 20						12.20m: Strong HCl reaction			
		HQ3		12														
		SPT		102			12.45m: CORE LOSS (440mm) Fines washed out.											
5		HQ3		13		NAM	12.89m: Moderately weathered, brownish grey, pervasively sheared, slightly calcareous MUDSTONE. Extremely weak. Shear fabric dipping 20-60 degrees with polished surfaces parallel to shear fabric. Incipient joints parallel to shear fabric, low tensile strength. (Silty CLAY. Hard, moist, high plasticity) 13.30m: ...Fabric dips 10-30".		13.5m: SPT 1, 4// 5, 6, 15, 15 N = 41	58	58	0						
		SPT		101							56							
		HQ3		14							100	90	0					
		SPT		100			13.95m: ...Brownish grey/black. Very weak. polished surfaces parallel to shear fabric.	MW										
		HQ3		15			15.00m: Slightly weathered, light grey to white, pervasively sheared and brecciated, silty LIMESTONE. Weak. Shear fabric dipping 10-30 degrees with polished surfaces and sheared mudstone infill between limestone breccia clasts up to 70mm. Handling and drilling induced breaks parallel to shear fabric. Bottom contact 10° [MELANGE BLOCK].	SW	15m: SPT 1, 3// 18, 32 for 35mm N = 50+	85					15.00-18.97m: SZ, Brecciated silty limestone with anastomosing sheared mudstone bands dipping 10-30° between brecciated clasts			
		SPT		99											15.50m: Strong HCl reaction			
		HQ3								100	90	0						

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.
2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230.
3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.
4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence.
5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded

DateTime	Hole Depth	Water Level
2025-11-05 07:40	60.00m	12.00mbgl
2025-11-05 14:34	74.00m	7.30mbgl
2025-11-06 08:00	74.00m	6.10mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	29/10/2025	Logged:	M.Zhang/B.Griffiths
Method:	Rotary Core Wireline	Easting:	1727719.87	Date completed:	06/11/2025	Input:	B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6006363.58	Inclination:	90°	Reviewed:	N. Crampton
Contractor:	McMillan (NI) Drilling	Ground level:	114.216m (NZVD2016)	Azimuth:	N/A	Verified:	C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	VSS VMS WSS CS VCS ECS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	SPT C	HQ3	98				SW	16.5m: SPTC 50 for 60mm// N = 50+	100	86	0			18.00m: Strong HCl reaction	
			17						100	57	0				
			97						97	67	0				
			18						0						
7	SPT C	HQ3	96			18.97-19.55m: ...Shear Zone. Silty CLAY with trace gravel, dark grey with white speckles. Firm, low plasticity. Gravel is fine, angular, limestone. Upper and lower contacts 10-20°. 19.05-19.30m: ...CORE LOSS (250mm) Melange matrix assumed washed away.	SW	18m: SPTC 50 for 55mm// N = 50+	80	56	0			18.97-19.55m: SZ, 580mm, contacts 10-20°	
			19						110	75	0		19.30m: Core swell 40mm		
			95						98	83	0		20.35m: Core swell 350mm 20.35-25.43m: HB, Parallel to shear fabric		
			20						141	100	0		21.00m: Strong HCl reaction 21.20m: Core swell 160mm		
8	HQ3	HQ3	94		NAM	19.80m: ...Fabric dips 50-70°. 19.90m: Slightly weathered, greenish grey with dark brown banding, pervasively sheared calcareous MUDSTONE. Extremely weak. Shear fabric dipping 10 to 30 degrees with polished surfaces, parallel to shear fabric. Top contact 60° [MELANGE MATRIX] 20.10-20.20m: ...Pervasively sheared calcareous siltstone clast. Lower contact 10°	SW		111	100	0			22.68m: ...Some Limestone clasts. Fine to medium gravel, subangular.	
			93												
			22												
			92												
9	HQ3	HQ3	91						100	100	0			23.90m: 700mm core loss picked up in	

	1
Remarks:	

- Remarks:**
1. Coordinates captured using a Trimble R12Li Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.
 2. One vibrating wire piezometer was installed on 06/11/2025. BH22B_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230.
 3. Falling/ rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.
 4. Joint spacing, ROD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence.
 5. Falling/ rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl). No groundwater flow was recorded.

Shear Vane (IBHSV) Serial No. 2183, calibration constant 1.482.

Water Level Readings:

DateTime	Hole Depth	Water Level
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Date/Time	Hole Depth	Water Level
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 		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 2941 State Highway 1, Kaiwaka, Zone 3 Project Reference: Aurecon WSP JV										BH2B_1113				
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Sheet 4 of 10														
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin/D&B 10 Contractor: McMillan (NI) Drilling					CO-ORDINATES: NZTM2000 Easting: 1727719.87 Northing: 6006363.58 Ground level: 114.216m (NZVD2016)					Date started: 29/10/2025 Date completed: 06/11/2025 Inclination: 90° Azimuth: N/A			Logged: M.Zhang/B.Griffiths Input: B.Griffiths Reviewed: N. Crampton Verified: C. Parkes			
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS WS MWS US VCS ECS			STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3		90			24.24-24.33m: ...Slightly weathered, grey, calcareous siltstone. Very weak. [MELANGE BLOCK] 24.45-24.60m: ...Slightly weathered, grey, calcareous SILTSTONE. Very weak [SMALL MELANGE BLOCK]. 24.60-24.70m: ...Shear Zone, dark grey with white speckles, silty CLAY with minor gravel. Stiff, low plasticity. Gravel is fine to medium, subangular, limestone. Contacts 10-20°. 24.70m: Unweathered, greenish grey to grey with reddish brown banding, pervasively sheared, intermixed calcareous MUDSTONE and SILTSTONE with minor fine sandstone. Very weak. Some siltstone and limestone clasts, fine to medium gravel, subangular. Contorted shear fabric with polished surfaces, brecciated appearance in places [MELANGE BLOCK].	SW		100	100	0				following 25.4-25.7 run, 100% recovery so core runs amended to simplify correlation with core photos. 24.40m: Weak HCl reaction 24.60-24.70m: SZ, 10-20°, 100mm	
	HQ3		89						100	100	0					
	HQ3		88						100	100	0					
10			26			26.80m: ...Light grey, laminated, calcareous SILTSTONE clast, deformed.	UW							25.70m: 100mm core loss picked up in following 27.2-28.7 run		
			27													
	HQ3		87						100	100	0					
11			28			30.82m: ...Limestone clasts, fine to medium gravel, subangular.	UW							28.00m: Weak HCl reaction		
			29													
	HQ3		85						100	100	0					
12			30			31.35m: Unweathered, dark grey, light grey and brownish grey, pervasively sheared, calcareous MUDSTONE. Extremely weak. Shear fabric dips 10-30° with polished surfaces. Contains clasts up to 70mm, limestone and siltstone, subangular. Top contact 40° [MELANGE MATRIX]. 31.70-32.15m: ...Reddish brown banding, 10-50mm thick, dipping 5-10 degrees.	UW							30.00m: No HCl reaction		
			31													
	HQ3		83						100	100	0					
														30.82m: Strong HCl reaction on clasts.		
														31.50m: Weak HCl reaction		
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm. 2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230. 3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded. 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence. 5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded												Water Level Readings: Date/Time Hole Depth Water Level				
Shear Vane (IBHSV) Serial No. 2183, calibration constant 1.482.																

BOREHOLE INFORMATION		CO-ORDINATES:		Date started:		Logged:	
Method:	Rotary Core Wireline	Easting:	NZTM2000 1727719.87	Date completed:	29/10/2025	Input:	M.Zhang/B.Griffiths
Equipment:	Hanjin/D&B 10	Northing:	6006363.58	Inclination:	06/11/2025	Reviewed:	B.Griffiths
Contractor:	McMillan (NI) Drilling	Ground level:	114.216m (NZVD2016)	Azimuth:	90°	Verified:	N. Crampton
						C. Parkes	

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	82				32.30m: ...Shear fabric dips 50°.			100	100	0							
	HQ3	81				33.35m: ...Shear fabric dipping 70 degrees. 33.50m: ...Shear Fabric dipping 10-40 degrees.			100	100	0						34.00m: Weak HCl reaction	
	HQ3	80				34.50-34.60m: ...Shear zone. Clayey silt. Very stiff, high plasticity. Bottom contact 10°.											34.50-34.60m: SZ, 10°, 100mm, bottom contact 10°	
13	HQ3	79				35.05m: ...Shear fabric dipping 10-30°.	UW		100	100	0						35.50m: Strong HCl reaction on limestone clasts	
	HQ3	78							100	100	0							
	HQ3	77				37.00m: ...Shear Fabric dipping 10-20 degrees.												
14	HQ3	76				37.90m: Unweathered, light grey, fine to coarse silty calcareous SANDSTONE. Weak. Bedding dipping 5-20 degrees. Incipient joints throughout, dipping 20-90 degrees, planar and stepped. Strong tensile strength with silt infill. [MELANGE BLOCK]	UW		100	100	0						38.00m: Weak HCl reaction	
	HQ3	75				39.40m: Unweathered, dark grey, calcareous SILTSTONE. Very weak. Very thin bedding, dipping 10-20 degrees, stepped. Incipient joints dipping 10-60 degrees, moderate tensile strength, silt infill [MELANGE BLOCK]. 39.80m: Unweathered, grey to greenish grey with brownish orange banding, pervasively sheared, calcareous, SILTSTONE and MUDSTONE with some sandstone and limestone clasts. Very weak. Sandstone and limestone clasts are fine to coarse gravel, subrounded. Shear fabric dips 10-40 degrees with polished surfaces parallel to shear fabric. Drilling and handling induced breaks parallel to shear fabric [MELANGE MATRIX]	UW		100	100	0							

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.

2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230.

3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.

4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence.

5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded

Water Level Readings:

Date/Time	Hole Depth	Water Level
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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES: NZTM2000
Easting: 1727719.87
Northing: 6006363.58
Ground level: 114.216m (NZVD2016)

Date started: 29/10/2025
Date completed: 06/11/2025
Inclination: 90°
Azimuth: N/A

Logged: M.Zhang/B.Griffiths
Input: B.Griffiths
Reviewed: N. Crampton
Verified: C. Parkes

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACATURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
15	HQ3	74				40.00m: ...100mm SILTSTONE / fine SANDSTONE clast. Pervasively sheared and microfaulted with moderate to high tensile strength incipient joints. Top contact 30°.	UW							
16	HQ3	73			NAM	42.00-42.15m: ...150mm Sandstone clast, disrupted bedding. Top contact 80°, bottom contact 15°.	UW							
17	HQ3	71			NAF	44.50m: Unweathered, greenish grey to grey, pervasively sheared, MUDSTONE and SILTSTONE. Extremely weak. Shear fabric dipping 10-30 degrees and contorted with polished surfaces parallel to shear fabric. (Silt with some clay. Stiff, moist, high plasticity) [NORTHLAND ALLOCHTHON FAULT].	UW						44.50-48.75m: FZ, 4.25m, lower contact 10°	
													45.00m: Weak HCl reaction	
17	HQ3	67			NAL	46.30m: ...White fine to coarse angular limestone clasts.	UW							
						46.50m: ...Coarse gravel to cobble sized subangular siltstone clasts.								
						46.75m: Unweathered dark grey, interbedded calcareous SILTSTONE and MUDSTONE with some sandstone. Very weak. Laminated to very thin, dipping 5-10 degrees, deformed and convoluted in places. Incipient joints parallel to bedding planes and 30-45° dip with calcite infilling, moderate tensile strength. [NORTHERN ALLOCHTHON CALCAREOUS SEQUENCE]							46.75-55.35m: Core breaks along incipient joints on firm handling	

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.

2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113. PZ01 was installed at 16.35m bgl, Serial No. 378230.

3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.

4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence.

5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded

Water Level Readings:

Date/Time	Hole Depth	Water Level
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NZ TRANSPORT AGENCY WIKIKA WIKIKA Roads of National Significance		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: 2941 State Highway 1, Kaiwaka, Zone 3 Project Reference: Aurecon WSP JV		BH2B_1113										
Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Sheet 8 of 10												
BOREHOLE INFORMATION Method: Rotary Core Wireline Equipment: Hanjin/D&B 10 Contractor: McMillan (NI) Drilling		CO-ORDINATES: NZTM2000 Easting: 1727719.87 Northing: 6006363.58 Ground level: 114.216m (NZVD2016)		Date started: 29/10/2025 Date completed: 06/11/2025 Inclination: 90° Azimuth: N/A		Logged: M.Zhang/B.Griffiths Input: B.Griffiths Reviewed: N. Crampton Verified: C. Parkes								
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
20	HQ3					56.20m: Unweathered, grey, calcareous MUDSTONE and SILTSTONE with some sandstone. Very weak. Sandstone is fine to medium. Bedding is laminated to moderately thin, dipping 10-20 degrees deformed and offset. Microfaults and incipient joints parallel to bedding planes and 30-70,° moderate tensile strength. 56.85-57.05m: ...Fine to medium, grey, calcareous Sandstone. Very thin bedding, dipping 5 degrees.	UW		100	60	60	WS VWS MWS VMS VCS VGS EGS	56.20-56.85m: CZ/Fracture Zone, likely drilling induced from weak tensile strength incipient joints. Recovered as fine to coarse angular gravel with minor fines 56.20-74.00m: Pervasive incipient joints, 10-80°, typically weak to moderate tensile strength, silt and calcite infill.	
21	HQ3								100	87	87			
22	HQ3				NAL	59.60-66.15m: ...Dark grey, moderate tensile strength incipient joints, dipping 10-60 degrees, infilled with silt and calcite. Core breaks parallel to bedding planes and incipient joints during handling. 61.00-64.00m: ...Bedding offset by incipient joints / microfaults.	UW		97	87	87		60.00m: Strong HCl reaction 60.30-60.45m: VE, 70°, Un, 1-5mm	
23	HQ3					62.53m: ...50mm Sandstone clast, cobble, subangular with calcite inclusions. 63.60-63.71m: ...Fine to medium calcareous sandstone bed. Dipping 5 degrees.			100	90	90		62.73m: JT, 30°, Sm, Pl, Vn Silt and calcite	
									100	100	100			
									100	100	100		63.82-64.12m: CZ, Fine to coarse siltstone gravel, angular. Silt matrix, low plasticity. Upper	
									98	73	73			
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm. 2. One vibrating wire piezometer was installed on 06/11/2025. BH2B_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230. 3. Falling/rising head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded. 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints with moderate and strong tensile strength within the Northland Allochthon Calcareous Sequence. 5. Falling/rising head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded												Water Level Readings: Date/Time Hole Depth Water Level		
Shear Vane (IBHSV) Serial No. 2183, calibration constant 1.482.														

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin/D&B 10
Contractor: McMillan (NI) Drilling

CO-ORDINATES:

CO-ORDINATES:	NZTM2000
Easting:	1727719.87
Northing:	6006363.58
Ground level:	114.216m (NZVD2016)

Date started: 29/10/2025

Date completed: 06/11/2025
Inclination: 90°
Azimuth: N/A

Logged:	M.Zhang/B.Griffiths
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Input:	B.Griffiths
Reviewed:	N. Crampton
Verified:	C. Parkes

[illegible]

Remarks:

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46mm and vertical accuracy +/- 83mm.
2. One vibrating wire piezometer was installed on 06/11/2025. BH25_1113_PZ01 was installed at 16.35m bgl, Serial No. 378230.
3. Falling/filling head testing undertaken with data logger at borehole depth 22.60m on 30/10/2025 pm 1.0m agl and 31/10/2025 am 0.7m agl. No groundwater flow was recorded.
4. Falling/filling ROD and SCPT have been calculated using the same data as the streamflow data from the Northland Allotment Catchment Sequence.
5. Falling/filling head testing undertaken with datalogger at borehole depth 22.60 m resulted in artificial Artesian conditions on 30/10/2025 pm (1.0m agl) and 31/10/2025 am (0.7 m agl) . No groundwater flow was recorded.

Water Level Readings:

DateTime	Hole Depth	Water Level
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Borehole Reference:

BH2B_1113

Photographed By:

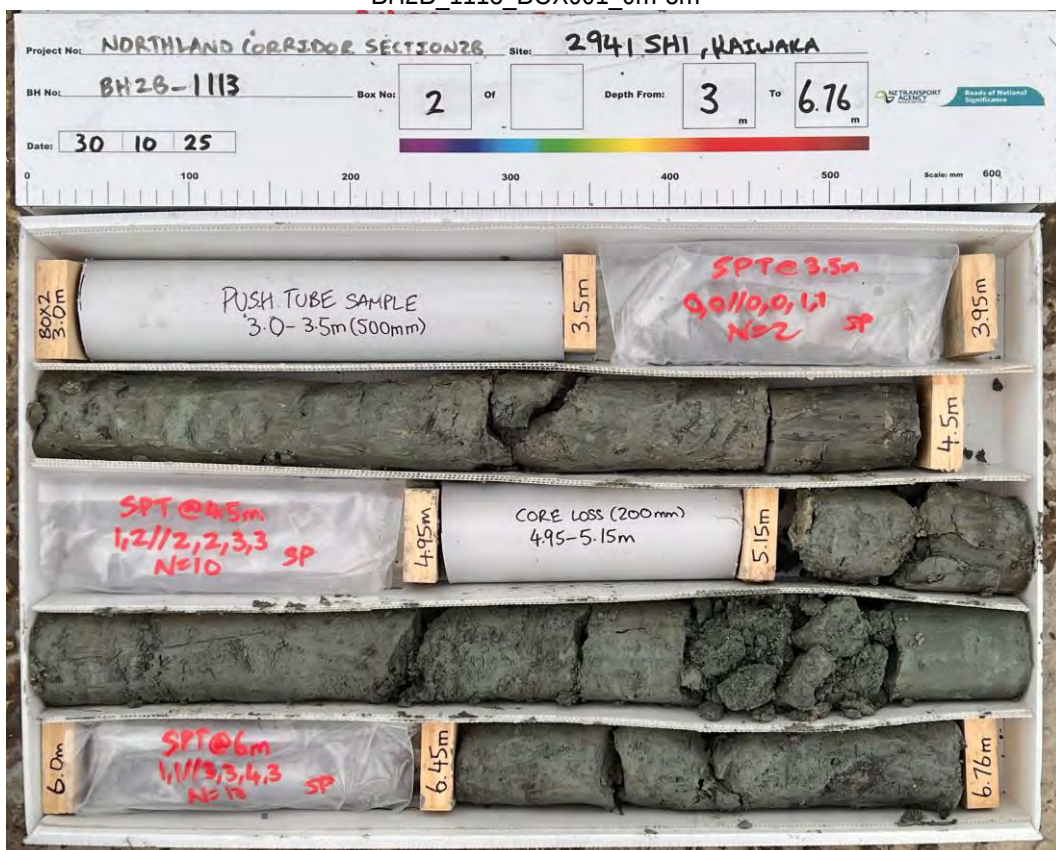
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX001_0m-3m



BH2B_1113_BOX002_3m-6.76m

Borehole Reference:

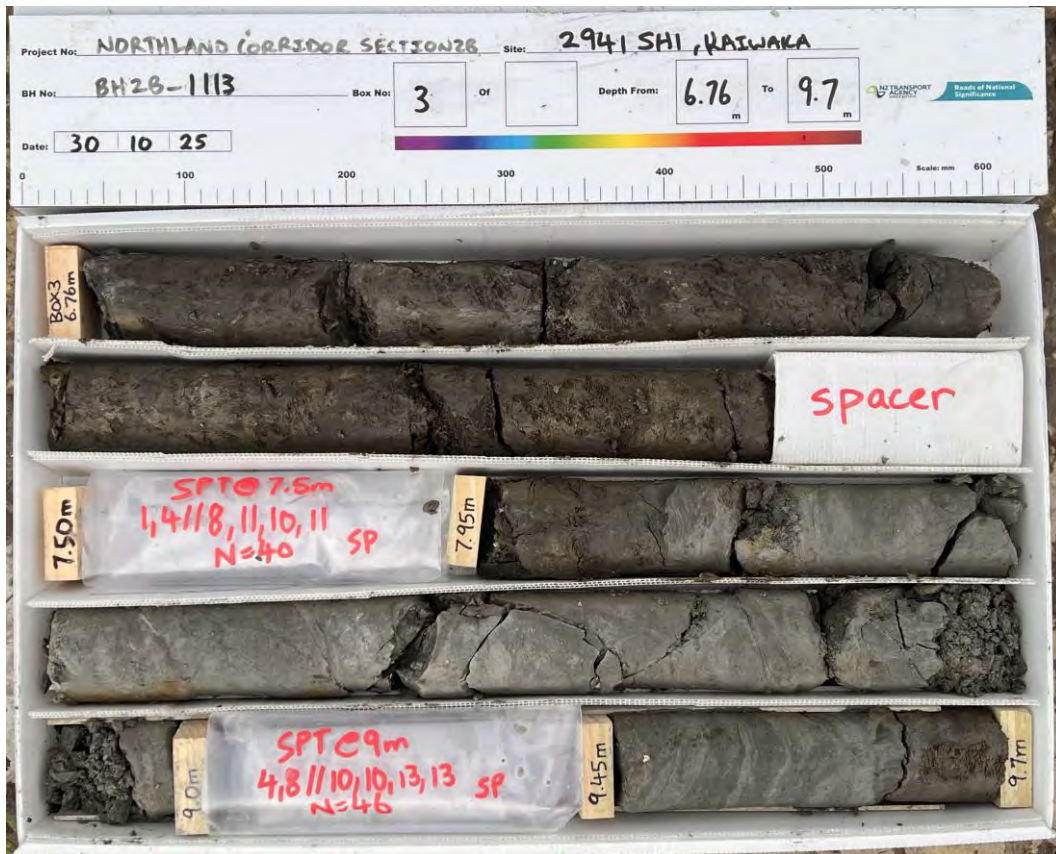
BH2B_1113

Photographed By:

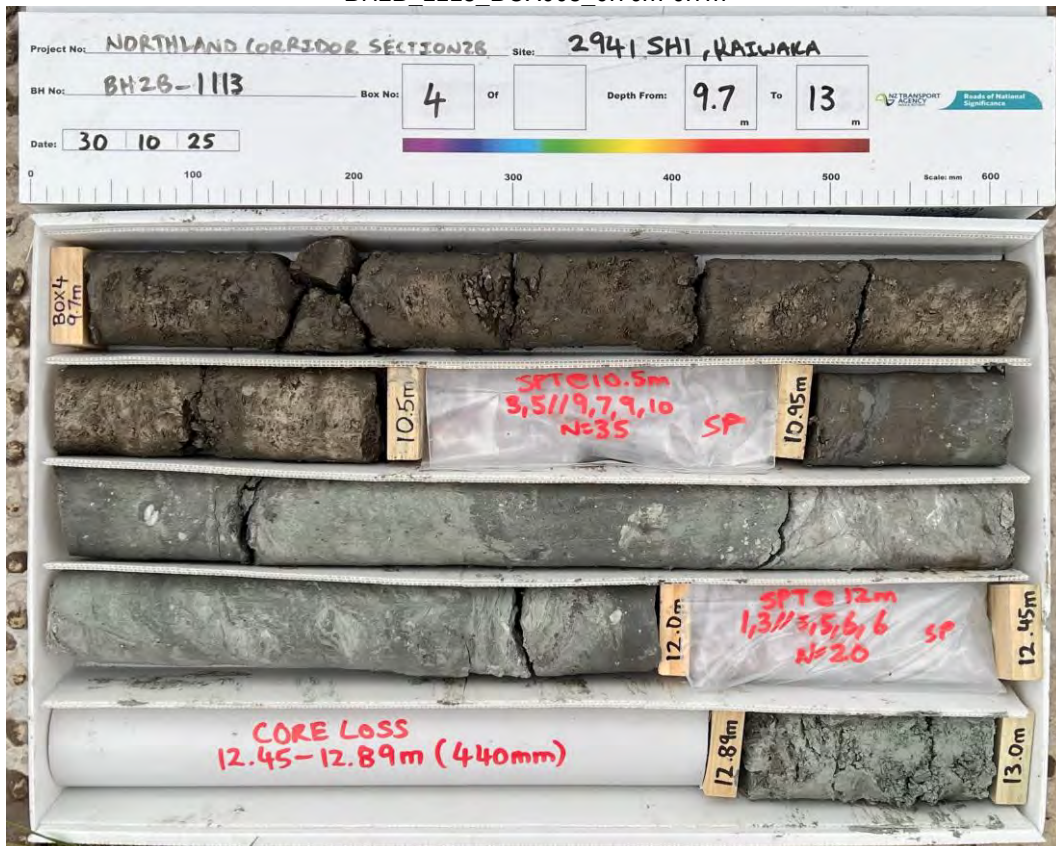
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX003_6.76m-9.7m



BH2B_1113_BOX004_9.7m-13m

Borehole Reference:

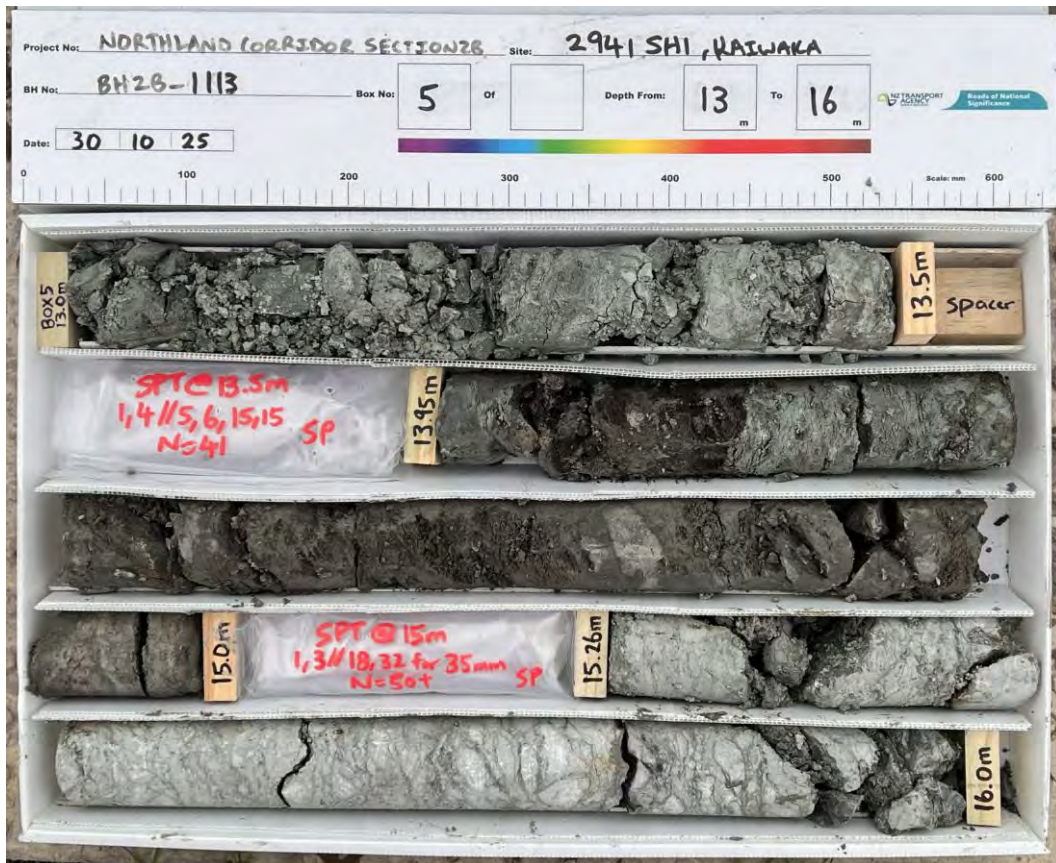
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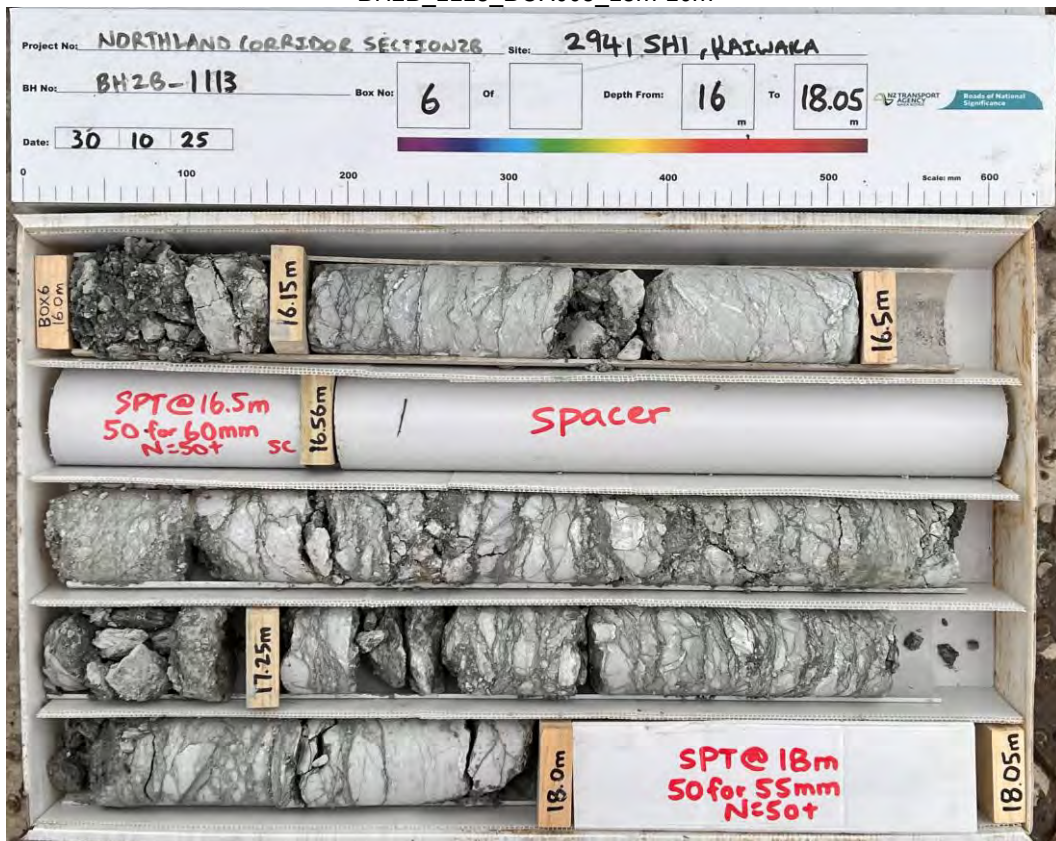
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX005_13m-16m



BH2B_1113_BOX006_16m-18.05m

Borehole Reference:

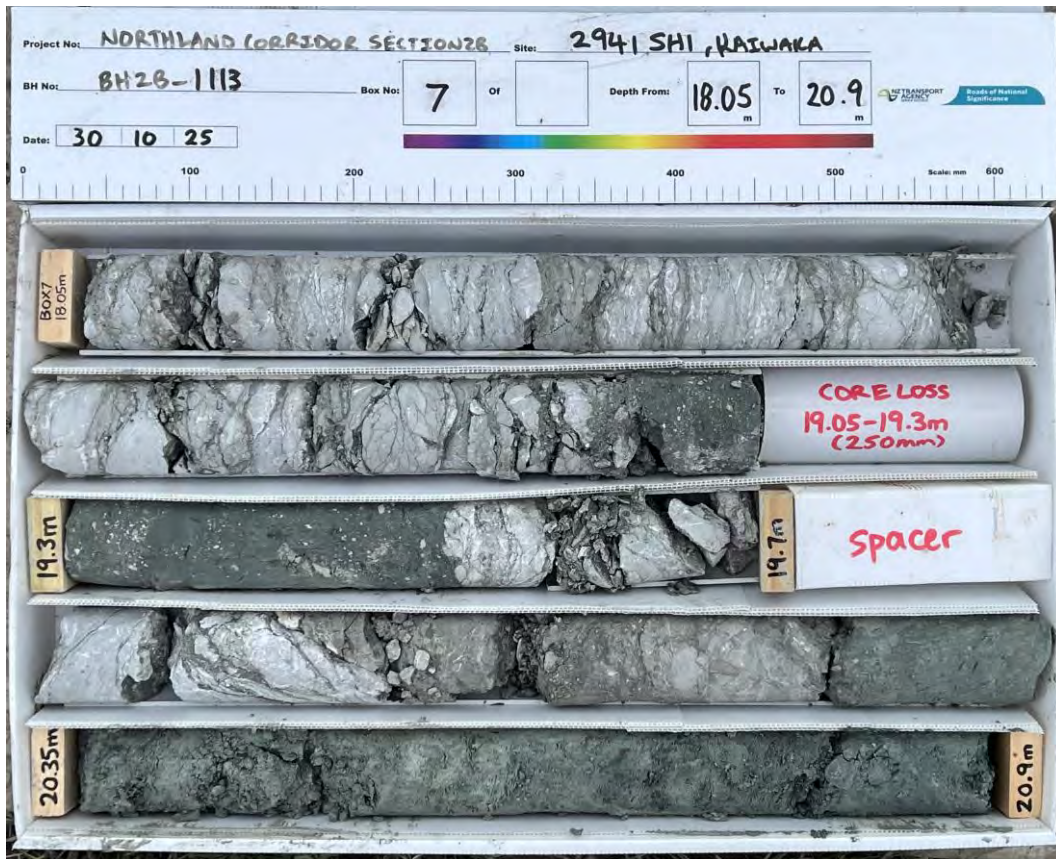
BH2B_1113

Photographed By:

BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX007_18.05m-20.9m



BH2B_1113_BOX008_20.9m-23.2m

Borehole Reference:

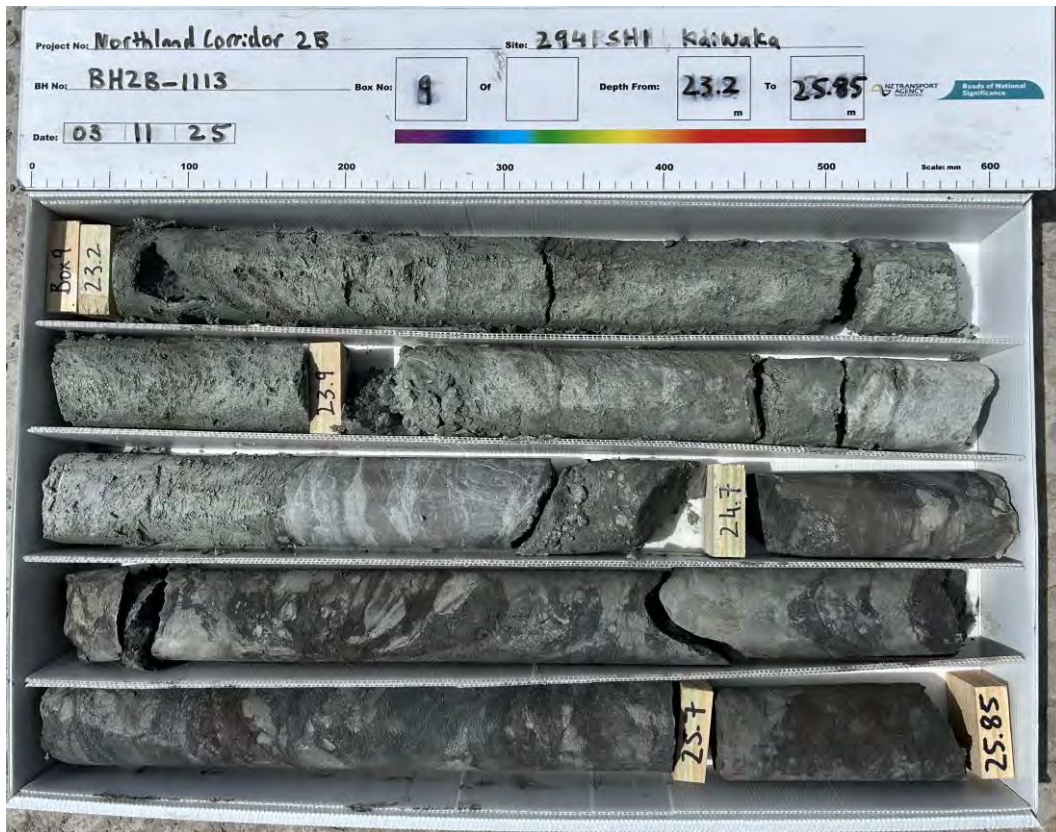
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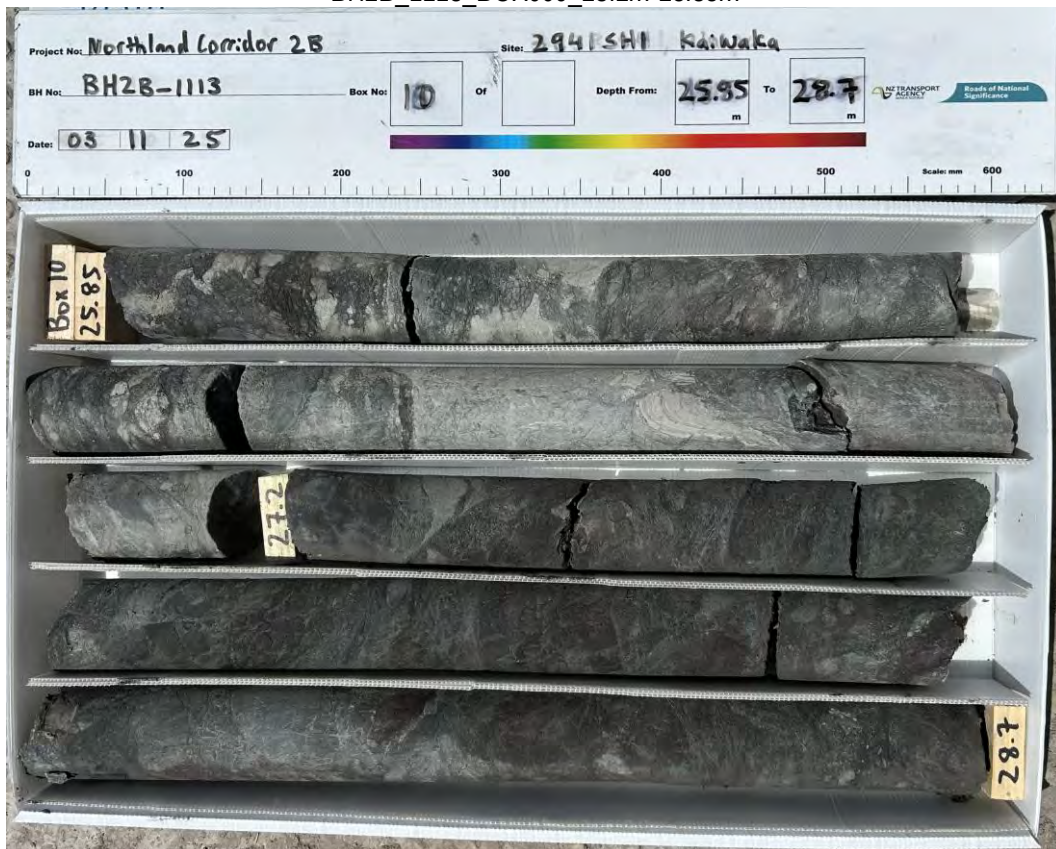
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX009_23.2m-25.85m



BH2B_1113_BOX010_25.85m-28.7m

Borehole Reference:

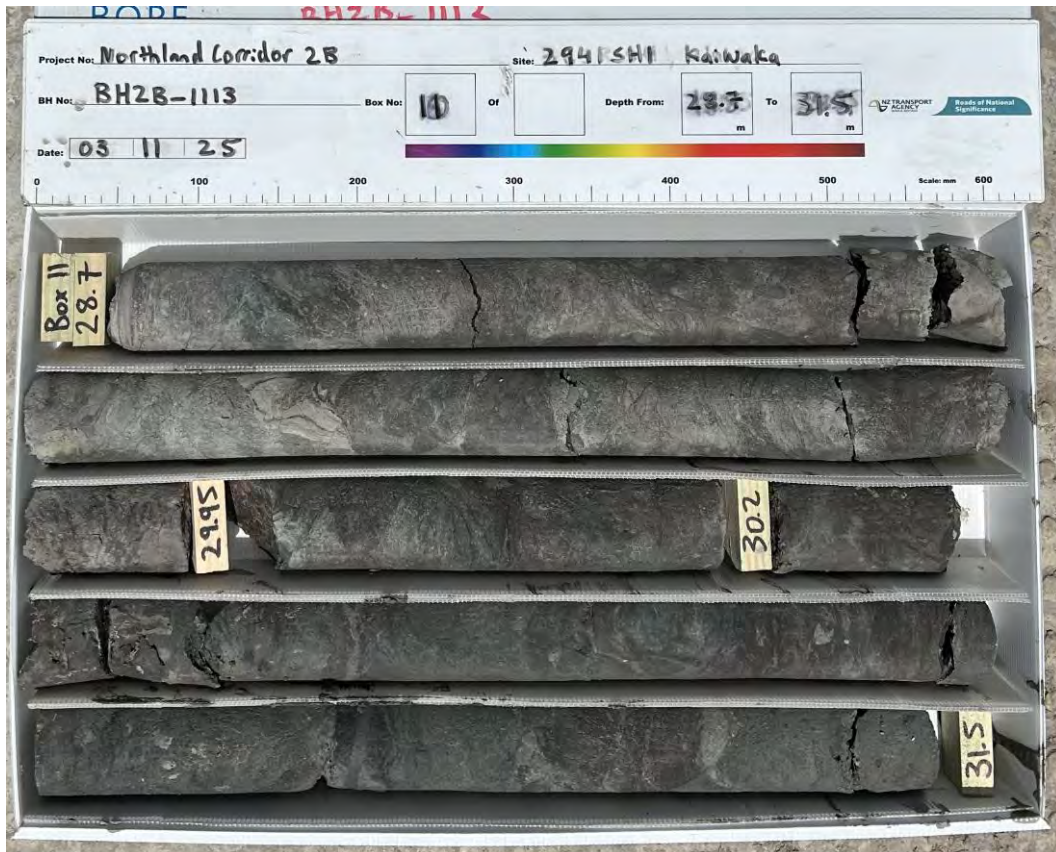
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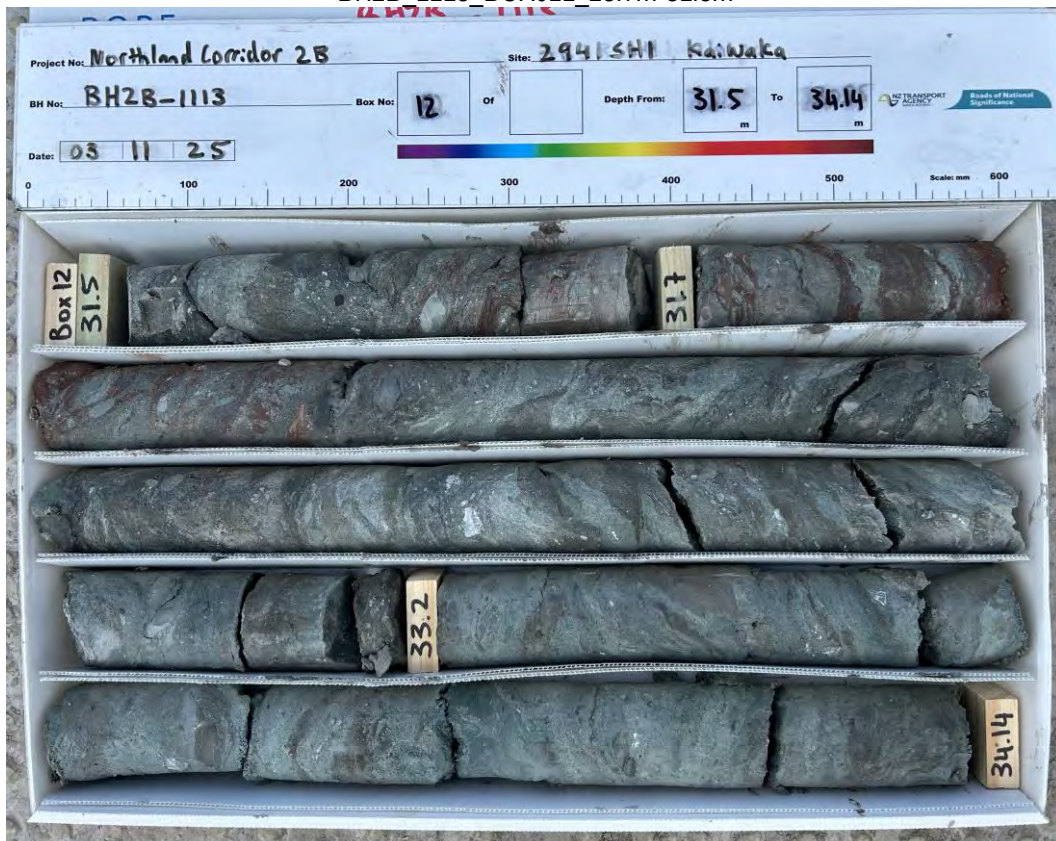
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX011_28.7m-31.5m



BH2B_1113_BOX012_31.5m-34.14m

Borehole Reference:

BH2B_1113

Photographed By:

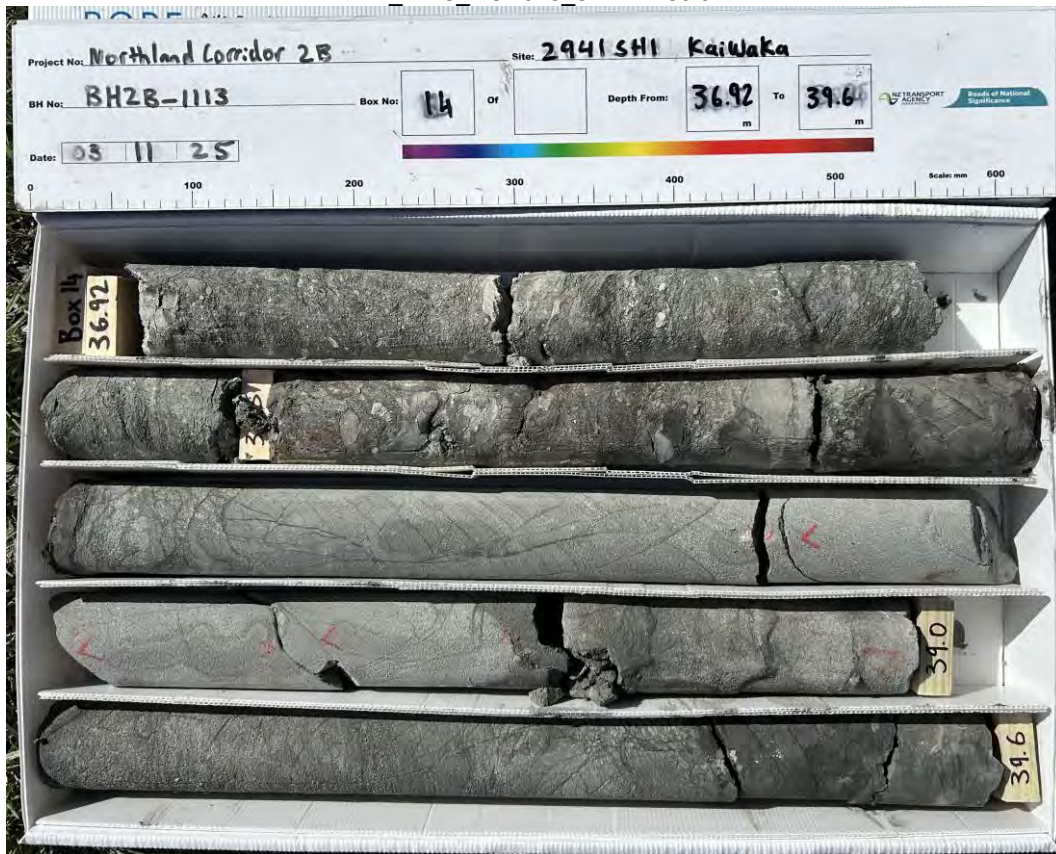
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX013_34.14m-36.92m



BH2B_1113_BOX014_36.92m-39.6m

Borehole Reference:

BH2B_1113

Photographed By:

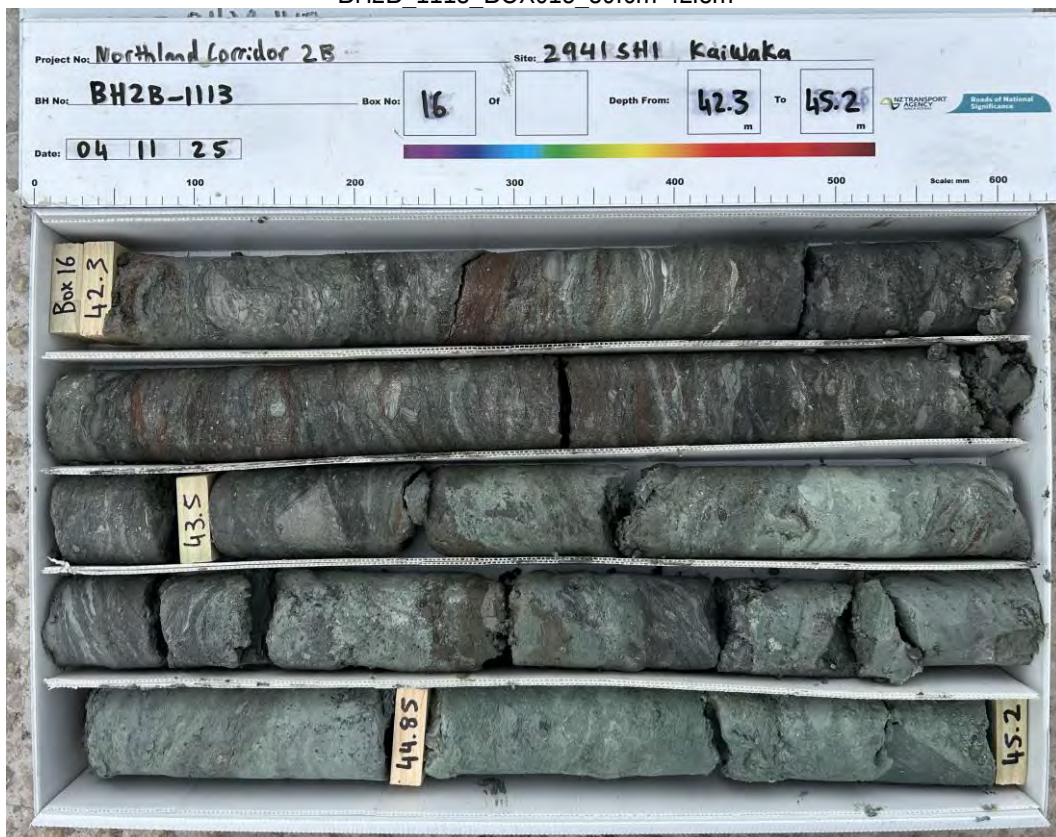
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113 BOX015 39.6m-42.3m



BH2B_1113_BOX016_42.3m-45.2m

Borehole Reference:

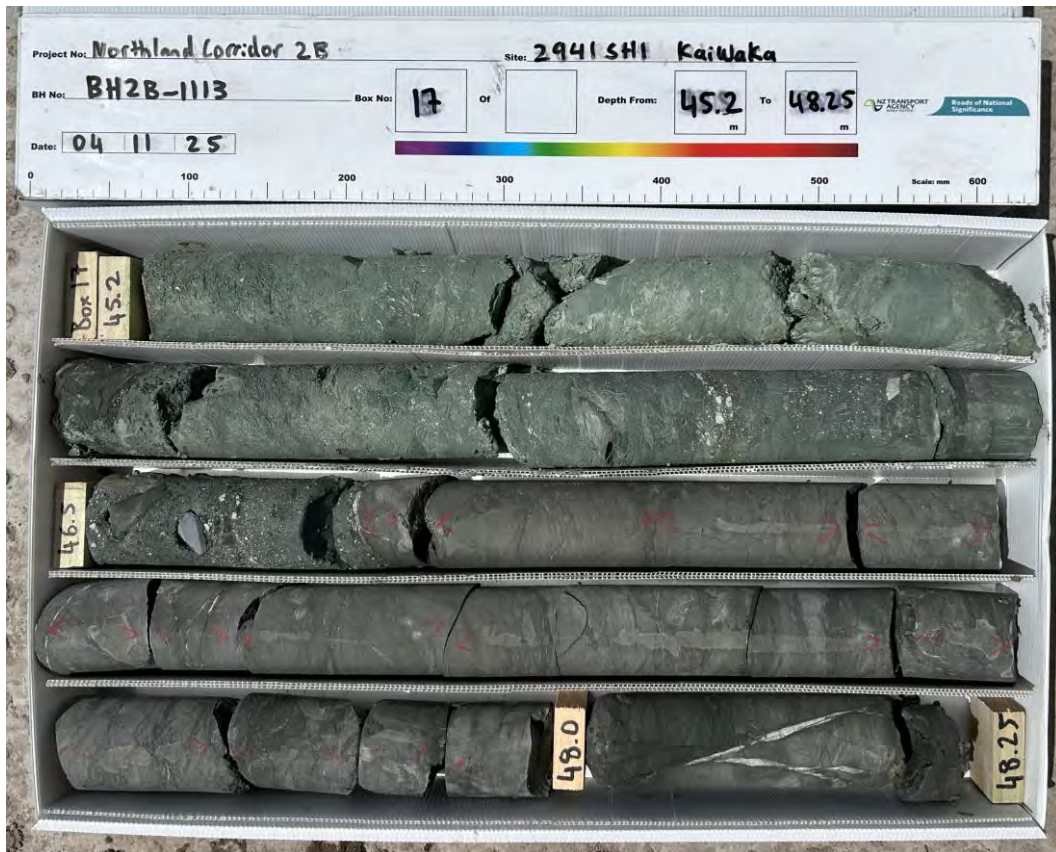
BH2B_1113

Photographed By:

BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX017_45.2m-48.25m



BH2B_1113_BOX018_48.25m-51.1m

Borehole Reference:

BH2B_1113

Photographed By:

BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX019_51.1m-54m



BH2B_1113_BOX020_54m-56.85m

Borehole Reference:

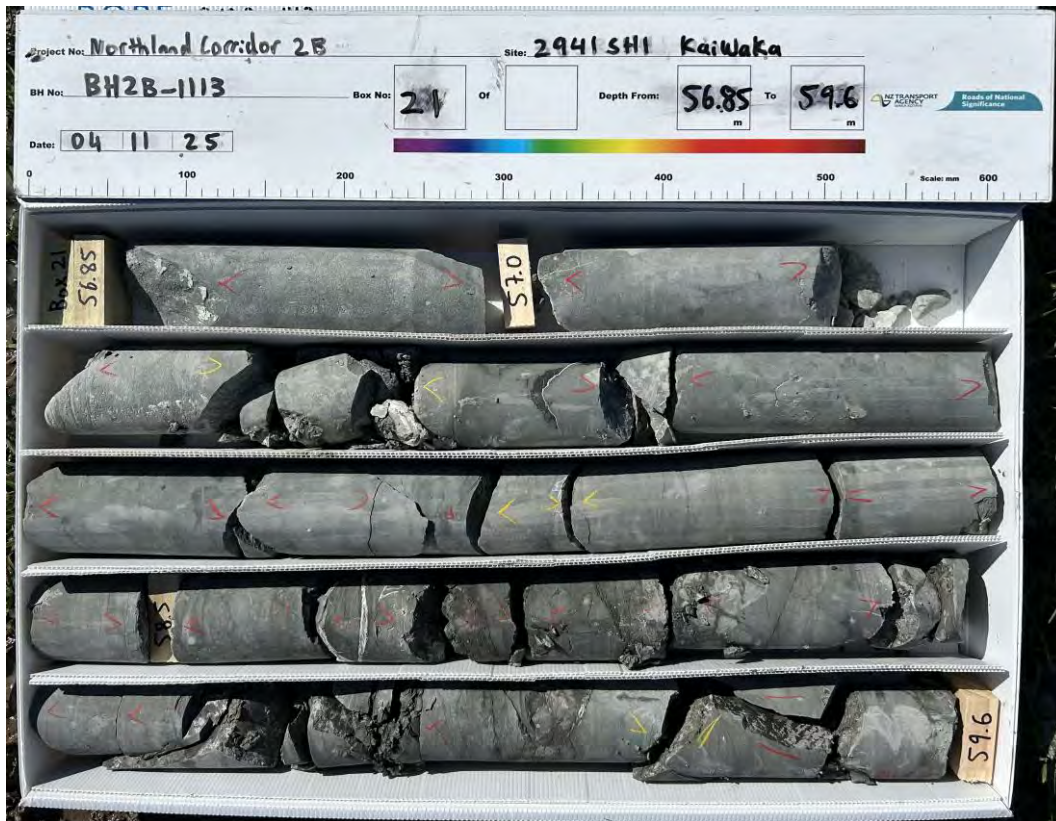
BH2B_1113

Photographed By:

BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX021_56.85m-59.6m



BH2B_1113_BOX022_59.6m-62.45m

Borehole Reference:

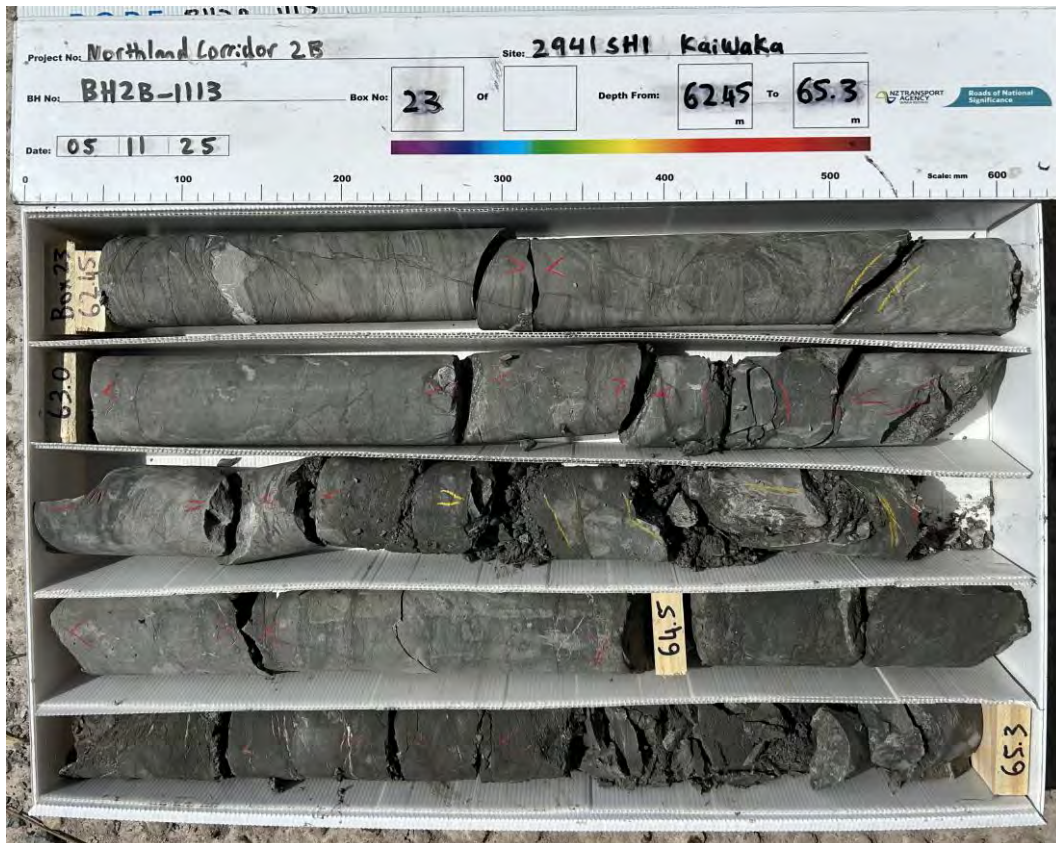
BH2B_1113

Photographed By:

BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX023_62.45m-65.3m



BH2B_1113_BOX024_65.3m-68.1m

Borehole Reference:

BH2B_1113

Photographed By:

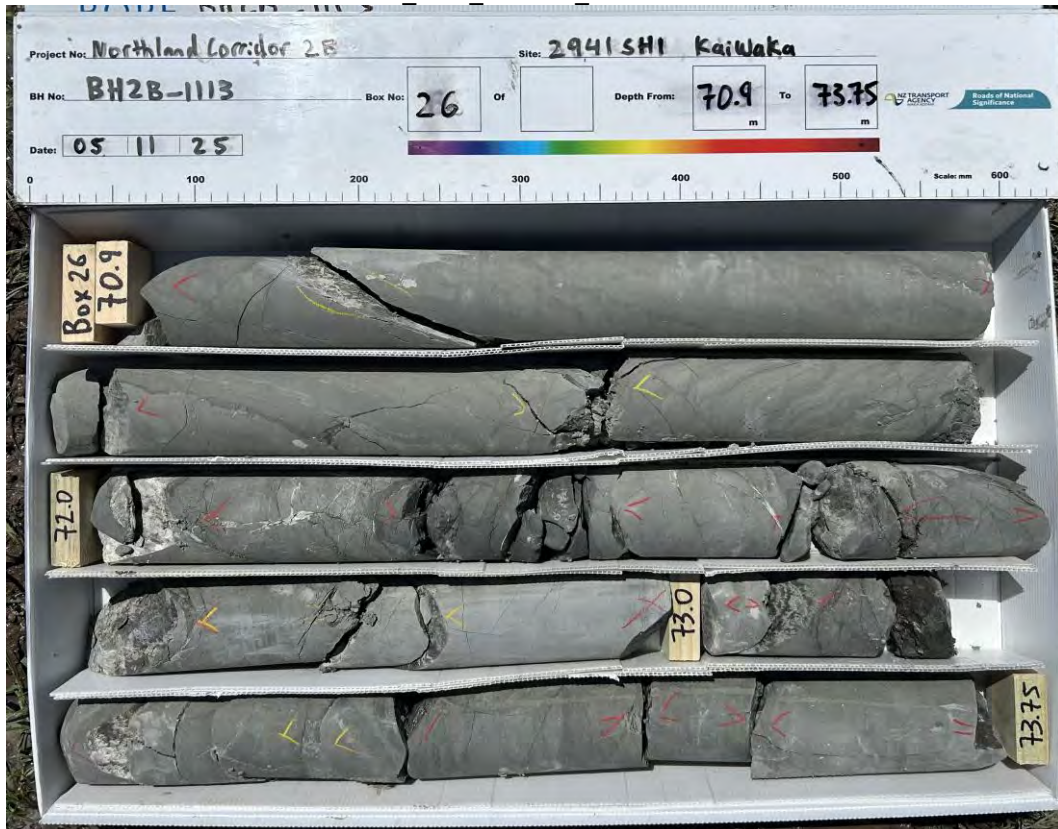
BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX025_68.1m-70.9m



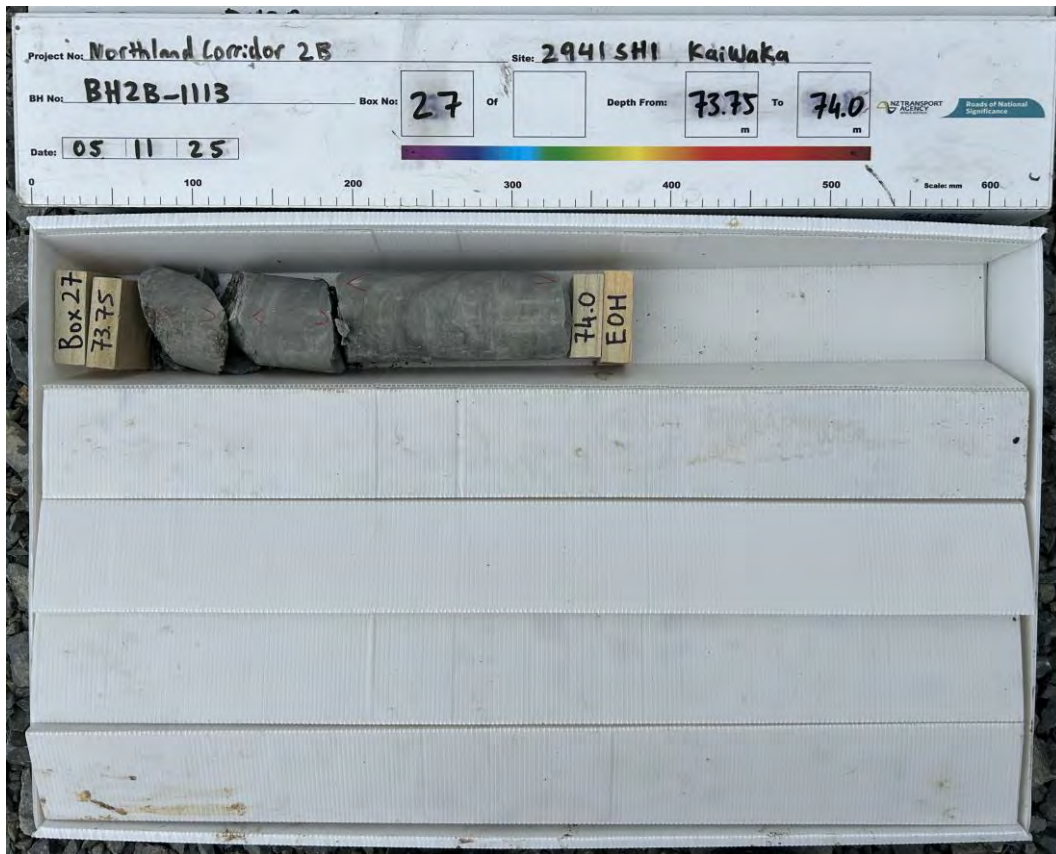
BH2B_1113_BOX026_70.9m-73.75m

Borehole Reference: BH2B_1113

Photographed By: BTG

Date Photographed:

29/10/2025-05/11/2025



BH2B_1113_BOX027_73.75m-74m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 29/09/2025	Logged: M.Zhang
Method: Rotary Core Wireline		Easting: 1727796.31mE,		Date Completed: 01/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005340.81mN,		Inclination: 90	Reviewed: R.van Dam
Contractor: Pro-Drill (Auck) Ltd		Ground level: 126.82m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	126	1		F	SILT, with minor clay, with minor rootlets; dark brown. Soft, moist, low plasticity; rootlets less than 2mm thick. [FILL]. CLAY, with some silt, with trace gravel; brown, mottled orangish brown. Very stiff, moist, high plasticity; gravel, fine, subangular, moderately weathered, Mudstone; [NORTHLAND ALLOCHTHON SOIL]. Silty CLAY; brownish grey, mottled orange. Very stiff, moist, high plasticity.		0.4m SV BH SV 131/48kPa 1m SV BH SV 104/52kPa 1.5m SV BH SV 130/56kPa 1.5m SPT 1, 1/1, 1, 2, 2 N= 6	100	-	-			
2	SPT	125	2		NAS	2.10m - 2.80m: Brownish grey, mottled orange and reddish brown. Highly weathered; dark grey, mottled reddish brown, pervasively sheared SILTSTONE; extremely weak. (Clayey SILT, very stiff, moist, high plasticity). [NORTHLAND ALLOCHTHON DEGRADED ZONE]. 3.45m - 3.55m: CORE LOSS (100mm). Loss due to washout of fines during drilling. 4.17m - 4.26m: Fine SANDSTONE, extremely weak. 4.50m - 4.68m: U54 sample, Push tube refusal (180mm).		3m SV CB SV 148/49kPa 3m SPT 1, 2/2, 2, 2, 2 N= 8	55	-	-		3.00m: HCl test on matrix, no reaction	
	HQ3	124	3				HW	4.68m SPT 3, 3/3, 3, 3, 4 N= 13	90	-	-		5.00m: HCl test on matrix, no reaction 5.13m - 5.17m: Core swell (40mm)	
	U54	123	4					62	-	-				
	SPT	122	5		NAD			104	-	-			6.45m - 6.50m: Core swell (50mm)	
	HQ3	121	6					82	-	-			6.85-7.25m: Shear fabric dips 20-40° 7.00m: HCl test on matrix, strong reaction	
3	SPT	120	7				MW	7.5m SPT 4, 5/6, 6, 8, 8 N= 28	103	-	-			
	HQ3	119						66	-	-				

REMARKS:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.		DateTime	Hole Depth (m)	Water Level (m)
2. Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.				
3. Shear Vane Serial No. DR1254, calibration constant 1.682.				

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 29/09/2025	Logged: M.Zhang
Method: Rotary Core Wireline		Easting: 1727796.31mE,		Date Completed: 01/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005340.81mN,		Inclination: 90	Reviewed: R.van Dam
Contractor: Pro-Drill (Auck) Ltd		Ground level: 126.82m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
4	HQ3					7.95-8.05m: CORE LOSS (100mm). Loss assumed from washout of SPT disturbed material during drilling.			66	-	-		8.10m: HCl test on matrix, strong reaction	
	HQ3					Moderately weathered; greenish grey, banded grey, pervasively sheared, Calcareous MUDSTONE; extremely weak. Strong reaction to HCl. (SILT with some clay, very stiff, moist, low plasticity).	MW		116	-	-		8.25m - 8.37m: Core Swell (120mm)	
	SPT	118	9			8.25m - 8.60m: Shear fabric dips at 0-10°.		9m SPT 5, 5/5, 7, 7, 7 N= 26	88	-	-		9.00m: HCl test on matrix, no reaction	
	HQ3					8.70m - 8.75m: Fine SANDSTONE, extremely weak.	MW		108	-	-		9.45m - 9.55m: Core Swell (100mm)	
5	SPT	117	10			Moderately weathered; grey, banded light and dark grey, pervasively sheared, Intermixed MUDSTONE and SILTSTONE; extremely weak. No reaction to HCl. (SILT, very stiff, moist, low plasticity).							10.00-10.10m: CZ, 10°, handling induced, recovered as extremely weak, fine to medium mudstone gravel, some clayey silt, low plasticity	
	HQ3					Moderately weathered; greenish grey, banded dark grey, mottled reddish brown, pervasively sheared, MUDSTONE; extremely weak; no reaction to HCl. (SILT with some clay, hard, moist, low plasticity, trace fine to medium, angular to sub-angular slightly weathered mudstone clasts).		10.5m SPT 6, 7/8, 8, 8, 9 N= 33	66	-	-		10.15-10.21m: SZ, 5°, recovered as extremely weak, fine to medium mudstone gravel, minor clayey silt, low plasticity	
	SPT	116	11			11.35m - 11.75m: Shear fabric dips at 20-30°.	MW		100	-	-		10.38m JT, 30°, SM, UN	
	HQ3					11.87m - 11.96m: Laminated SILTSTONE cobble, very weak.		12m SPT 5, 6/7, 6, 8, 6 N= 27	80	-	-		10.80m: HCl test on matrix, no reaction	
6	SPT	115	12			Moderately weathered; grey, banded dark grey, pervasively sheared, Calcareous SILTSTONE; extremely weak; trace fine to medium, sub-angular limestone clasts. Strong reaction to HCl. (SILT with some clay, hard, moist, low plasticity).	MW		104	-	-		12.00m: HCl test on matrix, no reaction	
	HQ3					Slightly weathered; grey, banded dark grey, pervasively sheared, Calcareous SILTSTONE; very weak; trace fine to medium, sub-angular limestone clasts. Strong reaction to HCl. [NORTHLAND ALLOCHTHON CALCAREOUS SEQUENCE].		13.5m SPT 9, 9/11, 39 for 75mm N = 50+	83	-	-		12.50m - 12.55m: Core Swell (50mm)	
	SPT	114	13			Slightly weathered; grey, indistinctly bedded, fine SANDSTONE; weak. No reaction to HCl. Closely to moderately widely spaced joints, moderately inclined. [SLIGHTLY WEATHERED PAKIRI FORMATION].							13.40m: Pervasively sheared rock mass, shear fabric is chaotic	
	HQ3					15.06m - 15.15m: SILTSTONE, dark grey, extremely weak.	SW	15m SPT 13, 37 for 70mm N = 50+	98	85	-		14.10m - 14.20m: Shear fabric dips at 30°	
	SPT	113	14			15.15m - 15.28m: CORE LOSS (130mm). Loss due to washout of SPT disturbed material during drilling.			90	47	41		14.30m - 14.64m: Shear fabric dips at 0-10°	
	HQ3					15.28m - 15.38m: Recovered as sub-rounded to rounded medium to coarse mudstone gravel in sandstone matrix. Assumed disturbed by SPT and rounded during drilling.	SW						14.50m: HCl test on matrix, strong reaction	
	SPT	112	15										14.60-14.85m: JT, 10°-40°, RG, PL, (Jlx4)	
	HQ3												15.50m: HCl test on matrix, no reaction	
	SPT	111											15.88m JT, 20°, RG, PL, clean	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.
- Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
29/09/2025 1:00:00 pm	15.15	0.00
30/09/2025 7:45:00 am	15.15	4.60

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 29/09/2025	Logged: M.Zhang
Method: Rotary Core Wireline		Easting: 1727796.31mE,		Date Completed: 01/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005340.81mN,		Inclination: 90	Reviewed: R.van Dam
Contractor: Pro-Drill (Auck) Ltd		Ground level: 126.82m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3				PU	[CONT] Slightly weathered; grey, indistinctly bedded, fine SANDSTONE; weak. No reaction to HCl. Closely to moderately widely spaced joints, moderately inclined. [SLIGHTLY WEATHERED PAKIRI FORMATION].	SW		90	47	41	CS	15.91-15.95m: JT, 10°, RG, UN, clean, (Jb3)	
7	HQ3	110	17		PU	16.5-16.6m: Solid cone SPT, no recovery (100mm). Slightly weathered, moderately thinly INTERBEDDED to laminated grey SILTSTONE (80%) and dark grey fine SANDSTONE (20%). Moderately strong; bedding is chaotic (inferred soft sediment deformation).	SW	16.5m SPT 32, 18 for 20mm N = 50+	0	-	-	ECS	16.30-16.35m: CS, 10°, recovered as extremely weak, fine siltstone gravel, some clayey silty, low plasticity	
	HQ3	109	18			18.12m - 18.23m: Highly sheared band of dark grey SILTSTONE, with minor limestone gravel clasts.			100	95	95	MWS	16.41m - 16.50m: Disturbed on removal from catcher	
	HQ3	108	19			Slightly weathered; greenish grey and grey, Intermixed MUDSTONE and SILTSTONE; very weak; weak reaction to HCl. Pervasively sheared with minor mudstone and calcitic clasts. [NORTHLAND ALLOCHTHON CALCAREOUS SEQUENCE].			90	52	-	WVS	16.60m - 17.25m: Bedding fabric dips at 30-45°	
	HQ3	107	20			19.00m - 19.10m: CORE LOSS (100mm). Loss due to washout of softer material during drilling.			100	100	-		16.63m - 17.25m: Bedding dips at 30-50°	
	HQ3	106	21		NAL	19.17m - 19.26m: SILTSTONE cobble, very weak.			97	97	-		16.84m: BP, 30°, SM, UN, clean	
	HQ3	105	22			21.35m: Dark grey with light grey clasts.	SW		96	80	-	ECS	17.00m - 17.07m: Bedding offset 10mm, micro fault	
	HQ3	104	23			22.20m - 22.40m: CORE LOSS (200mm). Loss due to washout of sheared material during drilling.			88	84	16		17.25m - 18.00m: Bedding fabric dips at 60-90°. Bedding offset 5-15mm	
9	HQ3	103			PU	23.50m - 23.70m: SILTSTONE cobble, very weak.	UW		97	30	30	MWS	18.00m - 18.10m: Bedding dips at 30°	
						23.67m - 23.77m: Carbonaceous laminae, 1-5 mm.							18.20m: JT, 60°, RG, UN, clean	
						Unweathered weathered; dark grey, fine to coarse							18.40m: Pervasively sheared rock mass, shear fabric is chaotic and changes direction and dip	
													19.10m - 19.35m: Shear fabric dips at 10-40°	
													21.70m - 22.20m: drilling disturbed, recovered as extremely weak, fine to coarse, mudstone gravel, some clayey silty, low plasticity	
													23.67m - 23.77m: The contact between units dips 20° and is offset 20 mm by a sub-vertical healed micro fault.	
													24.02-24.55m: FZ, 60°-90°, SL, PL, striations on	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.
- Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date Started:	29/09/2025	Logged:	M.Zhang
Method:	Rotary Core Wireline	Easting:	1727796.31mE,	Date Completed:	01/10/2025	Input:	M.Zhang
Equipment:	Fraste SRS	Northing:	6005340.81mN,	Inclination:	90	Reviewed:	R.van Dam
Contractor:	Pro-Drill (Auck) Ltd	Ground level:	126.82m (NZVD2016)	Azimuth:	N/A	Verified:	C. Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3	102	25			SANDSTONE; moderately strong; indistinctly bedded, gently to moderately inclined, fining upwards; occasional beds with minor gravel, fine to medium, angular to sub-angular, unweathered sandstone, siltstone and calcite (weak HCl reaction). [UNWEATHERED PAKIRI FORMATION].			97	30	30	VCS	defect surfaces, breakage along closely spaced incipient fractures 24.60-24.90m: JT, 70°, RG, UN, clean	
10	HQ3	101	26			25.20m - 25.35m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (80%) and dark grey SILTSTONE (20%). Moderately strong; gently inclined.			100	58	58	CS	24.98m: JT, 65°, RG, UN, clean 25.26m: BP, 15°, RG, PL, parts along carbonaceous lamination (1 mm) 25.30m - 25.35m: Disturbed on removal from catcher	
	HQ3	100	27			25.35m - 25.60m: Conglomeratic SANDSTONE. Moderately strong; clasts are gravel, fine to medium, sub-rounded, unweathered sandstone, siltstone and calcite.			100	60	42	ECS	25.57m: JT, 20°, RG, PL, clean 25.65m: JT, 30°, RG, PL, clean 25.73m: JT, 30°, RG, PL, clean	
	HQ3	99	28			26.20m - 26.25m: Thinly laminated carbonaceous interbeds, 5-10mm spacing.	UW		100	60	42	ECS	25.80m - 25.95m: Drilling didturb 25.95-27.00m: JT, x 5, 45-60°, PL, RG, clean	
	HQ3	98	29			26.88m - 27.10m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (70%) and dark grey SILTSTONE (30%). Moderately strong, sub-horizontal.			99	25	25	MWS	26.70m: HCl test on matrix, no reaction	
11	HQ3	97	30			28.50m - 28.80m: Conglomeratic SANDSTONE. Moderately strong; clasts are gravel, fine to medium, sub-rounded, unweathered siltstone and calcite.			98	27	22	VCS	27.15-28.70m: JT, 80°-90°, RG, UN, clean	
	HQ3	96	31			Unweathered, moderately thinly INTERBEDDED to laminated grey SANDSTONE (60%) and dark grey SILTSTONE (40%). Moderately strong; bedding, gently inclined; closely spaced incipient joints with weak tensile strength.	UW		98	27	22	MWS	29.00m: HCl test on matrix, no reaction	
	HQ3	95				Unweathered weathered; grey, fine to coarse SANDSTONE; moderately strong, indistinctly bedded, gently to moderately inclined, fining upwards.	UW		95	82	82	VCS	29.10m: JT, 50°, RG, ST, clean 29.35m: JT, 60°, RG, PL, clean 29.38-29.50m: SZ, 0°, recovered as extremely weak sandstone, minor silt, handling induced break along very closely spaced incipient joint	
	HQ3								98	98	98	CS	29.55m - 29.67m: Disturbed on removal from catcher 29.80m - 30.21m: Bedding offset 1-2mm 30.30m - 30.50m: Bedding offset 2-3mm	
	HQ3								98	98	98	CS	30.50m: JT, 50°, RG, PL, clean 30.77m: JT, 60°-70°, RG, UN, clean 30.92m: JT, 50°, RG, UN, clean	
	HQ3								98	98	98	CS	31.00m: HCl test on matrix, no reaction	
	HQ3								98	98	98	CS	31.50-32.80m: JT, 70°-90°, RG, UN, white mineral infill (1 mm) 31.90m: JT, 30°, RG, PL, clean	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.
- Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

DateTime | Hole Depth (m) | Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000 Easting: 1727796.31mE, Northing: 6005340.81mN, Ground level: 126.82m (NZVD2016)	Date Started: 29/09/2025 Date Completed: 01/10/2025 Inclination: 90 Azimuth: N/A	Logged: M.Zhang Input: M.Zhang Reviewed: R.van Dam Verified: C. Parkes
Method:	Rotary Core Wireline			
Equipment:	Fraste SRS			
Contractor:	Pro-Drill (Auck) Ltd			

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
12	HQ3					32.00m - 32.56m: Multiple incipient joints, sub-vertical, undulating, calcite infill up to 1mm thick (strong HCl reaction)			98	98	98	WS VS MWS VCS ECS		
		94												
		33												
	HQ3								98	93	93	VCS	33.45m JT, 50°, RG, PL, clean 33.55-33.80m: JT, 80°, PL, closed	
13		93												
		34										MWS		
		92												
	HQ3				PU				100	65	65	VCS	34.30-35.30m: JT, 90°, RG, UN, calcite infill 1mm, strong reaction to HCl, partially closed	
		35												
		91											35.50m: HCl test on matrix, no reaction	
		36				36.10m: Calcite clast (50mm), strong reaction to HCl.	UW					WS	36.10-36.28m: JT, 60°, RG, PL, clean, drilling induce break of thinner piece of core	
	HQ3								100	77	74	VCS	36.74-36.86m: FZ, 30°, recovered as fine to coarse, angular sandstone gravel 36.87m JT, 30°, RG, PL, clean	
14		90												
		37											37.44m JT, 60°, RG, UN, clean	
		89												
	HQ3					38.50m - 38.54m: Carbonaceous laminae, sub-horizontal.			98	98	98	WS		
		38												
		39											39.00m: HCl test on matrix, no reaction	
15	HQ3								100	100	100			
		87											39.91m JT, 65°-70°, UN, close (Jbx2)	

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm. 2. Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279. 3. Shear Vane Serial No. DR1254, calibration constant 1.682.	Water Level Readings:		
	Date	Time	
	Hole Depth (m)		Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 29/09/2025	Logged: M.Zhang
Method: Rotary Core Wireline		Easting: 1727796.31mE,		Date Completed: 01/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005340.81mN,		Inclination: 90	Reviewed: R.van Dam
Contractor: Pro-Drill (Auck) Ltd		Ground level: 126.82m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
15	HQ3		86			39.95m - 40.50m: Conglomeratic SANDSTONE. Matrix (90%) comprising fine to coarse SANDSTONE. Clasts (10%) comprising fine to medium, angular to sub-rounded siltstone up to 3mm diameter.			100	100	100		40.14m JT, 70°, SM , UN , calcite infill 1 mm, strong HCl reaction	
			41			40.65m - 41.30m: Steepling inclined, closely spaced, moderate tensile strength incipient joints.							40.70m JT, 40°, SM , PL , clean	
	HQ3		85			40.91m - 41.02m: Conglomeratic SANDSTONE. Moderately strong; clasts are gravel, fine to medium, sub-rounded, unweathered sandstone, siltstone and calcite.	UW		100	100	100			
			42			41.20m - 41.50m: Conglomeratic SANDSTONE. Moderately strong; clasts are gravel, fine to medium, sub-rounded, unweathered sandstone, siltstone and calcite.								
			85			41.50m - 41.57m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (90%) and dark grey SILTSTONE (10%). Moderately strong; sub-horizontal.								
16			42			41.80m - 41.90m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (70%) and dark grey SILTSTONE (30%). Moderately strong; sub-horizontal.							42.00m: HCl test on matrix, no reaction	
			84			42.00m - 42.03m: SILTSTONE, dark grey, (30mm).								
	HQ3		43			Unweathered, moderately thinly INTERBEDDED to laminated dark grey SILTSTONE (60%) and grey fine to coarse SANDSTONE (40%). Strong; bedding, sub-horizontal to gently inclined.			100	100	95		43.11m - 43.15m: Bedding offset 1mm 43.20m - 43.50m: Bedding offset 2-5mm	
			83			42.85m - 42.90m: Siltstone laminae, laminated to very thin, sub-horizontal.							43.62m JT, 60° , healed, calcite infill 2mm, strong HCl reaction	
			44			43.55m - 43.64m: Calcite clast (80mm), strong reaction to HCl.	UW		97	97	97			
17	HQ3		82										45.10m - 45.50m: Bedding offset 1-2mm	
			45											
	HQ3		81			Unweathered, light grey, fine to coarse SANDSTONE. Strong; indistinctly bedded, sub-horizontal to gently inclined, beds fine upwards.			100	100	100		45.92m VN, 60° , calcite infill 2mm, strong HCl reaction. 46.00m: HCl test on matrix, no reaction	
			46			46.23m - 46.47m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (80%) and dark grey SILTSTONE (20%). Moderately strong; gently inclined.								
			80			46.53m: Siltstone clast (60mm), rounded.								
18	HQ3		47			46.76m - 46.90m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (60%) and dark grey SILTSTONE (40%). Moderately strong; gently inclined.	UW		100	100	100			
			79			47.16m - 47.27m: Very thinly INTERBEDDED to laminated, light grey, fine SANDSTONE (50%) and dark grey SILTSTONE (50%). Moderately strong; gently inclined.								

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.
- Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
30/09/2025 4:41:00 pm	45.00	15.99
1/10/2025 7:40:00 am	45.00	16.30

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 29/09/2025	Logged: M.Zhang
Method: Rotary Core Wireline	Easting: 1727796.31mE,		Date Completed: 01/10/2025	Input: M.Zhang
Equipment: Fraste SRS	Northing: 6005340.81mN,		Inclination: 90	Reviewed: R.van Dam
Contractor: Pro-Drill (Auck) Ltd	Ground level: 126.82m (NZVD2016)		Azimuth: N/A	Verified: C. Parkes

[illegible]

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 44mm and vertical accuracy +/- 66mm.
2. Two vibrating wire piezometers was installed on 01/10/2025. BH2B_1114_PZ01 was installed at 16.0m bgl, Serial No.377869.BH2B_1114_PZ02 was installed at 28.5m bgl, Serial No. 378279.
3. Shear Vane Serial No. DR1254. calibration constant 1.682.

Water Level Readings:

DateTime

1/10/2025 1:15:00 pm

Hole Depth (m)

49.50

Water Level (m)

4.43

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B 1114 BOX001 0m-1.5m



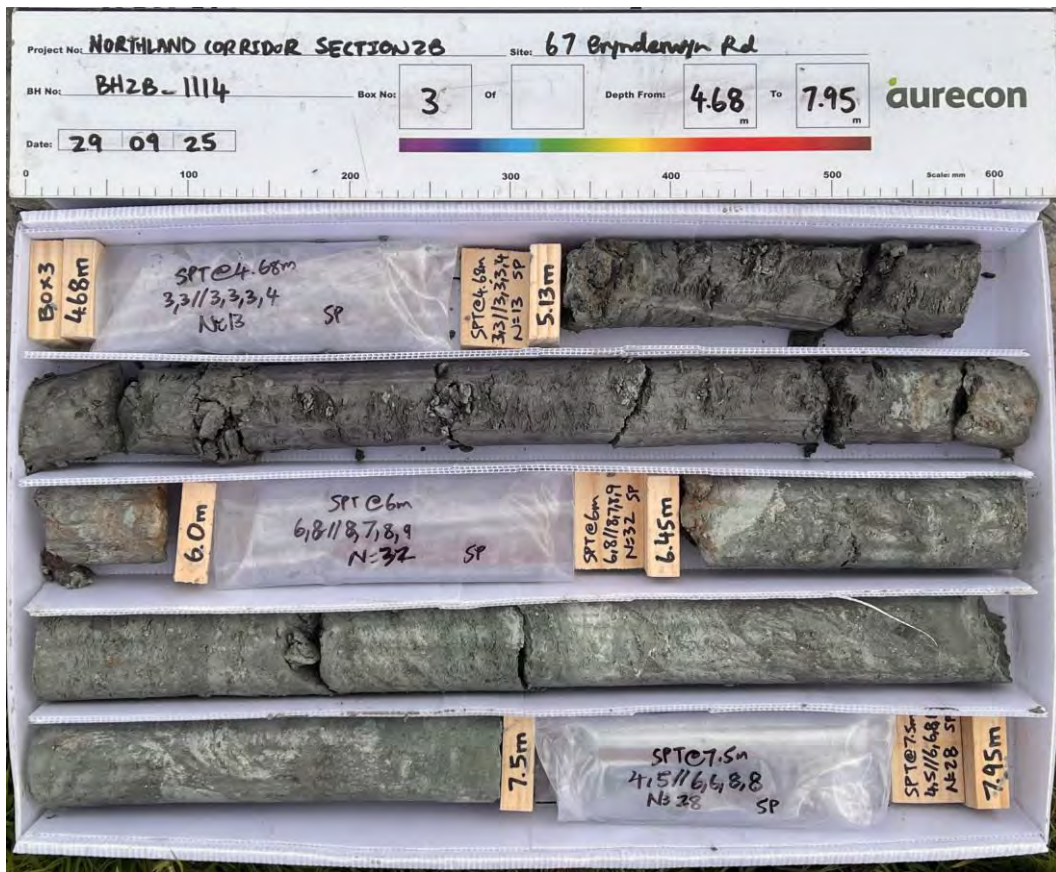
BH2B_1114_BOX002_1.5m-4.68m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX003_4.68m-7.95m



BH2B_1114_BOX004_7.95m-10.5m

Borehole Reference: BH2B_1114

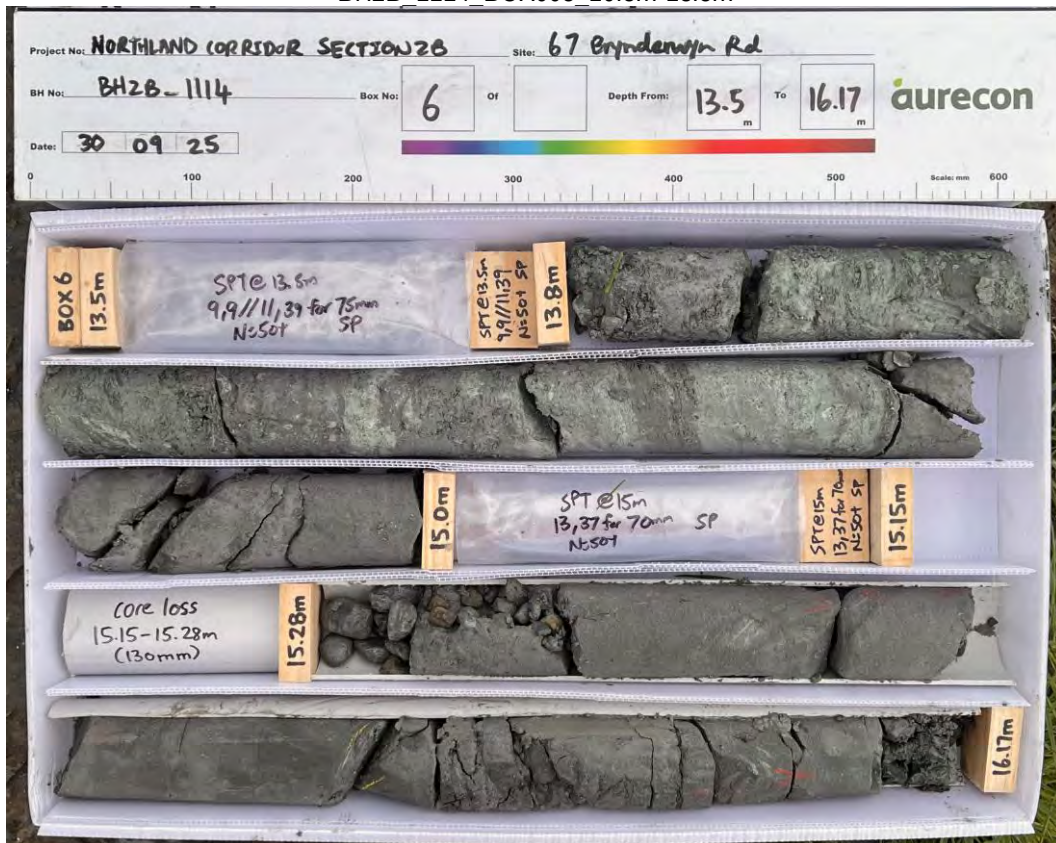
Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX005_10.5m-13.5m



BH2B_1114_BOX006_13.5m-16.17m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX007_16.17m-19m



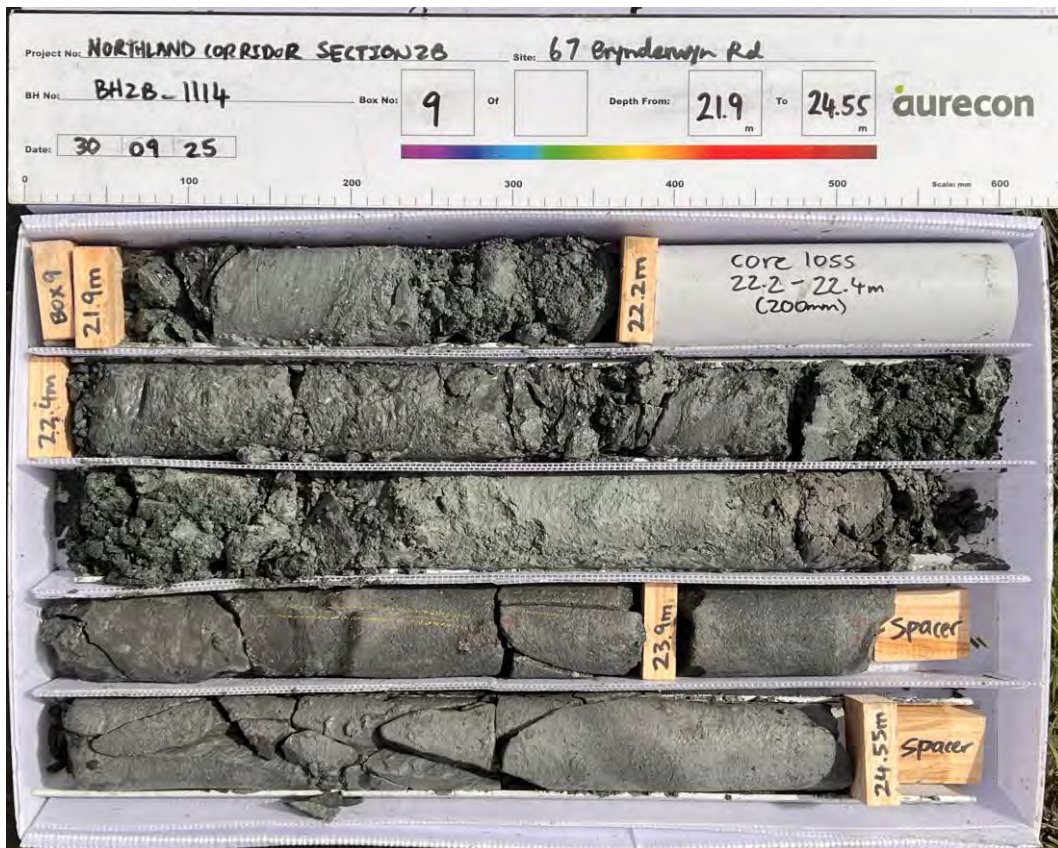
BH2B_1114_BOX008_19m-21.9m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B 1114 BOX009 21.9m-24.55m



BH2B_1114_BOX010_24.55m-27.23m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX011_27.23m-30.1m



BH2B_1114_BOX012_30.1m-32.85m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX013_32.85m-35.66m



BH2B_1114_BOX014_35.66m-38.49m

Borehole Reference: BH2B_1114

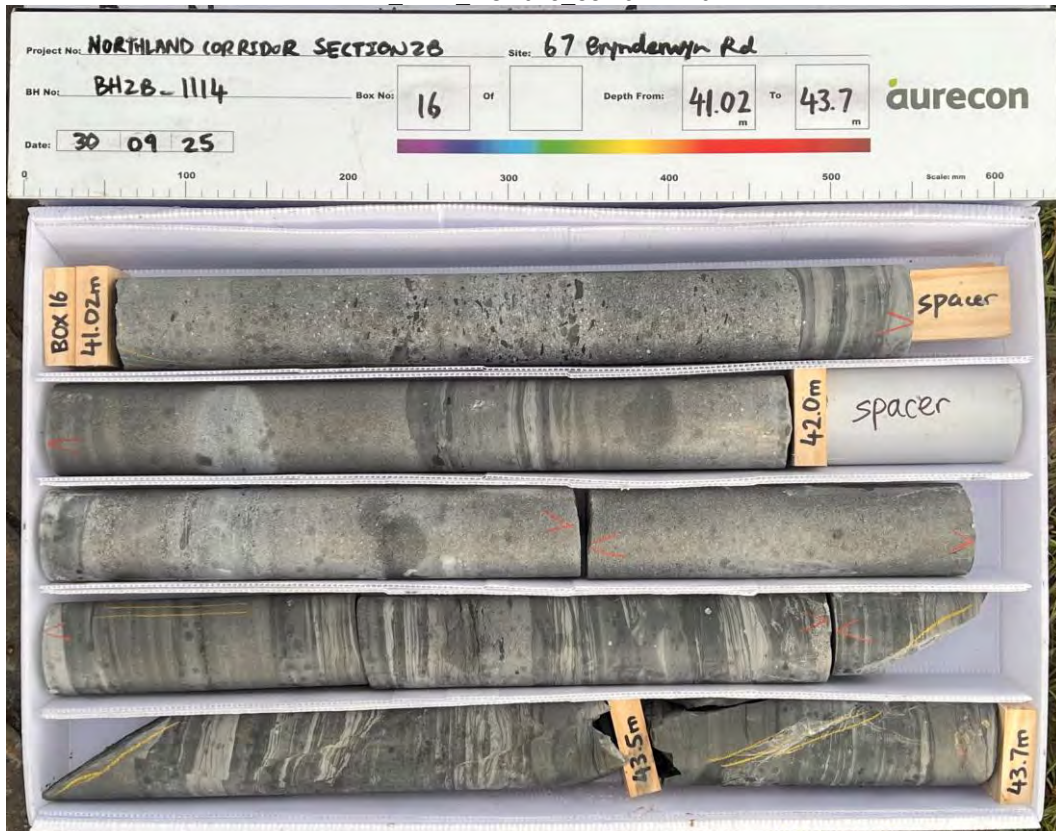
Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX015_38.49m-41.02m



BH2B_1114_BOX016_41.02m-43.7m

Borehole Reference: BH2B_1114

Photographed By:

Date Photographed:

28/09/2025-30/09/2025



BH2B_1114_BOX017_43.7m-46.5m



BH2B_1114_BOX018_46.5m-49.5m

BOREHOLE INFORMATION	CO-ORDINATES: NZTM2000	Date Started: 18/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline	Easting: 1727743.25mE,	Date Completed: 22/08/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig	Northing: 6004202.98mN,	Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd	Ground level: 46.85m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	W	46	1		TS NAS	SILT, with some clay, with minor rootlets; dark brown. Firm, moist, low plasticity; rootlets less than 2mm thick. [TOPSOIL]. CLAY, with some silt; orangish brown to brown. Stiff, moist, high plasticity [NORTHLAND ALLOCHTON SOILS]. Silty CLAY; light grey, mottled orangish brown. Very stiff, moist, high plasticity.	RS	0.5m SV BH SV 141/71kPa	0	-	-			
	SPT	45	2			CORE LOSS (480mm). Loss assumed from potential washout of residual soil during drilling.		1m SV BH SV 118/66kPa						
	HQ3	44	3			Silty CLAY; light grey, mottled orangish brown. Very stiff, moist, high plasticity.	RS	1.5m SV BH SV 100/48kPa	100	-	-			
	SPT	43	4			SILT, with some clay and gravel; grey, mottled light brown. Firm, moist, low plasticity; gravel, fine, angular, slightly weathered, weak, Siltstone; [COMPLETELY WEATHERED NORTHLAND ALLOCHTHON] . Clayey SILT, with some gravel; brownish grey. Firm, moist, low plasticity; gravel, fine to medium, Siltstone; gravel content increasing with depth.	CW	1.5m SPT 0, 1/0, 1, 1, 1 N= 3	63	-	-		3.00m: HCl test on matrix, no reaction	
	HQ3	42	5		NAS	3.57m - 3.72m: 150mm light brown clay band. 4.10m - 4.18m: 80mm dark grey clay band.	CW	3m SPT 1, 1/2, 3, 1, 1 N= 7	44	-	-		4.50m: HCl test on matrix, no reaction	
	SPT	41	6			Highly weathered; bluish grey, banded dark grey, mottled chocolate brown, slightly calcareous, pervasively sheared MUDSTONE; extremely weak, (Clayey SILT, very stiff, moist, low plasticity). [NORTHLAND ALLOCHTHON DEGRADED ZONE].	HW	4.5m SPT 1, 1/1, 1, 1, 1 N= 4	56	-	-			
	HQ3	40	7		NAD			6m SPT 2, 4/5, 5, 5, 5 N= 20	66	-	-			
	SPT	39						7.5m SPT 1, 2/3, 5, 5, 5 N= 18	66	-	-		7.50m: HCl test on matrix, weak reaction	

REMARKS:	Water Level Readings:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 32 mm and vertical accuracy +/- 47 mm.	DateTime
2. Shear Vane Serial No. 1378, calibration constant 1.383.	Hole Depth (m)
3. Washbore to 1.50m bgl. Log descriptions, core box photo, and shear vane test results up to 1.50m bgl, taken from hand auger clearance completed adjacent to drilled BH.	Casing Depth (m)
4. One vibrating wire piezometer was installed on 22/08/2025. BH2B_1115_PZ01 was installed at 25.49m bgl, Serial No. 378427.	Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 18/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727743.25mE,		Date Completed: 22/08/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004202.98mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 46.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3					[CONT] Highly weathered; bluish grey, banded dark grey, mottled chocolate brown, slightly calcareous, pervasively sheared MUDSTONE; extremely weak, (Clayey SILT, very stiff, moist, low plasticity). [NORTHLAND ALLOCHTHON DEGRADED ZONE].		9m SPT 7, 9/9, 7, 7, 7 N= 30	100	-	-	WS VS MS CS VCS ECS	8.20m - 8.50m: Core swell (300mm)	
	HQ3								138	-	-			
	SPT		38						56	-	-			
4	HQ3					9.70m - 9.82m: CORE LOSS (120mm). Loss assumed due to washout of weathered Melange matrix.	HW	10.5m SPT 2, 4/1/4, 5, 4, 5 N= 18	100	-	-		8.90m: HCl test on matrix, weak reaction	
	HQ3								85	-	-			
	SPT		9						62	-	-			
5	HQ3					Moderately weathered; brownish grey, slightly calcareous, pervasively sheared SILTSTONE; extremely weak. (Clayey SILT, hard, moist, low plasticity).	MW	12m SPT 6, 7/1/6, 7, 7, 7 N= 27	133	-	-		9.50m: HCl test on matrix, strong reaction	
	HQ3								48	-	-			
	SPT		37						100	-	-			
6	HQ3					Moderately weathered; bluish grey, banded dark grey, slightly calcareous, pervasively sheared MUDSTONE; extremely weak (SILT with some clay, hard, moist, low plasticity).	MW	13.5m SPT 3, 4/1/6, 7, 9, 17 N= 39	100	90	-		10.95m - 11.30m: Core swell (350mm) 11.06m - 12.00m: Core fragmented during extraction from splits	
	HQ3								100	100	-			
	SPT		10						77	-	-			
7	HQ3					Slightly weathered; bluish grey, banded dark grey mottled chocolate brown, calcareous, pervasively sheared MUDSTONE; extremely weak. [NORTHLAND ALLOCHTHON MELANGE MATRIX]. 14.30m - 14.60m: Indistinct shear fabric dips at 20-30°.	SW	15m SPT 8, 18/20, 30 N= 50	100	71	-		11.80m: HCl test on matrix, weak reaction	
	HQ3								53	-	-			
	SPT		11						100	94	-			
8	HQ3					Slightly weathered; bluish grey, banded dark grey mottled chocolate brown, calcareous, pervasively sheared MUDSTONE; extremely weak. [NORTHLAND ALLOCHTHON MELANGE MATRIX]. 14.03-14.14m: CZ, 40° , recovered as fine to medium, angular siltstone gravel, some clayey silt, highly plastic			100	-	-		12.80m: HCl test on matrix, weak reaction	
	HQ3								100	-	-			
	SPT		12						100	-	-			
9	HQ3					Slightly weathered; bluish grey, banded dark grey mottled chocolate brown, calcareous, pervasively sheared MUDSTONE; extremely weak. [NORTHLAND ALLOCHTHON MELANGE MATRIX]. 14.03-14.14m: CZ, 40° , recovered as fine to medium, angular siltstone gravel, some clayey silt, highly plastic			100	-	-		14.80m: HCl test on matrix, weak reaction.	
	HQ3								100	-	-			
	SPT		13						100	-	-			

REMARKS:		Water Level Readings:			
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 32 mm and vertical accuracy +/- 47 mm.		DateTime	Hole Depth (m)	Casing Depth (m)	Water Level (m)
2. Shear Vane Serial No. 1378, calibration constant 1.383.		20/08/2025 7:24:00 am	13.95	0.00	0.30
3. Washbore to 1.50m bgl. Log descriptions, core box photo, and shear vane test results up to 1.50m bgl, taken from hand auger clearance completed adjacent to drilled BH.					
4. One vibrating wire piezometer was installed on 22/08/2025. BH2B_1115_PZ01 was installed at 25.49m bgl, Serial No. 378427.					

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 18/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727743.25mE,		Date Completed: 22/08/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004202.98mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 46.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3					[CONT] Slightly weathered; bluish grey, banded dark grey mottled chocolate brown, calcareous, pervasively sheared MUDSTONE; extremely weak. [NORTHLAND ALLOCHTHON MELANGE MATRIX].			100	94	-			
	SC		30					16.5m SPT 11, 23/32, 18 for 35mm N = 50+	0	-	-			
7	HQ3		17			16.76m - 17.10m: Indistinct shear fabric dips at 0-20°.			100	66	-		17.17-17.22m: SZ, 30°, drilling induced, recovered as fine to coarse, angular siltstone gravel, minor clayey silt, highly plastic	
			29										17.20m JT, 45°, SM, UN, clean	
	SC		18			18.35m - 18.65m: Indistinct shear fabric dips at 10-20°.		18m SPT 11, 16/19, 21, 10 for 20mm N = 50+	0	-	-		17.60m JT, 40°-45°, SM, UN, clean	
	HQ3		28			18.92m - 19.05m: Indistinct shear fabric dips at 60-70°.			100	96	-		18.00m: HCl test on matrix, strong reaction	
8	SC		27			19.20m - 19.34m: Indistinct shear fabric dips at 30-40°.		19.5m SPT 10, 20/26, 24 for 30mm N = 50+	0	-	-		18.76m JT, 40°, SM, UN, clean	
	HQ3		20				SW		100	100	-		18.82m CS, clay (10mm)	
	HQ3		26			21.04m - 21.13m: Fine SANDSTONE, with closely spaced incipient joints.			100	93	-		19.19m JT, 50°, SM, UN, clean	
	HQ3		21			21.20m - 21.30m: Indistinct shear fabric dips at 60-70°.							19.98m JT, 40°, SM, UN, clean	
9	HQ3		25			21.24m - 21.35m: Fine SANDSTONE, with closely spaced incipient joints.			100	95	-		21.20m JT, 5°, RG, UN, clean	
			22			22.05m - 22.30m: Intermixed bluish grey and brownish grey.							21.60m JT, 40°, SM, UN, clay (10mm)	
	HQ3		24			22.40m - 24.22m: Brownish grey MUDSTONE lense, weak reaction to HCl.			100	100	-			
	HQ3		23						100	100	-		23.50m: HCl test on matrix, weak reaction.	

REMARKS:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 32 mm and vertical accuracy +/- 47 mm.
2. Shear Vane Serial No. 1378, calibration constant 1.383.
3. Washbore to 1.50m bgl. Log descriptions, core box photo, and shear vane test results up to 1.50m bgl, taken from hand auger clearance completed adjacent to drilled BH.
4. One vibrating wire piezometer was installed on 22/08/2025. BH2B_1115_PZ01 was installed at 25.49m bgl, Serial No. 378427.

Water Level Readings:

DateTime	Hole Depth (m)	Casing Depth (m)	Water Level (m)
20/08/2025 4:00:00 pm	23.10	0.00	0.30
21/08/2025 8:00:00 am	23.10	0.00	0.30

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 18/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727743.25mE,		Date Completed: 22/08/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004202.98mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 46.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3		22			24.00m - 24.15m: Coarse SILTSTONE clast up to 70mm diameter.	SW		100	100	-		24.70m JT, 50°, SM , PL , clay (5mm)	
			25			24.22m: Indistinct shear fabric dips at 20-30°.							25.00m: HCl test on matrix, weak reaction	
			21										25.62-25.67m: CZ, 30°, recovered as fine to medium, angular to sub-angular siltstone gravel, some clayey silt, highly plastic	
			26						100	95	-		26.20m JT, 45°, SM , UN , clean	
10	HQ3		20			26.50m - 26.65m: Indistinct shear fabric dips at 40-50°.	SW						26.59m JT, 35°, SM , UN , clay (5mm)	
			27			26.98m - 27.47m: Chocolate brown, mottled grey MUDSTONE.			100	96	-			
			19											
			28						100	95	-		28.00m - 35.00m: HCl test on matrix, strong reaction	
11	HQ3		18			Slightly weathered; light grey, bluish grey, banded greenish grey, mottled chocolate brown, intermixed, highly calcareous, pervasively sheared MUDSTONE and LIMESTONE; extremely weak. Matrix supported (70%) comprising MUDSTONE. Clasts (30%) comprising light grey, fine to coarse, sub-angular, LIMESTONE (up to 75mm diameter). Clast content increases with depth. .	SW		100	100	-			
			29											
			17			29.80m - 30.42m: Increase in limestone gravel clast content in fine matrix. Clasts (50%). Matrix (50%).			100	90	-		29.78m JT, 60°, SM , UN , clay (2mm) 29.80m - 30.42m: Core broken due to drilling through limestone gravels in clay matrix. 30.00m: HCl test on matrix, strong reaction	
			30											
12	HQ3		16			30.58m - 30.80m: Indistinct shear fabric at 30-40°.			100	62	-			
			31											
									100	100	-		31.42m JT, 65°, SM , UN , clean	
			15						100	89	-		31.70-31.82m: CZ, 60°, recovered as fine to medium, angular to sub-angular limestone gravel, some silt, low plasticity	

REMARKS:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 32 mm and vertical accuracy +/- 47 mm.
2. Shear Vane Serial No. 1378, calibration constant 1.383.
3. Washbore to 1.50m bgl. Log descriptions, core box photo, and shear vane test results up to 1.50m bgl, taken from hand auger clearance completed adjacent to drilled BH.
4. One vibrating wire piezometer was installed on 22/08/2025. BH2B_1115_PZ01 was installed at 25.49m bgl, Serial No. 378427.

Water Level Readings:			
DateTime	Hole Depth (m)	Casing Depth (m)	Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 18/08/2025	Logged: M. Zhang
Method: Rotary Core Wireline		Easting: 1727743.25mE,		Date Completed: 22/08/2025	Input: M. Zhang
Equipment: CAT 308 on Digger Rig		Northing: 6004202.98mN,		Inclination: 90	Reviewed: S. Nelis
Contractor: Pro-Drill (Auck) Ltd		Ground level: 46.85m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
12	HQ3	14	33		NAM	[CONT] Slightly weathered; light grey, bluish grey, banded greenish grey, mottled chocolate brown, intermixed, highly calcareous, pervasively sheared MUDSTONE and LIMESTONE; extremely weak. Matrix supported (70%) comprising MUDSTONE. Clasts (30%) comprising light grey, fine to coarse, sub-angular, LIMESTONE (up to 75mm diameter). Clast content increases with depth. .	SW		100	89	-			
	HQ3	13	34			33.34m - 33.50m: Indistinct shear fabric dips at 40-50°.			100	100	-		34.00m: HCl test on matrix, strong reaction	
13	HQ3	12	35						100	93	-			
		11	36			End Of Hole: 35.20m								
		10	37											
		9	38											
		8	39											
		7												

REMARKS:				Water Level Readings:			
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 32 mm and vertical accuracy +/- 47 mm.	2. Shear Vane Serial No. 1378, calibration constant 1.383.	3. Washbore to 1.50m bgl. Log descriptions, core box photo, and shear vane test results up to 1.50m bgl, taken from hand auger clearance completed adjacent to drilled BH.	4. One vibrating wire piezometer was installed on 22/08/2025. BH2B_1115_PZ01 was installed at 25.49m bgl, Serial No. 378427.	DateTime	Hole Depth (m)	Casing Depth (m)	Water Level (m)
				21/08/2025 4:35:00 pm	35.20	0.00	1.20
				22/08/2025 10:30:00 am	35.20	0.00	2.22

Borehole Reference:

BH2B_1115

Photographed By:

SH

Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX001_0m-1.5m



BH2B_1115_BOX002_1.5m-5.18m

Borehole Reference: BH2B_1115

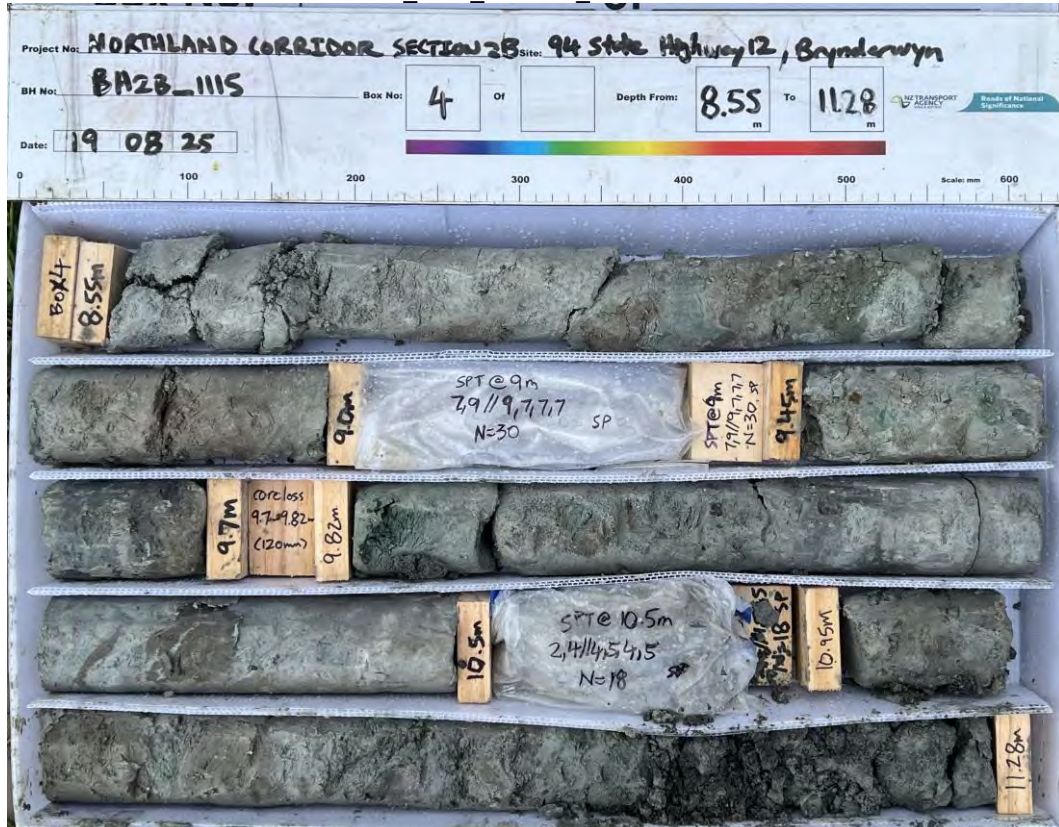
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Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX003_5.18m-8.55m



BH2B_1115_BOX004_8.55m-11.28m

Borehole Reference: BH2B_1115

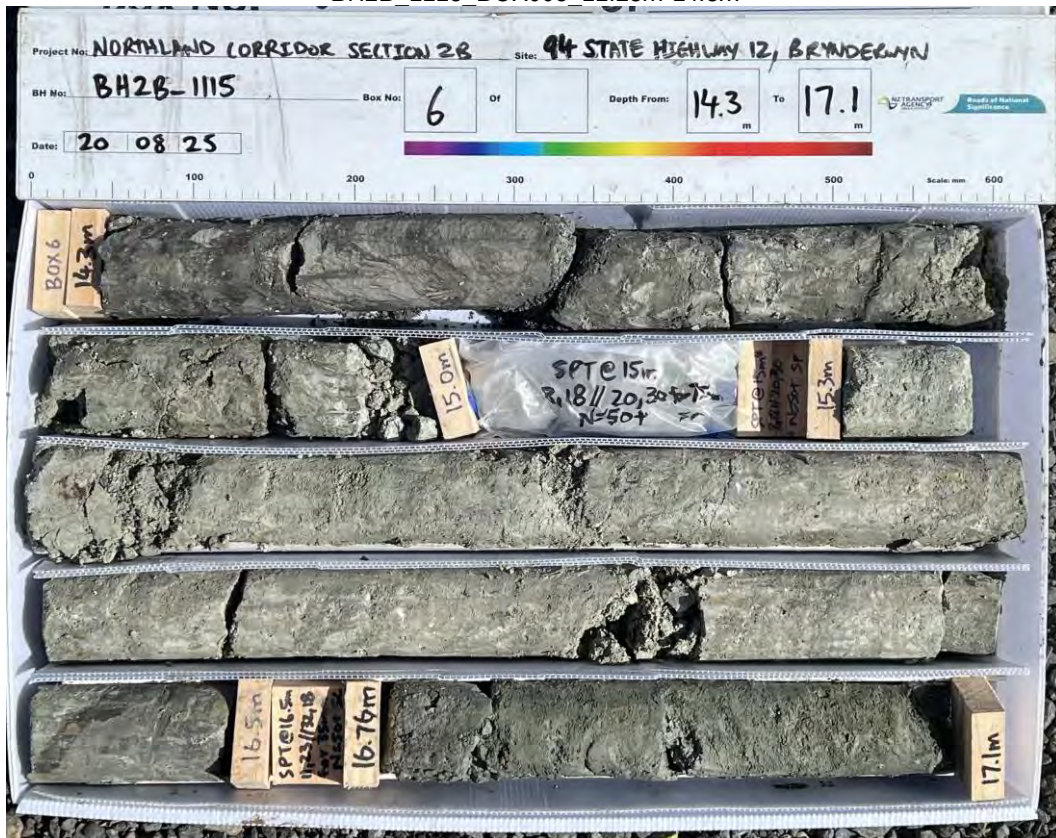
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Date Photographed:

19/08/2025-21/08/2025



BH2B 1115 BOX05 11.28m-14.3m



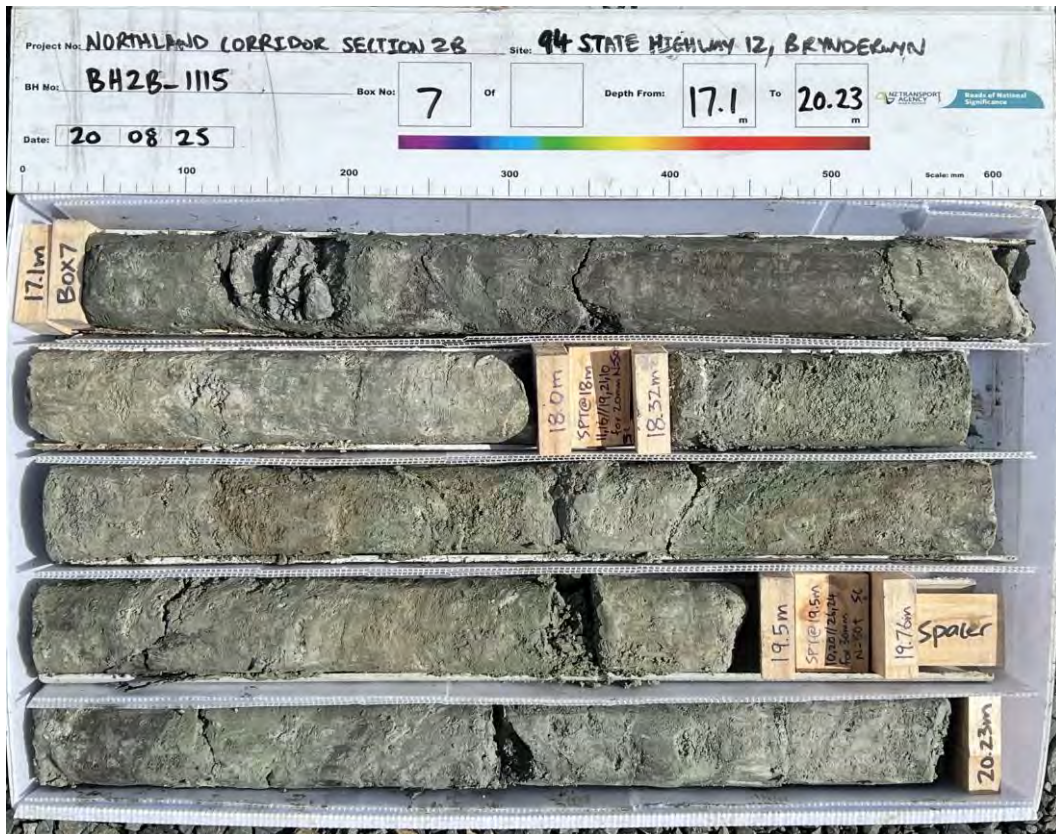
BH2B_1115_BOX006_14.3m-17.1m

Borehole Reference: BH2B_1115

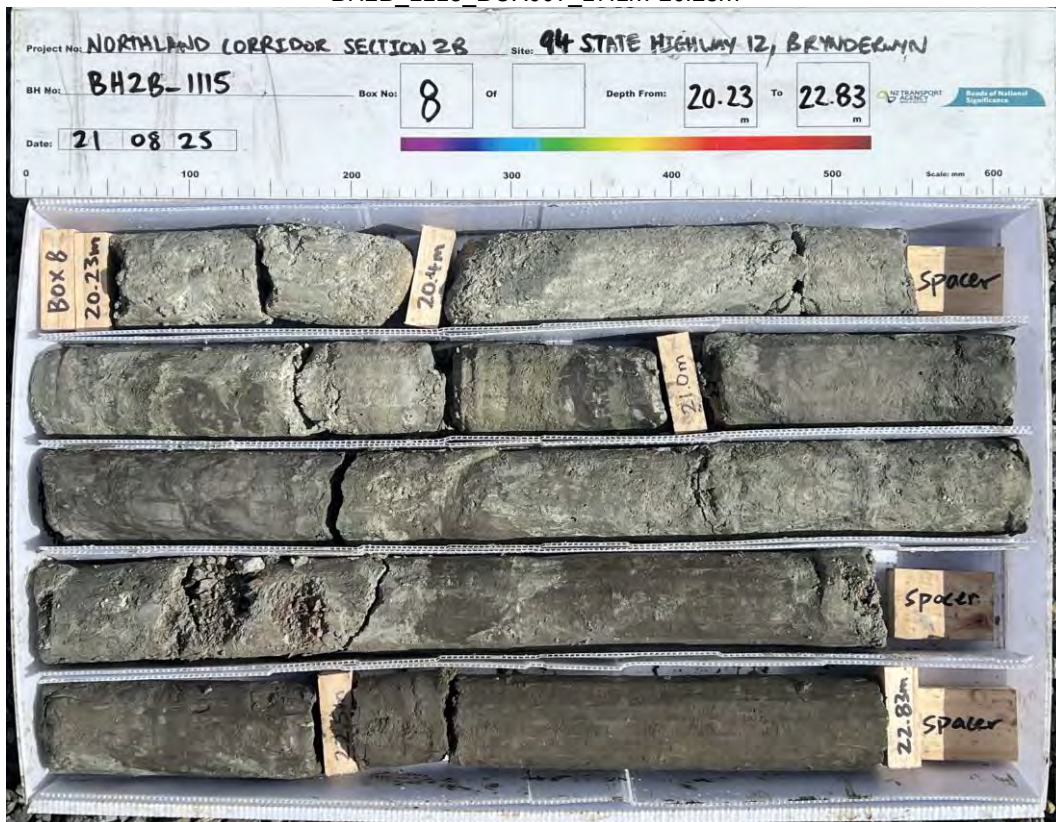
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Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX007_17.1m-20.23m



BH2B_1115_BOX008_20.23m-22.83m

Borehole Reference: BH2B_1115

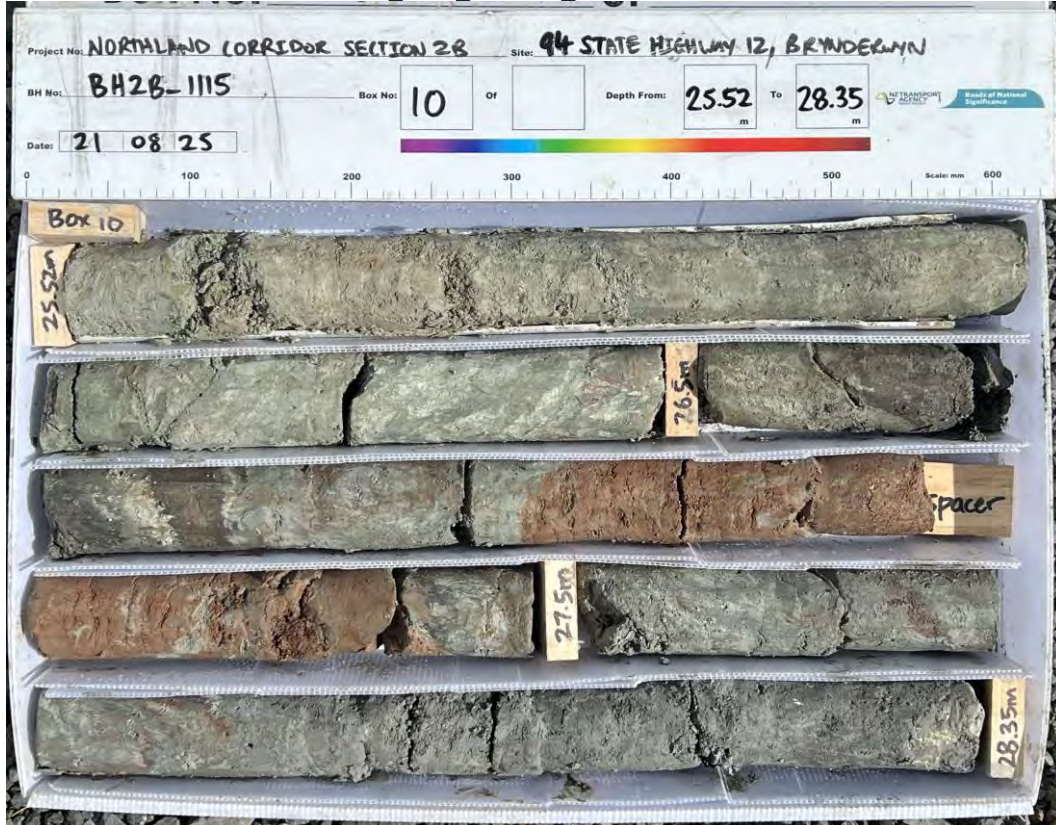
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Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX009_22.83m-25.52m



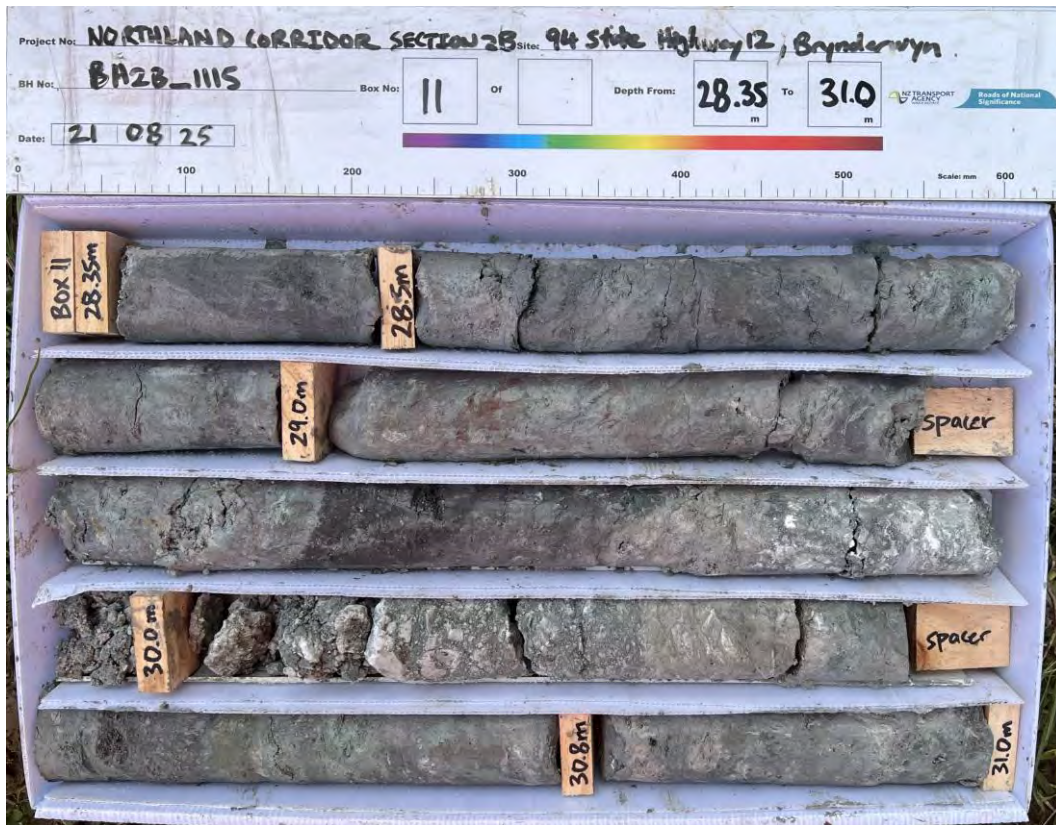
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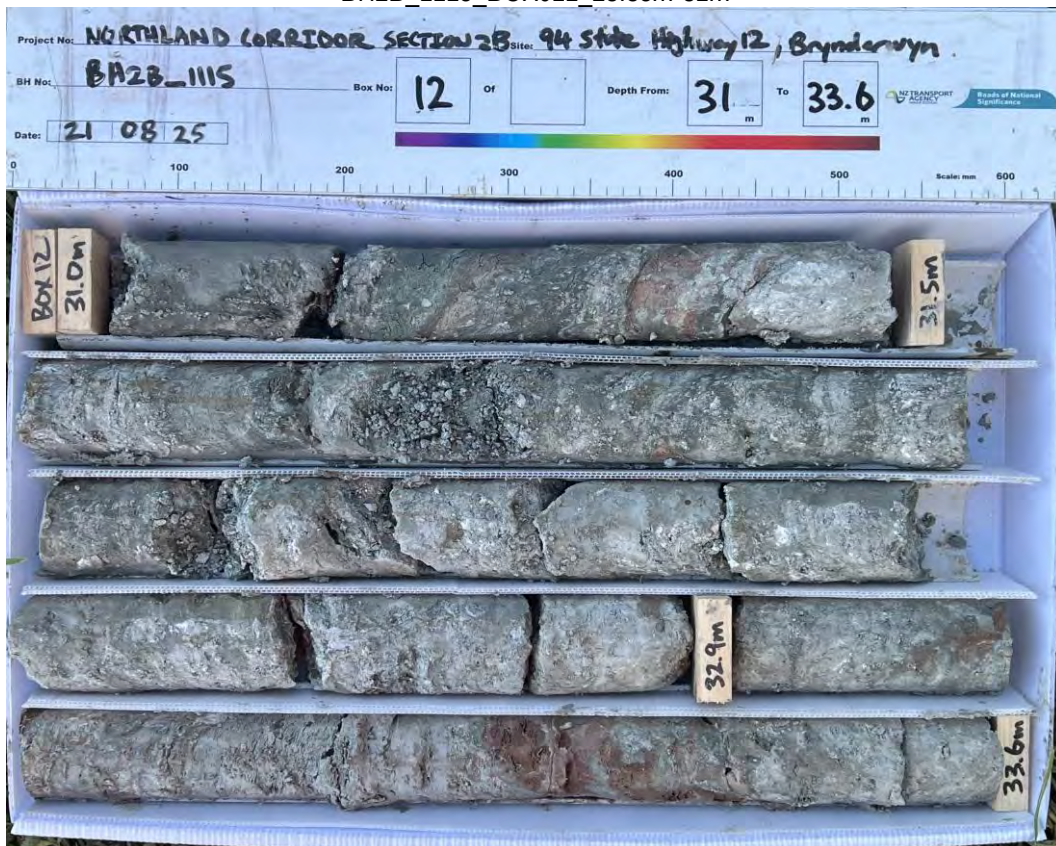
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Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX011_28.35m-31m



BH2B_1115_BOX012_31m-33.6m

Borehole Reference: BH2B_1115

Photographed By: SH

Date Photographed:

19/08/2025-21/08/2025



BH2B_1115_BOX013_33.6m-35.2m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 03/09/2025	Logged: M. Crighton
Method:	Rotary Core Wireline	Easting: 1727382.46	Date completed: 11/09/2025	Input: M. Crighton
Equipment:	Rig 5 YDX1800	Northing: 6007922.98	Inclination: 90°	Reviewed: F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level: 256.17m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL							
1		HA	SPT	HQ3	SPT	WPR	0.00m: CLAY with some silt and minor organics; dark brown. Moist, stiff, high plasticity; organics are fibrous (rootlets) [TOPSOIL].	RS	0.5m: ISHSV 206/74 kPa 1m: ISHSV 206/85 kPa 1.5m: ISHSV 165/56 kPa 1.5m: SPT 1, 0// 0, 1, 0, 1 N = 2	100	80	92	100	67	67	62	100	57	100	55	100	7.5m: SPT 2, 3// 4, 4, 5, 5 N = 18
256	QC						0.30m: CLAY with minor sand, silt and gravel; dark brown with orange mottling. Moist, hard, low plasticity; sand is fine to coarse; gravel is fine, angular to sub-angular, very weak, highly weathered, Greywacke sandstone [COLLUVIUM (UNDIFFERENTIATED)].															
1	RS						0.70m: CLAY with minor sand and silt; light brown with orange streaks. Moist, very stiff, high plasticity; sand is fine to medium [RESIDUALLY WEATHERED GREYWACKE]. 1.50m: ...very stiff															
2	HQ3	SPT	WPH	2.05m: Sandy SILT with minor clay; orange brown with red and black streaks. Moist, very stiff, low plasticity; sand is fine to medium. Relic rock fabric is sub-horizontal to 30°, weak tensile strength [COMPLETELY WEATHERED GREYWACKE].	CW	2.92-3.00m: ...CORE LOSS (80mm).	3m: SPT 2, 2// 2, 2, 2, 3 N = 9	100	67	67	62	100	57	100	55	100	55	100	55	100	7.5m: SPT 2, 3// 4, 4, 5, 5 N = 18	
254				WPR																		2.05m: Sandy SILT with minor clay; orange brown with red and black streaks. Moist, very stiff, low plasticity; sand is fine to medium. Relic rock fabric is sub-horizontal to 30°, weak tensile strength [COMPLETELY WEATHERED GREYWACKE].
3				WPH																		3.45m: Highly weathered, reddish brown with black streaks, GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely spaced, planar to undulating, rough joints (sub-horizontal to 80°), weak incipient joints with iron and manganese staining (sandy fine to coarse GRAVEL with minor silt; moist, loosely packed, well graded; sand is fine to coarse). [HIGHLY WEATHERED GREYWACKE] 4.45-6.45m: ...Recovered as fine to coarse SAND with some gravel; reddish brown. Moist, loosely packed, well graded; gravel is fine to coarse, angular to sub-angular, very weak, highly weathered, Greywacke sandstone and quartz.
2	HQ3	SPT	WPM	6.00-6.45m: ...trace gravel.	MW	6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints, weak to moderately strong incipient joints with dominant angles between sub-horizontal and 70°, iron manganese staining along joints. [MODERATELY WEATHERED GREYWACKE] 7.95-8.40m: ...Recovered as fine to coarse SAND with minor gravel; reddish brown with black staining. Moist, loosely packed, well graded; gravel is fine to medium, angular, very weak, highly weathered. Greywacke sandstone.	7.5m: SPT 2, 3// 4, 4, 5, 5 N = 18	100	55	55	100	55	100	55	100	55	100	55	100	55	100	
253				WPH																		4.45-6.45m: ...Recovered as fine to coarse SAND with some gravel; reddish brown. Moist, loosely packed, well graded; gravel is fine to coarse, angular to sub-angular, very weak, highly weathered, Greywacke sandstone and quartz.
4				WPH																		6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely spaced, planar to undulating, rough joints (sub-horizontal to 80°), weak incipient joints with iron and manganese staining (sandy fine to coarse GRAVEL with minor silt; moist, loosely packed, well graded; sand is fine to coarse). [HIGHLY WEATHERED GREYWACKE]
3	HQ3	SPT	6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints, weak to moderately strong incipient joints with dominant angles between sub-horizontal and 70°, iron manganese staining along joints. [MODERATELY WEATHERED GREYWACKE] 7.95-8.40m: ...Recovered as fine to coarse SAND with minor gravel; reddish brown with black staining. Moist, loosely packed, well graded; gravel is fine to medium, angular, very weak, highly weathered. Greywacke sandstone.	MW	7.5m: SPT 2, 3// 4, 4, 5, 5 N = 18	100	55	55	100	55	100	55	100	55	100	55	100	55	100	55	100	
252			WPH																			4.45-6.45m: ...Recovered as fine to coarse SAND with some gravel; reddish brown. Moist, loosely packed, well graded; gravel is fine to coarse, angular to sub-angular, very weak, highly weathered, Greywacke sandstone and quartz.
251			WPH																			6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints (sub-horizontal to 80°), weak incipient joints with iron and manganese staining (sandy fine to coarse GRAVEL with minor silt; moist, loosely packed, well graded; sand is fine to coarse). [HIGHLY WEATHERED GREYWACKE]
1	HQ3	SPT	6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints, weak to moderately strong incipient joints with dominant angles between sub-horizontal and 70°, iron manganese staining along joints. [MODERATELY WEATHERED GREYWACKE] 7.95-8.40m: ...Recovered as fine to coarse SAND with minor gravel; reddish brown with black staining. Moist, loosely packed, well graded; gravel is fine to medium, angular, very weak, highly weathered. Greywacke sandstone.	MW	7.5m: SPT 2, 3// 4, 4, 5, 5 N = 18	100	55	55	100	55	100	55	100	55	100	55	100	55	100	55	100	
250			WPH																			4.45-6.45m: ...Recovered as fine to coarse SAND with some gravel; reddish brown. Moist, loosely packed, well graded; gravel is fine to coarse, angular to sub-angular, very weak, highly weathered, Greywacke sandstone and quartz.
249			WPH																			6.45m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints (sub-horizontal to 80°), weak incipient joints with iron and manganese staining (sandy fine to coarse GRAVEL with minor silt; moist, loosely packed, well graded; sand is fine to coarse). [HIGHLY WEATHERED GREYWACKE]

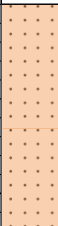
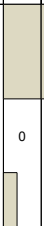
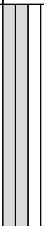
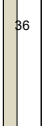
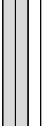
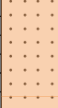
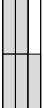
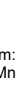
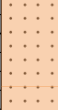
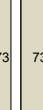
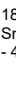
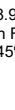
DateTime	Hole Depth	Water Level
2025-09-03 16:00	9.45m	1.50mbgl
2025-09-04 06:15	9.45m	2.81mbgl
2025-09-04 17:16	19.50m	0.50mbgl
2025-09-05 06:16	19.50m	7.81mbgl
2025-09-05 16:00	27.00m	2.40mbgl
2025-09-08 07:17	27.00m	20.85mbgl
2025-09-08 18:17	34.50m	1.74mbgl
2025-09-09 07:18	34.50m	17.90mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 03/09/2025	Logged: M. Crighton
Method:	Rotary Core Wireline	Easting: 1727382.46	Date completed: 11/09/2025	Input: M. Crighton
Equipment:	Rig 5 YDX1800	Northing: 6007922.98	Inclination: 90°	Reviewed: F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level: 256.17m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL					
3	HQ3	248			WPM		MW					VMS WMS MMS CS VCS EGS							
						8.40m: CORE LOSS (600mm).			43										
4	SPT	247	9		WPM	9.00m: Moderately weathered, greyish brown with orange and black streaks, GREYWACKE SANDSTONE. Weak; highly fractured, closely spaced, planar to undulating, rough joints, weak to moderately strong incipient joints with dominant angles between sub-horizontal to 70°, manganese staining along joints.	MW	9m: SPT 1, 2// 2, 3, 5, 6 N = 16	100										
	HQ3	246	10		WPR	9.45m: SAND with minor silt and gravel; light brown with black streaks. Moist, medium dense, well graded; gravel is angular, highly weathered, very weak, Greywacke sandstone [COMPLETELY WEATHERED GREYWACKE].	CW		100					10.20-10.50m: JT set x5, 25-30°, Pl, Ro, 1mm, Sn FeO MnO					
						10.00m: Highly weathered, light brown with orange and black streaks, GREYWACKE SANDSTONE. Very weak; highly fractured, closely spaced, planar to undulating, rough joints, weak incipient joints with dominant angles between sub-horizontal to 30°, manganese staining along joints. [HIGHLY WEATHERED GREYWACKE]			100	100	70								
	SPT							10.5m: SPT 1, 1// 2, 1, 3, 2 N = 8	100						10.95m: JT set x3, 25-40°, Pl, Ro, <1mm, Sn FeO MnO				
	HQ3	245	11						100	100	91					11.70m: JT set x3, 35-40°, Pl, Ro, <1mm, Sn FeO MnO			
	HQ3								100	90	50					12.55-12.85m: JT set x4, 40°, Pl, Ro, 1-2mm, Sn FeO MnO			
5	SPT	244	12		WPH		HW	12m: SPT 2, 2// 3, 2, 3, 3 N = 11	100							13.15-13.20m: JT set x2, 18°, Pl, Sm, <1mm, Sn FeO MnO			
	HQ3	243	13						100								13.50m: JT, 60°, Pl, Ro, 1mm, Sn FeO MnO		
								100	100	90						14.14m: JT, 10°, Pl, Ro, 1mm, Sn FeO MnO			
	SPT										13.5m: SPT 1, 2// 1, 3, 2, 5 N = 11	100							14.50m: JT, 45°, Pl, Sm, 1mm, Sn FeO MnO
	HQ3	242	14								100	91	91						
												100	70	60					
6	SPT	241	15			15.10m: ...weak.		15m: SPT 6, 11// 11, 15, 19, 5 for 25mm N = 50+	100							15.55m: JI, 50°, Pl, Sn FeO MnO 15.60-15.90m: JT set x2, 20-30°, Pl, Ro, 1mm, Sn FeO MnO			
	HQ3									100	64	64							
						15.90-16.50m: ...Persistent sub-vertical incipient jointing with heavy black staining. Weak tensile strength.			100	64	64								

DateTime	Hole Depth	Water Level
2025-09-09 17:18	49.10m	1.31mbgl
2025-09-10 08:00	49.10m	20.40mbgl
2025-09-10 16:00	49.85m	2.40mbgl
2025-09-11 08:00	49.85m	33.15mbgl

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	03/09/2025	Logged:	M. Crighton
Method:	Rotary Core Wireline	Easting:	1727382.46	Date completed:	11/09/2025	Input:	M. Crighton
Equipment:	Rig 5 YDX1800	Northing:	6007922.98	Inclination:	90°	Reviewed:	F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level:	256.17m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL																		
6	HQ3		240		WPH	16.89-17.28m: ...Becomes very weak, recovered as fine to coarse SAND with minor silt and minor gravel; brown with black staining. Moist, loosely packed, well graded; gravel is fine to medium, angular to sub-angular, very weak, highly weathered, Greywacke sandstone. 17.29m: CORE LOSS (715mm).	HW	16.5m: SPTC 5, 11// 15, 15, 18, 2 for 10mm N = 50+		0				     	16.00m: JT, 50°, Pl-Un, Ro, 2mm, Sn FeO MnO																	
	SPTC																															
	HQ3		17																													
	SPTC		239																													
7	HQ3		18		WPH	18.00m: Highly weathered, light brown with orange and black streaks, GREYWACKE SANDSTONE. Very weak; highly fractured, closely spaced, planar to undulating, rough joints, weak incipient joints with dominant angles between sub-horizontal and 30°, iron and manganese staining along joints.	HW	18m: SPTC 5, 15// 25, 25 for 50mm N = 50+		0				     	18.40m: JT, 80° - sub-vertical, Un, <1mm, Sn FeO MnO																	
	SPTC		238																													
	HQ3		19																													
	HQ3		237																													
8	HQ3		20		WPM	19.50m: Moderately weathered, greyish brown with orange and black staining, GREYWACKE SANDSTONE. Weak; highly fractured to fragmented, closely spaced, planar to undulating, rough joints, moderately strong incipient joints with dominant angles of 40° and 70°, iron staining along joints. [MODERATELY WEATHERED GREYWACKE] 20.00-20.25m: ...fragmented, weak tensile strength throughout pervasive incipient joints, dominant angle 60°. 20.15m: ...Soft white infill up to 12 mm - possible zeolite?, no HCl reaction.	MW			100				     	19.65m: JI sext x2, 70°, Un, Sn FeO MnO																	
	SPTC		236																													
	HQ3		21																													
	HQ3		235																													
9	HQ3		22		WPM	21.00-25.50m: ...Fragmented, extremely closely spaced, moderately strong incipient joints with dominant angles between sub-horizontal and 25°. Primary joints are at 40-70°. FeO staining and up to 25 mm of weathering penetration along joints.	MW			100				     	22.50-22.75m: JT set x4, 10-15°, Pl-Un, Ro 1-2mm, Sn FeO, up to 20mm of weathering penetration																	
	SPTC		234																													
	HQ3		23																													
	HQ3		233																													
9	HQ3				WPM		MW		100	100	67	     	23.35m: JT, 30°, Pl, Ro, 2mm, Sn FeO MnO																			
	HQ3																															
9	HQ3				WPM		MW		100	100	67	     	23.60m: JT, 15°, Un, Ro, 2mm, Sn FeO MnO 23.70m: JT set x2, 70° - sub-vertical, Pl, Ro <1mm, Sn FeO																			
	HQ3																															

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 100mm.
2. One vibrating wire piezometer was installed on 11/09/2025. BH2B_1116_PZ01 was installed at 40.5m bgl, Serial No. P250944.
3. Geophysical profiling was undertaken on 11/09/2025, comprising optical and acoustic televiwer.
4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.
5. Low grade metamorphic minerals prevalent throughout Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.

Shear Vane (ISHSV) Serial No. 3453, calibration constant 1.47.

Water Level Readings:

DateTime	Hole Depth	Water Level

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 03/09/2025	Logged: M. Crighton
Method:	Rotary Core Wireline	Easting: 1727382.46	Date completed: 11/09/2025	Input: M. Crighton
Equipment:	Rig 5 YDX1800	Northing: 6007922.98	Inclination: 90°	Reviewed: F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level: 256.17m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
												VMS WS MWS CS VCS ECS		
9	HQ3		-232		WPM	24.30-24.50m: ...Fragmented zone; dominant angle 10-40°, recovered as silty sandy fine to coarse gravel; brown with black streaks. Well graded; gravel is angular, weak, moderately weathered, Greywacke sandstone.	MW		100	67	59		24.10m: JT, 8°, Pl, Ro, 1mm, Sn FeO	
	HQ3		-231										24.20m: JT set x2, 80° - sub-vertical, Pl-Un, Ro, <1mm, Sn FeO	
													25.00-25.15m: JT set x2, 15°, Pl, Ro, 1mm, Sn FeO MnO, clay veneer	
													25.35m: JT, 20°, Un, Ro, 1mm, Sn FeO	
													25.52m: JT, 70°, Pl, Ro, 1mm, Sn FeO	
													25.68m: Vn, sub-vertical, Un, up to 15mm, soft white infill - possible zeolite?	
10	HQ3		-230		WPM	25.50-25.80m: ...Slightly weathered, bluish grey, GREYWACKE SANDSTONE. Moderately strong, highly fractured, extremely closely spaced, moderately strong, sub-vertical incipient joints with iron staining. 25.70m: ...moderately weathered zones up to 15 mm. 26.25m: ...moderately weathered zones up to 40 mm. 26.25-26.85m: ...Slightly weathered, bluish brownish grey, GREYWACKE SANDSTONE. Moderately strong, highly fractured, extremely closely spaced, persistent sub-vertical joints, moderately strong incipient joints with FeO staining.	MW		100	100	96		25.82m: JT, 80° - sub-vertical, Un, Ro, 1mm, Sn FeO, sub-horizontal incipient splays	
													26.09m: JT set x2, 70°, Pl, Ro, 1mm, Sn FeO MnO	
													26.15m: JT set x4, 12-20°, Pl, Ro, 1-2mm, Sn FeO	
													26.25m: JT, 25°, Pl, Ro, 2mm, Sn FeO, clay veneer	
													26.26m: JT set x3, sub-vertical, Pl-St, Ro, <1mm-1mm, Sn FeO	
													26.45m: JT set x2, 10°, Pl, Ro, 2mm, Sn FeO	
11	HQ3		-229		WPU	27.80-28.50m: ...Weak incipient joints.	SW		100	100	73		26.55m: JT, 30°, Pl, Ro, 2mm, Sn FeO	
													26.74m: JT, 2°, Pl-Un, Ro, 1mm, Sn FeO MnO	
													27.35-27.65m: JT set x5, 30-45°, Pl, Ro, 1mm, Sn FeO, up to 15mm of weathering penetration	
													27.80m: JT, 10°, Un, Ro, 1mm, Sn FeO MnO	
													27.85m: JT, 80° - sub-vertical, Un-St, Ro, <1mm, Sn FeO	
													27.90-28.15m: JT set x4, sub-horizontal - 10°, Pl-Un, Ro, 1mm, Sn FeO	
12	HQ3		-228		WPU	28.65m: Slightly weathered, bluish grey, GREYWACKE SANDSTONE. Moderately strong to strong, highly fractured, closely spaced, planar to undulating, rough joints; pervasive strong incipient joints. Intensely veined. Dominant angles are 45° and 70°. Soft white infill - possible zeolite(?) up to 5mm. [SLIGHTLY WEATHERED GREYWACKE] 28.80-28.95m: ...recovered as sandy silty fine to medium gravel; angular, moderately strong, slightly weathered, Greywacke sandstone. Controlled by 45-50° joints, soft white infill - possible zeolite(?) on joint surfaces.	SW		100	80	80		28.00m: JT, 70°, Pl, Ro, 2mm, Sn FeO	
													28.65m: JT, 70° - sub-vertical, Pl, 2mm, soft white infill - possible zeolite?	
													29.20m: JT, 70°, Pl, Ro, 1mm, clay veneer	
													29.25-29.80m: JT set x5, 10-25°, Pl-Un, Ro, 1mm, Sn FeO	
													29.85m: JT, 60°, Pl, Ro, 1mm, Sn FeO green	
													29.90-30.30m: JT set x2, 80° - sub-vertical, Pl, Ro, 1mm, soft white infill - possible zeolite?	
11	HQ3		-227		WPU	30.50-31.00m: ...Moderately weathered zones around 70° to sub-vertical joints, up to 150 mm.	SW		100	100	92		30.30m: JT, 80° - sub-vertical, Un, Ro, <1mm, Sn FeO	
													30.45m: JT, 10°, Un, Ro, 2mm, Sn FeO	
													30.50-31.00m: JT, 70° - sub-vertical, Un-St, Ro, 1mm, Sn FeO	
													30.90m: JT set x3, 75°, Pl, Ro, <1mm, Sn FeO	
													31.05m: ...Soft white vein - possible zeolite, up to 10mm, sub-vertical.	
													31.30-31.90m: ...Persistent soft white veins - possible zeolite (?) up to 5mm, 70° to sub-vertical, undulating-stepped, offset by micro faulting/folding.	
12	HQ3		-226		WPU	31.90-32.10m: ...Moderately weathered zones around 70° joint. up to 50mm.	SW		100	100	97		31.45m: JT, sub-horizontal, Pl, Ro, 2mm, Sn FeO, sandy clay infill	
													31.55-31.90m: JT set x2, 70°, Pl, Ro, soft white infill - possible zeolite?	

DateTime	Hole Depth	Water Level
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Remarks:	
1.	Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 100mm.
2.	One vibrating wire piezometer was installed on 11/09/2025. BH2B_1116_P201 was installed at 40.5m bgl, Serial No. P250944.
3.	Geophysical profiling was undertaken on 11/09/2025, comprising optical and acoustic televiwer.
4.	Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation.
5.	Low grade metamorphic minerals prevalent throughout Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.

Water Level Readings:		
DateTime	Hole Depth	Water Level

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 50mm and vertical accuracy +/- 100mm. 2. One vibrating wire piezometer was installed on 11/09/2025. BH2B_1116_PZ01 was installed at 40.5m bgl, Serial No. P250944. 3. Geophysical profiling was undertaken on 11/09/2025, comprising optical and acoustic televiewer. 4. Joint spacing, RQD and SCR have been calculated while ignoring incipient joints within the Greywacke Formation. 5. Low grade metamorphic minerals prevalent throughout Waipapa Greywacke (Zeolite or Pr-Pu) - TBC. Shear Vane (ISHSV) Serial No. 3453, calibration constant 1.47.	Water Level Readings:		
	DateTime	Hole Depth	Water Level

Borehole Reference:

BH2B_1116

Photographed By:

SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX001_0m-3m



BH2B_1116_BOX002_3m-6m

Borehole Reference: BH2B_1116

Photographed By: SH

Date Photographed:

03/09/2025-21/10/2025



BH2B 1116 BOX003 6m-9.45m



BH2B_1116_BOX004_9.45m-12.45m

Borehole Reference:

BH2B_1116

Photographed By:

SH

Date Photographed:

03/09/2025-21/10/2025



BH2B 1116_BOX005_12.45m-15.4m



BH2B_1116_BOX006_15.4m-18.27m

Borehole Reference: BH2B_1116

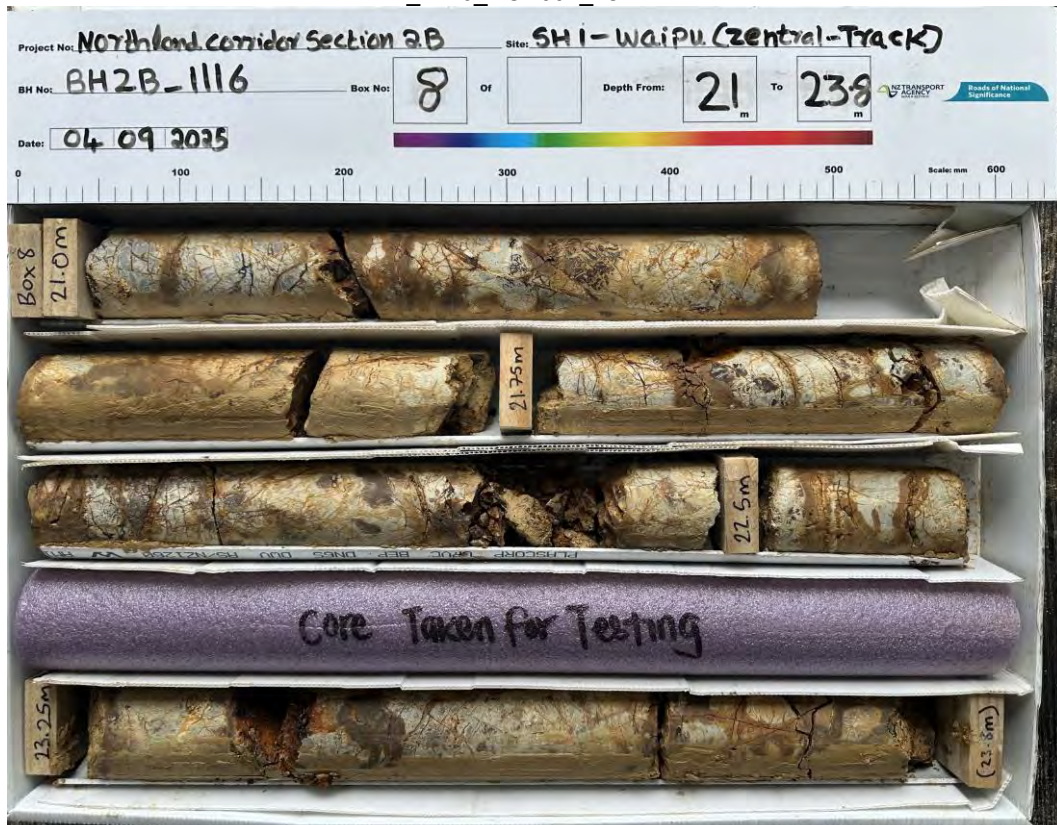
Photographed By: SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX007_18.27m-21m



BH2B_1116_BOX008_21m-23.8m

Borehole Reference: BH2B_1116

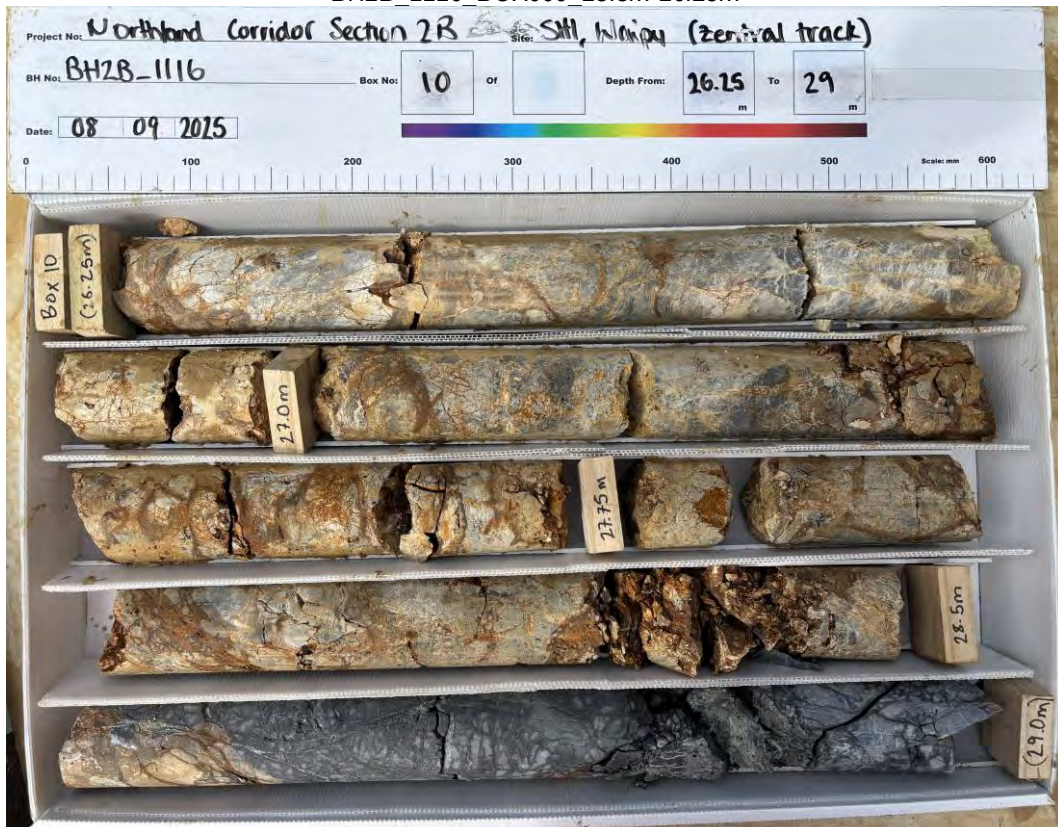
Photographed By: SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX009_23.8m-26.25m



BH2B_1116_BOX010_26.25m-29m

Borehole Reference:

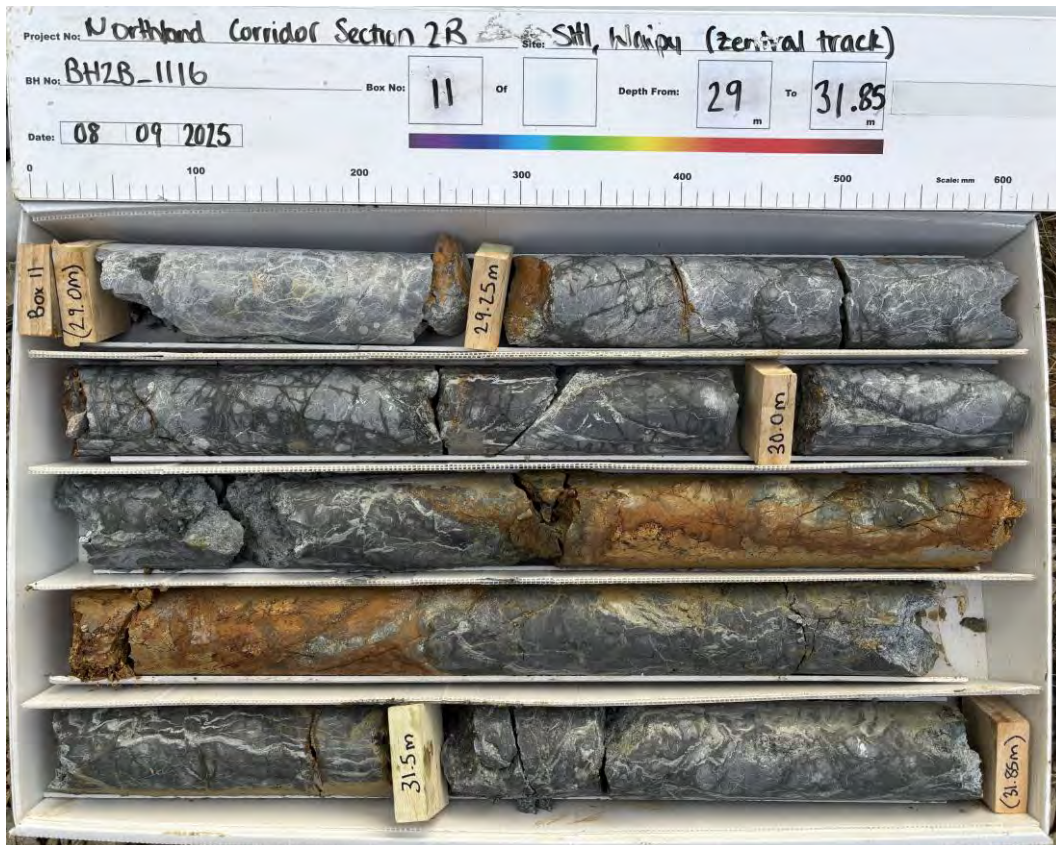
BH2B_1116

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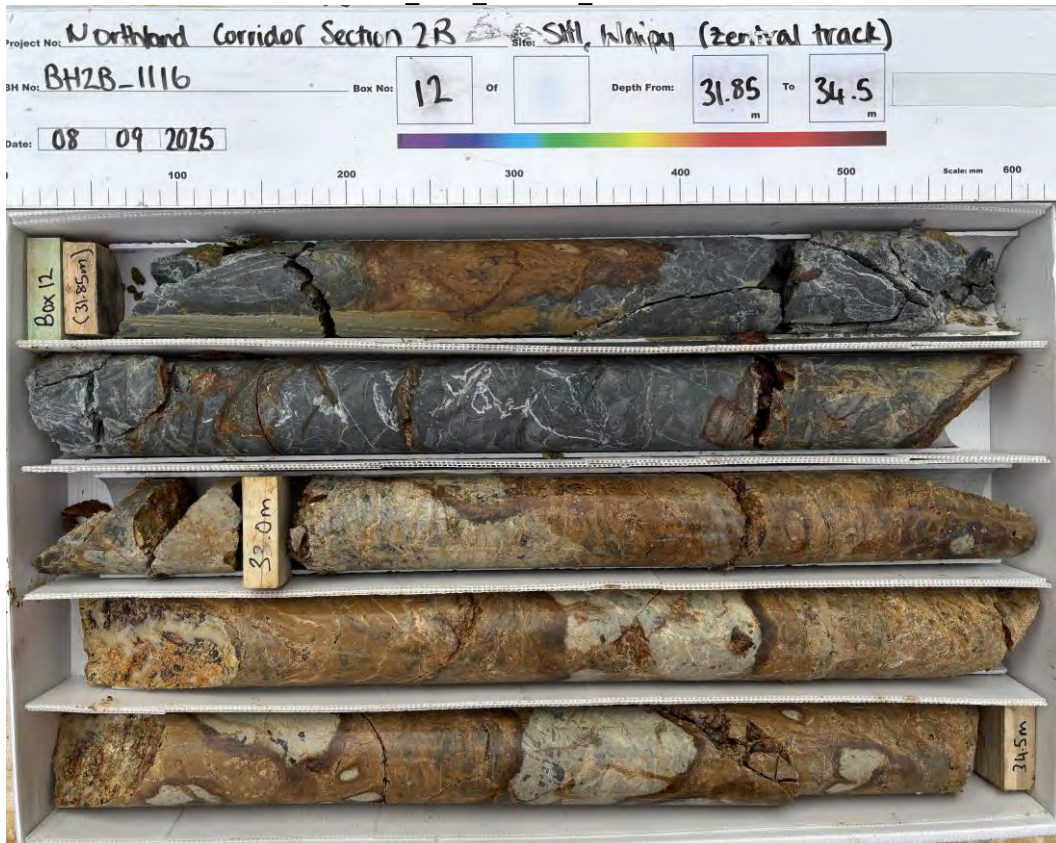
SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX011_29m-31.85m



BH2B_1116_BOX012_31.85m-34.5m

Borehole Reference: BH2B_1116

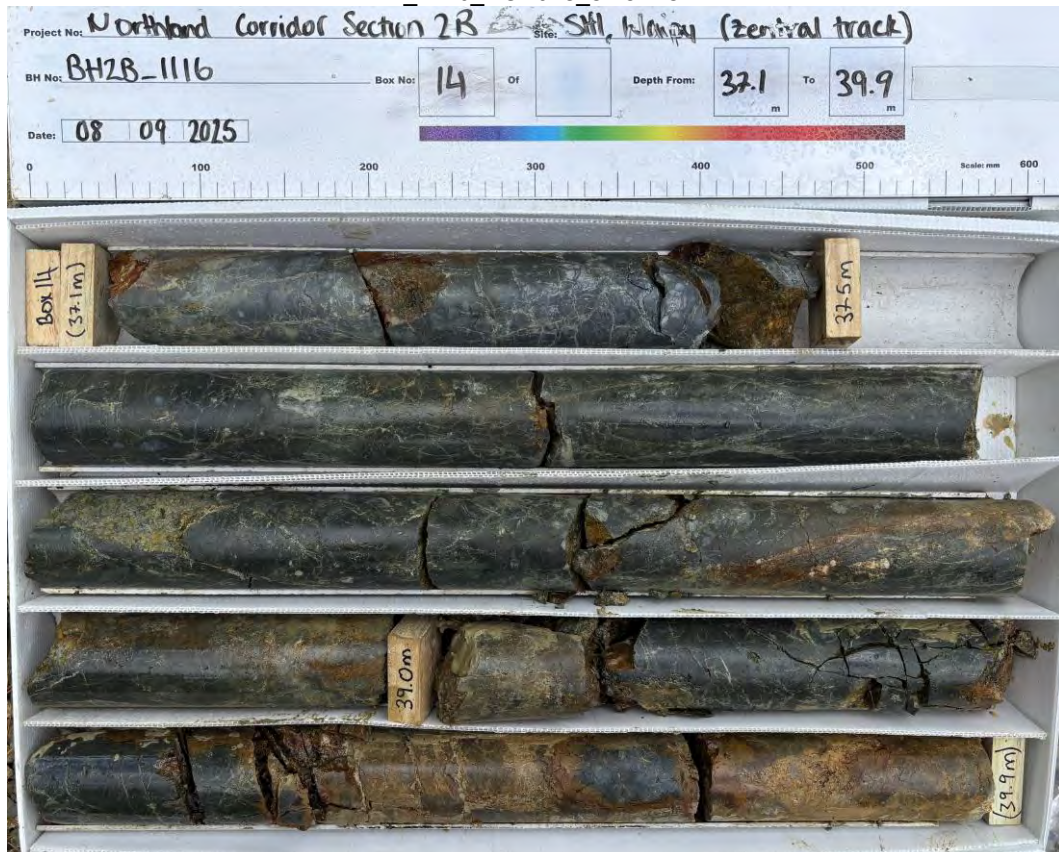
Photographed By: SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX013_34.5m-37.1m



BH2B_1116_BOX014_37.1m-39.9m

Borehole Reference:

BH2B_1116

Photographed By:

SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX015_39.9m-42.5m



BH2B_1116_BOX016_42.5m-45m

Borehole Reference: BH2B_1116

Photographed By: SH

Date Photographed:

03/09/2025-21/10/2025



BH2B_1116_BOX017_45m-47.6m



BH2B_1116_BOX018_47.6m-49.85m

Water Level Readings:		
Date/Time	Hole Depth	Water Level
2025-08-29 12:45	9.00m	1.00mbgl
2025-09-01 09:55	9.00m	3.10mbgl
2025-09-03 12:00	17.80m	0.20mbgl
2025-09-03 15:45	21.75m	1.20mbgl
2025-09-04 08:00	21.75m	1.20mbgl
2025-09-05 07:15	21.75m	2.00mbgl
2025-09-05 13:30	29.25m	4.50mbgl
2025-09-08 07:15	29.25m	2.10mbgl

Remarks:

- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46.5mm and vertical accuracy +/- 63mm.
- 2. One vibrating wire piezometer was installed on 09/09/2025, borehole BH28, 1117, FZ01 was installed at 15m bgl, Serial No. 378301.
- 3. Falling/rising tide testing undertaken with data logger at borehole depth 39.90m on 09/09/2025.
- 4. ROD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- 5. Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- 6. Major/ dominant defects are included in the material descriptions while minor/secondary defects are noted in defect column.
- 7. Low grade metamorphic minerals prevalent throughout the Waiopapa Greywacke (Zeolite or Pr-Pu) - TBC.

DateTime	Hole Depth	Water Level
2025-09-08 16:00	39.95m	7.75mbgl
2025-09-09 08:00	39.95m	3.00mbgl

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Logged:	C. Mariscal
Input:	C. Mariscal
Reviewed:	F. Monteith
Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL					
10	HQ3	28			WPU	24.85m: Unweathered bluish grey to dark grey GREYWACKE SANDSTONE, strong. SANDSTONE is fine, slightly fractured with two persistent incipient joint sets dipping 70°, moderately strong tensile strength, another dipping 40°-50°, with soft white infill - possible zeolite (1mm-10mm), strong tensile strength. With traces of anastomosing possible zeolite veins (1mm). 26.00-26.55m: ...Trace of dark grey, angular ARGILLITE clasts (10mm-30mm). 27.84-27.95m: ...Trace of dark grey, angular ARGILLITE clasts (10mm-30mm).	UW		100	33	33		23.96m: JT, 70-80°, Ro, St to Un, soft white infill - possible zeolite, 1mm-2mm, conjugate joints 24.05-24.40m: CZ, recovered as angular fine to coarse gravel and cobbles. 24.15-24.65m: JI, 90°, Sm, Pl to Un, soft white infill - possible zeolite, 1mm 24.45m: JT, 35°, Ro, St, Cn 24.48m: JT, 35°, Ro, St, Cn 24.78m: JT, 50°, Ro, Pl, soft white infill - possible zeolite, 2mm 24.83m: JT, 40°, Sm, Pl, soft white infill - possible zeolite, 1mm 25.02m: JT, 40°, Ro, Pl, Cn 25.50-28.55m: JI, 40-50°, Pl, soft white infill - possible zeolite, 1mm-10mm, strong tensile strength. 25.56m: JT, 50°, Ro, St, soft white infill - possible zeolite, 4mm 26.20-27.05m: JI, 70°, Pl, soft white infill - possible zeolite, <1mm, 6x, strong tensile strength.						
	HQ3																		
	HQ3																		
	HQ3																		
11	HQ3	26			WPU	28.40m: Unweathered, dark bluish grey to grey. GREYWACKE SANDSTONE and SILTSTONE, moderately strong. SANDSTONE is fine, highly fractured with one dominant incipient joint dipping 70°-80°, moderately strong tensile strength. With trace of possible zeolite veins generally dipping 25° (1mm-10mm). 29.45-29.85m: ...Black carbonaceous fragment. 29.85m: ...Bedding contact between fine SANDSTONE and SILTSTONE dipping 30°. 30.05-31.10m: ...Intensive anastomosing possible zeolite veins (1mm-10mm).	UW		100	100	100		28.55-30.05m: Core preferential breaks along the 70-80° incipient joints and 25° possible zeolite veins. 28.70-28.80m: A portion of the core is recovered as coarse angular gravel to cobbles.						
	HQ3																		
	HQ3																		
	HQ3																		
12	HQ3	29			WPU	31.15-31.40m: ...Zone of pervasive veining (soft white infill) and light green banding. Possible seam of hydrothermally altered rock. 31.40m: Unweathered, dark bluish grey, mottled olive green, GREYWACKE SANDSTONE and SILTSTONE, strong. SANDSTONE is fine, moderately to slightly fractured with two persistent incipient joint sets, one dipping 80°-85° and one dipping 30°, moderately strong tensile strength. With some possible zeolite veins (1mm-10mm).	UW		100	79	100								
	HQ3																		
	HQ3																		
	HQ3																		
13	HQ3	21			WPU		UW		100	87	84								
	HQ3																		

DateTime	Hole Depth	Water Level
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BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727832.51
Northing: 6011011.26
Ground level: 52.407m (NZVD2016)

Date started: 29/08/2025
Date completed: 09/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Mariscal
Input: C. Mariscal
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	VGS	EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
13	HQ3	20							100	100	100									
		33																		
14	HQ3	19							100	87	87									
		34																		
		18																		
	HQ3	35				35.20-39.95m: ...Persistent incipient joint set dipping 70°, smooth to slickensided, possible zeolite infill (1mm), moderately strong to strong tensile strength.	UW		100	87	87								35.20-39.95m: J1, 70°, Sm to Slk, Pl, soft white infill - possible zeolite, 1mm, 11x, moderately strong tensile strength.	
		17																		
15	HQ3	36			WPU	36.00-36.25m: ...Unweathered, dark greenish grey GREYWACKE FAULT BRECCIA, moderately strong. Crackle to mosaic breccia, with angular clasts of fine SANDSTONE and SILTSTONE. With trace of carbonaceous laminae.			100	57	57									
		16																		
		37				37.10-37.25m: ...Angular ARGILLITE clasts (40mm-60mm).														
		15							100	67	67								37.85-38.15m: Crumbles on handling, breaks along incipient joints dipping 70°.	
	HQ3	38																		
16	HQ3	14				38.15m: Unweathered, dark greenish grey, GREYWACKE SANDSTONE and SILTSTONE, strong to very strong. SANDSTONE is fine, moderately fractured with one persistent incipient joint set dipping 40°, slickensided, moderately strong tensile strength. With trace of possible zeolite veins (1mm-10mm).			100	78	78									
		39					UW													
		13							100	67	67								39.60-39.85m: Crumbles on handling.	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 46.5mm and vertical accuracy +/- 63mm.
- One vibrating wire piezometer was installed on 09/09/2025. BH2B_1117_PZ01 was installed at 15m bgl, Serial No. 378301.
- Falling/rising head testing undertaken with data logger at borehole depth 39.90m on 09/09/2025.
- RQD was calculated while ignoring incipient joints and making an assessment on the rocks status intact below ground level.
- Tensile strength of incipient joints was assessed based on assumed in ground conditions.
- Major/ dominant defects are included in the material descriptions while minor/secondary defects are noted in defect column.
- Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC.

Shear Vane (ISHSV + IBHSV) Serial No. 3556 + DR4938, calibration constant 1.504 + 1.486.

Water Level Readings:

Date/Time	Hole Depth	Water Level
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Borehole Reference: BH2B_1117

Photographed By: CM

Date Photographed:

29/08/2025-08/09/2025



BH2B 1117 BOX001 0m-2.9m



BH2B_1117_BOX002_2.9m-5.66m

Borehole Reference:

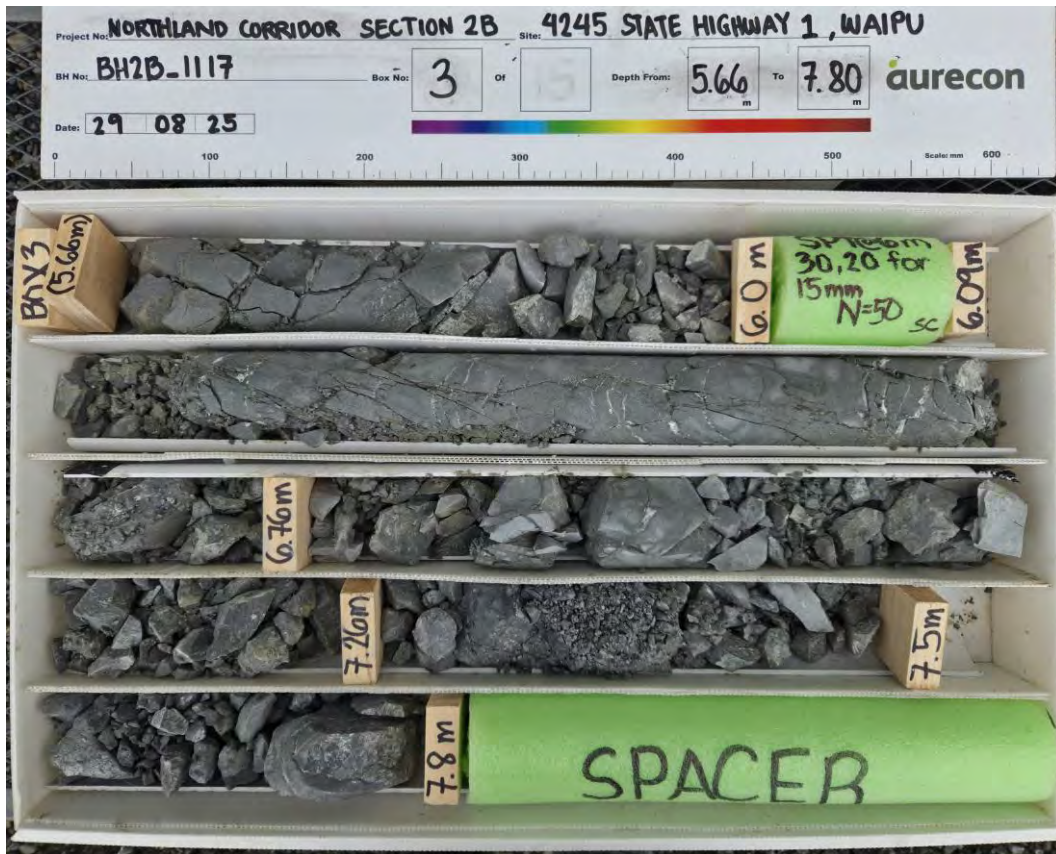
BH2B_1117

Photographed By:

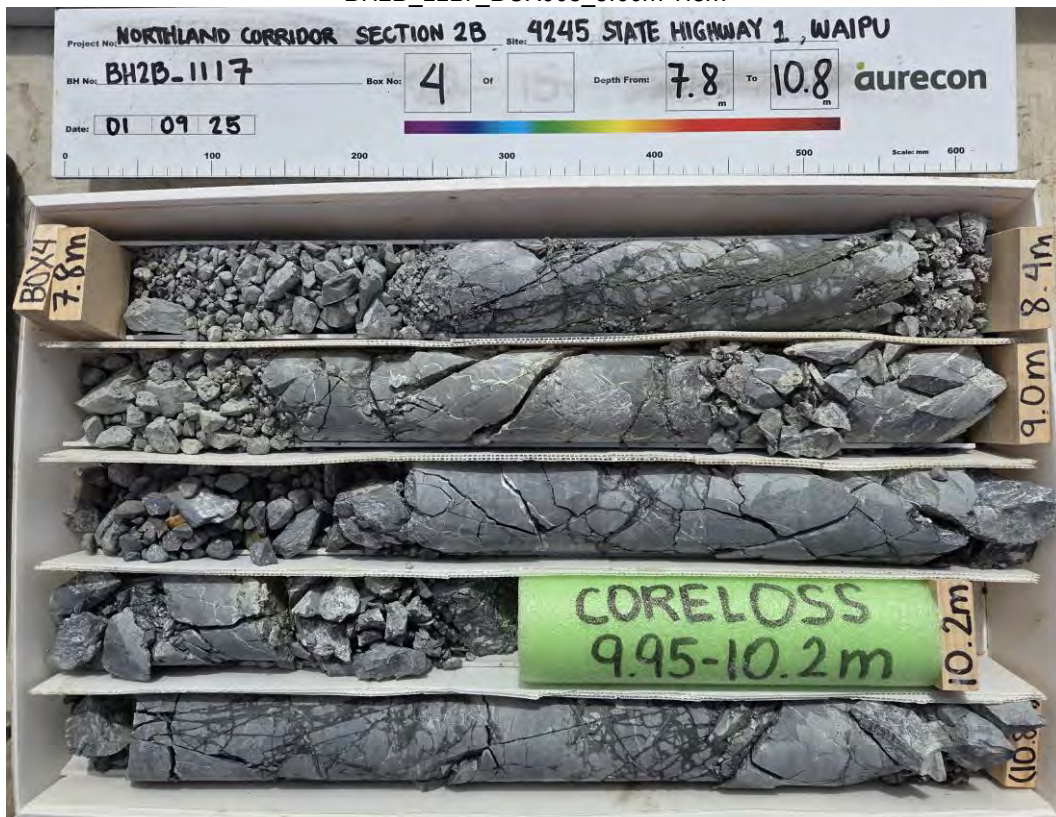
CM

Date Photographed:

29/08/2025-08/09/2025



BH2B_1117_BOX003_5.66m-7.8m



BH2B_1117_BOX004_7.8m-10.8m

Borehole Reference:

BH2B_1117

Photographed By:

CM

Date Photographed:

29/08/2025-08/09/2025



BH2B_1117_BOX005_10.8m-13.3m



BH2B_1117_BOX006_13.3m-15.75m

Borehole Reference:

BH2B_1117

Photographed By:

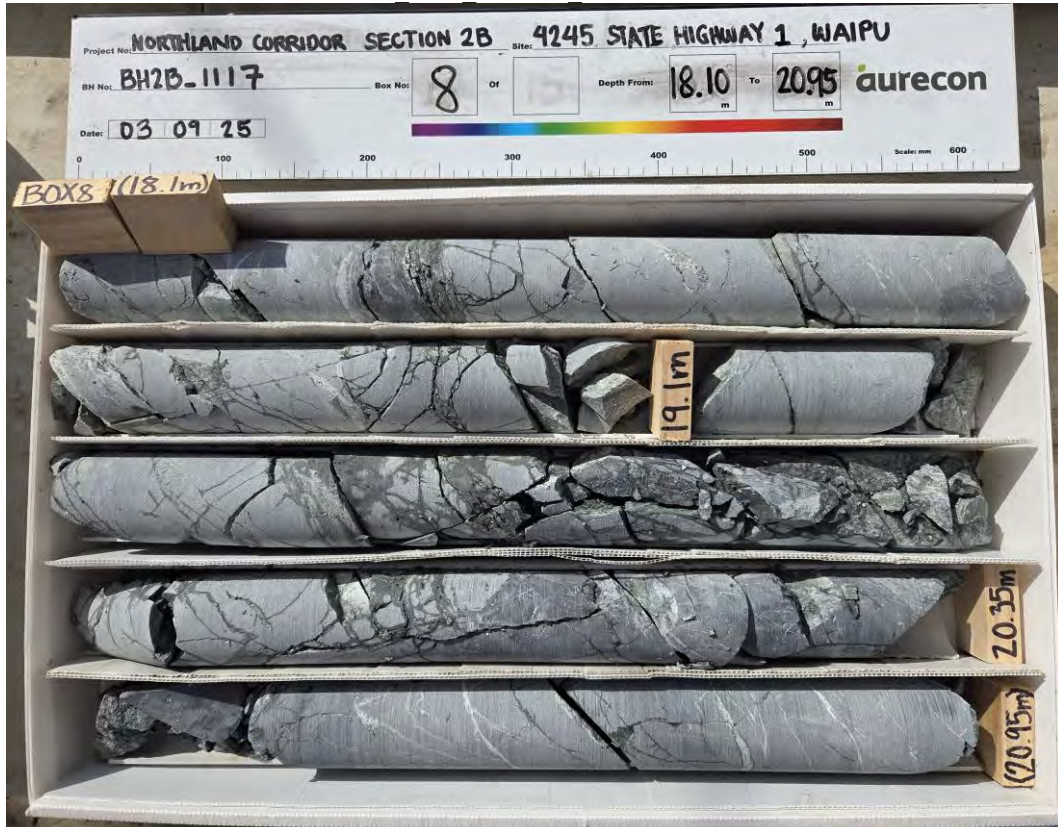
CM

Date Photographed:

29/08/2025-08/09/2025



BH2B 1117 BOX007 15.75m-18.1m



BH2B_1117_BOX008_18.1m-20.95m

Borehole Reference:

BH2B_1117

Photographed By:

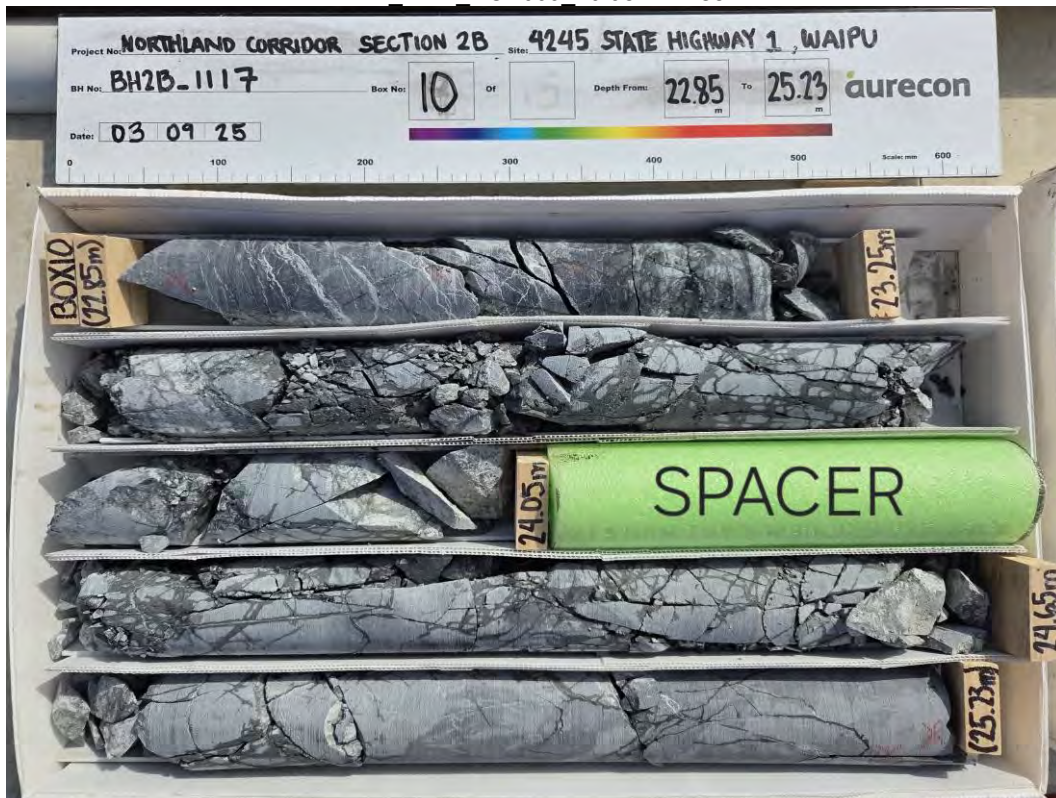
CM

Date Photographed:

29/08/2025-08/09/2025



BH2B 1117 BOX009 20.95m-22.85m



BH2B_1117_BOX010_22.85m-25.23m

Borehole Reference:

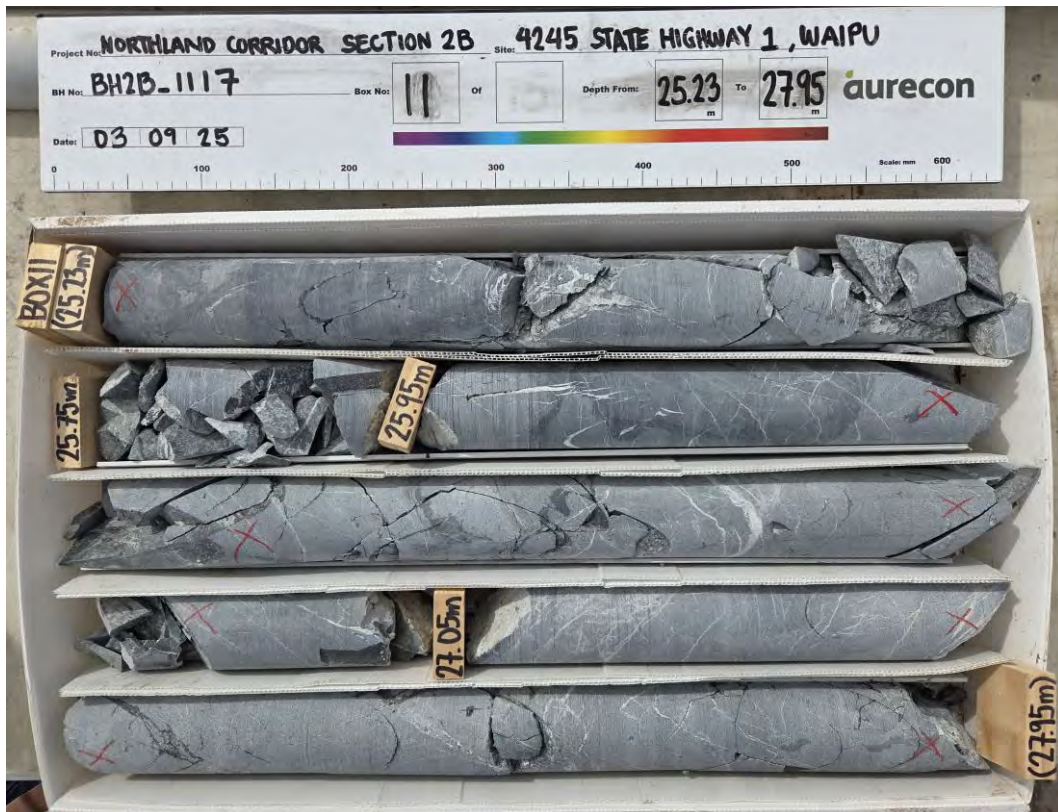
BH2B_1117

Photographed By:

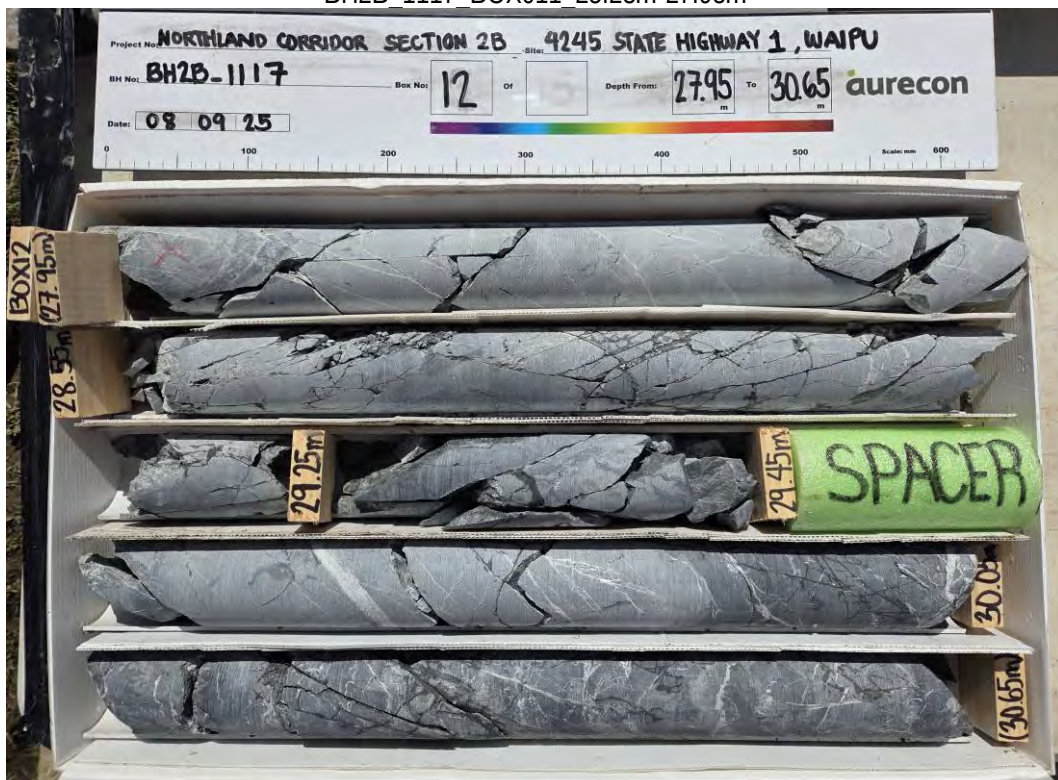
CM

Date Photographed:

29/08/2025-08/09/2025



BH2B 1117 BOX011 25.23m-27.95m



BH2B_1117_BOX012_27.95m-30.65m

Borehole Reference:

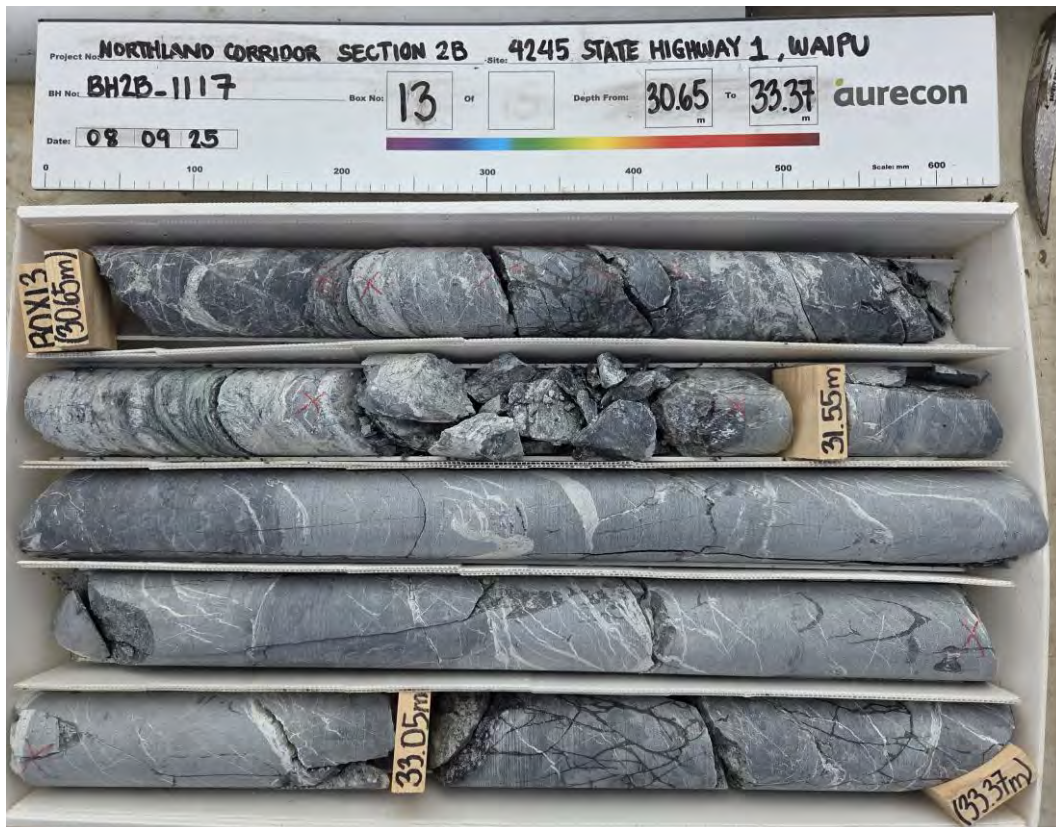
BH2B_1117

Photographed By:

CM

Date Photographed:

29/08/2025-08/09/2025



BH2B 1117 BOX013 30.65m-33.37m



BH2B_1117_BOX014_33.37m-35.75m

Borehole Reference: BH2B_1117

Photographed By: CM

Date Photographed:

29/08/2025-08/09/2025



BH2B_1117_BOX015_35.75m-38.15m

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Hanjin / D&B 10
Contractor: McMillan Drilling Ltd

CO-ORDINATES: NZTM2000
Easting: 1727701.65
Northing: 6015418.80
Ground level: 12.646m (NZVD2016)

Date started: 22/09/2025
Date completed: 25/09/2025
Inclination: 90°
Azimuth: N/A

Logged: C. Mariscal
Input: C. Mariscal
Reviewed: S. MacKay
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS WS MWS VCS EGS	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
1	HA	12	1		TS	0.00m: Silty CLAY with trace organics; greyish brown. Firm, moist, high plasticity. Organics are rootlets. [TOPSOIL].		0.5m: ISHSV 194/91 kPa	100	0	0				
						0.50m: CLAY; light brown, mottled dark brown. Very stiff, moist, high plasticity. [TAURANGA GROUP-HOLOCENE ALLUVIUM].		1m: ISHSV 138/83 kPa							
						1.50m: Silty CLAY; light brownish grey, mottled orange. Very stiff, moist, high plasticity. FeO staining.		1.5m: ISHSV 113/50 kPa 1.5m: SPT 0, 0/ 1, 1, 2, 2 N = 6	100	0	0				
						2.60-2.80m: ...Relict incipient joint dipping 10°, planar, with FeO staining. 2.80-3.00m: ...CORE LOSS (200mm) possibly washed out during drilling. 3.00-3.50m: ...Firm. PUSH TUBE		3m: IBHSV 69/41 kPa U: 3.00-3.50 m	81	0	0				
2	U54	9	2		TA	3.50m: CLAY with some silt; light bluish grey. Very soft, wet, high plasticity.		3.5m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100	0	0			3.50m: Sank with the weight of hammer and SPT rods	
						4.50-4.95m: ...Clayey fine SAND; light bluish grey. Very loose, wet. Dilatant - slow.		4.5m: IBHSV 14/6 kPa 4.5m: SPT 0, 0/ 0, 0, 0, 0 N = 0	100	0	0			4.50m: Sank with the weight of hammer and SPT rods	
						6.00-6.50m: ...PUSH TUBE		6m: IBHSV 6/3 kPa U: 6.00-6.50 m	100	0	0				
						6.50m: Sandy CLAY; light bluish grey. Very soft, wet, high plasticity. Sand is fine.		6.5m: SPT 0, 0/ 0, 0, 1, 1 N = 2	100	0	0				
3	HQ3	6	3			7.50-7.95m: ...With trace fine gravel, angular sandstone, stiff.		7.5m: IBHSV 44/14 kPa 7.5m: SPT 0, 0/ 0, 0, 2, 2 N = 4	100	0	0				

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 25.5mm and vertical accuracy +/- 63.5mm. 2. One vibrating wire piezometer was installed on 25/09/2025. BH2B_1122_PZ01 was installed at 21.5m bgl, Serial No. 378296. 3. An additional borehole, BH2B_1122A was completed Xm from BH2B_1122 for downhole iVane testing.	Water Level Readings:		
	DateTime	Hole Depth	Water Level
	2025-09-22 17:00	13.95m	2.00mbgl
	2025-09-23 07:00	13.95m	1.70mbgl
	2025-09-23 17:00	30.00m	3.40mbgl
	2025-09-24 07:00	30.00m	1.00mbgl
	2025-09-24 15:15	40.30m	1.30mbgl
Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.	2025-09-25 07:00	40.30m	1.20mbgl
	2025-09-25 10:45	40.30m	1.06mbgl

Logged:	C. Mariscal
Input:	C. Mariscal
Reviewed:	S. MacKay
Verified:	A. George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
													VWS	MWS	CS	VCS	ECS				
3		HQ3		4		TA	9.00-9.50m: ...PUSH TUBE		9m: IBHSV 41/11 kPa	100	0	0									
		U54		9	9.50m: ...Relict laminations, thinly laminated, sub-horizontal.		9.5m: SPT 1, 1// 1, 1, 1, 1 N = 4	100	0	0											
		SPT		3	9.95m: Sandy CLAY with trace silt; light bluish grey. Very soft, wet, low plasticity. Sand is fine.		10.5m: IBHSV 11/6 kPa 10.5m: SPT 0, 1// 0, 1, 0, 0 N = 1	100	0	0											
4		HQ3		10		RR	10.95m: SILT with trace sand; bluish grey. Soft to firm, moist, low plasticity. Sand is fine.		10.5m: IBHSV 11/6 kPa 10.5m: SPT 0, 1// 0, 1, 0, 0 N = 1	100	0	0								12.85-15.40m: No HCl reaction on Silty SAND	
		SPT		2	12.00m: Silty fine SAND; dark bluish grey, mottled brownish red. Medium dense, moist [RESIDUAL SOIL].		12m: IBHSV 41/11 kPa 12m: SPT 1, 3// 2, 3, 4, 4 N = 13	100	0	0											
		HQ3		11	13.95-14.00m: ...GREYWACKE (?) clasts, green, white, mottled light brown. Angular to sub-angular, 20-60mm. 14.00m: Silty fine SAND; brownish grey. Dense, moist. [COMPLETELY WEATHERED ROCK].		13.5m: IBHSV 39/28 kPa 13.5m: SPT 2, 3// 5, 6, 7, 9 N = 27	100	0	0											
5		HQ3		12		CW			12m: IBHSV 41/11 kPa 12m: SPT 1, 3// 2, 3, 4, 4 N = 13	100	0	0									
		SPT		6			13.5m: IBHSV 39/28 kPa 13.5m: SPT 2, 3// 5, 6, 7, 9 N = 27	100	0	0											
		HQ3		13			15m: SPTC 7, 9// 14, 15, 15, 6 for 20mm N = 50+	0	0	0											
6		SPTC		14		RU												15.40-16.83m: No HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE			
		HQ3		15																15.83-16.10m: CZ, 80°, recovered as angular cobbles, crumbles on handling.	
		HQ3		3																	

DateTime	Hole Depth	Water Level
2025-09-22 17:00	13.95m	2.00mbgl
2025-09-23 07:00	13.95m	1.70mbgl
2025-09-23 17:00	30.00m	3.40mbgl
2025-09-24 07:00	30.00m	1.00mbgl
2025-09-24 15:15	40.30m	1.30mbgl
2025-09-25 07:00	40.30m	1.20mbgl
2025-09-25 10:45	40.30m	1.06mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	22/09/2025	Logged:	C. Mariscal
Method:	Rotary Core Wireline	Easting:	1727701.65	Date completed:	25/09/2025	Input:	C. Mariscal
Equipment:	Hanjin / D&B 10	Northing:	6015418.80	Inclination:	90°	Reviewed:	S. MacKay
Contractor:	McMillan Drilling Ltd	Ground level:	12.646m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

[illegible]

Remarks:

- Remarks:
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 25.5mm and vertical accuracy +/- 63.5mm.
 2. One vibrating wire piezometer was installed on 25/09/2025. BH2B 1122_PZ01 was installed at 21.5m bgl, Serial No. 378296.
 3. An additional borehole, BH2B 1122A was completed Xm from BH2B 1122 for downhole iVane testing.

Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-22 17:00	13.95m	2.00mbgl
2025-09-23 07:00	13.95m	1.70mbgl
2025-09-23 17:00	30.00m	3.40mbgl
2025-09-24 07:00	30.00m	1.00mbgl
2025-09-24 15:15	40.30m	1.30mbgl
2025-09-25 07:00	40.30m	1.20mbgl
2025-09-25 10:45	40.30m	1.06mbgl

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	22/09/2025	Logged:	C. Mariscal
Method:	Rotary Core Wireline	Easting:	1727701.65	Date completed:	25/09/2025	Input:	C. Mariscal
Equipment:	Hanjin / D&B 10	Northing:	6015418.80	Inclination:	90°	Reviewed:	S. MacKay
Contractor:	McMillan Drilling Ltd	Ground level:	12.646m (NZVD2016)	Azimuth:	N/A	Verified:	A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	WVS	WS	MWS	VCS	EGS	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9	HQ3								100	100	100						SANDSTONE, weak HCl reaction on black SILTSTONE	
		-12															24.30m: JT, 40°, Sm, Pl, calcite, 1mm	
	HQ3		25			25.00m: Unweathered banded brownish grey, light grey, and black INTERBEDDED SANDSTONE (25%) and SILTSTONE (75%); weak. Well cemented. Moderately thinly bedded, moderately inclined. SANDSTONE is fine to medium. Black SILTSTONE is interlaminated with brownish grey SILTSTONE.	UW		100	100	100						25.00m: SANDSTONE may contain more volcanic sediments due to weak reaction to HCl	
10	HQ3																	
		-13																
	HQ3		26						100	100	100							
11	HQ3																	
		-14																
	HQ3		27				UW										27.06m: VE, 75°, Pl, calcite, 1mm	
12	HQ3																	
		-15																
	HQ3		28		RU				100	100	100						27.25m: JT, 80°, Ro, Pl, Cn	
13	HQ3																	
		-16				28.50-28.60m: ...White SILTY LIMESTONE; angular, cobble.											28.50-28.75m: CZ, 40°, recovered as angular fine to coarse gravel and cobble SILTSTONE and SILTY LIMESTONE, crumbles on handling	
	HQ3		29			29.06m: Unweathered banded dark brownish grey, black, and light grey INTERBEDDED SANDSTONE (20%) and SILTSTONE (80%); weak. Well cemented. Laminated to thinly laminated, gently inclined. SANDSTONE is fine to medium. Brownish grey SILTSTONE is interlaminated with black SILTSTONE.			100	67	67						29.06-30.60m: Strong HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE	
14	HQ3																	
		-17															29.34-29.43m: CZ, 40°, recovered as angular fine to coarse gravel and cobble SILTSTONE	
	HQ3		30														29.81-30.00m: CZ, 20°, recovered as angular fine to coarse gravel and cobble SILTSTONE	
15	HQ3																	
		-18							100	83	100						29.82-30.01m: JT, 80°, Sm, Pl, calcite, 1mm	
	HQ3		31				UW										30.60-30.75m: Weak HCl reaction on fine SANDSTONE	
16	HQ3																	
		-19															30.75-31.50m: Strong HCl reaction on INTERBEDDED SANDSTONE and SILTSTONE	
	HQ3					31.50-32.00m: ...Black SILTSTONE may contain volcanic sediments due to weak reaction to HCl.											31.25-31.40m: VE, 70°, Pl, calcite, 1mm, 6x	
17	HQ3																	
		-20															31.50-32.00m: Weak HCl reaction on black SILTSTONE	
	HQ3																31.65m: VE, 70°, Pl to Un, calcite, 1mm	

Remarks:		Water Level Readings:		
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 25.5mm and vertical accuracy +/- 63.5mm.		Date/Time	Hole Depth	Water Level
2. One vibrating wire piezometer was installed on 25/09/2025. BH2B_1122_PZ01 was installed at 21.5m bgl, Serial No. 378296.		2025-09-22 17:00	13.95m	2.00mbgl
3. An additional borehole, BH2B_1122A was completed Xm from BH2B_1122 for downhole iVane testing.		2025-09-23 07:00	13.95m	1.70mbgl
		2025-09-23 17:00	30.00m	3.40mbgl
		2025-09-24 07:00	30.00m	1.00mbgl
		2025-09-24 15:15	40.30m	1.30mbgl
		2025-09-25 07:00	40.30m	1.20mbgl
		2025-09-25 10:45	40.30m	1.06mbgl
Shear Vane (IBHSV + ISHSV) Serial No. 1378, calibration constant 1.383.				

Borehole Reference: BH2B_1122

Photographed By: CM

Date Photographed:

22/09/2025-24/09/2025



BH2B_1122_BOX001_0m-3m



BH2B_1122_BOX002_3m-6.25m

Borehole Reference: BH2B_1122

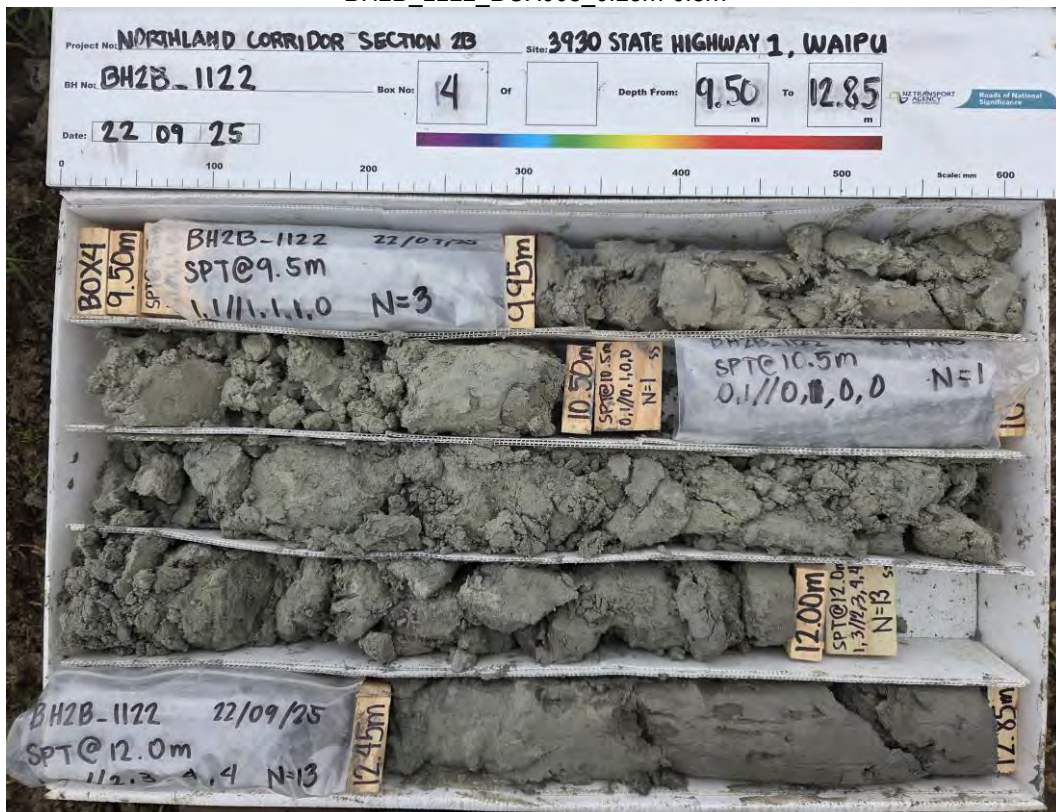
Photographed By: CM

Date Photographed:

22/09/2025-24/09/2025



BH2B_1122_BOX003_6.25m-9.5m



BH2B_1122_BOX004_9.5m-12.85m

Borehole Reference:

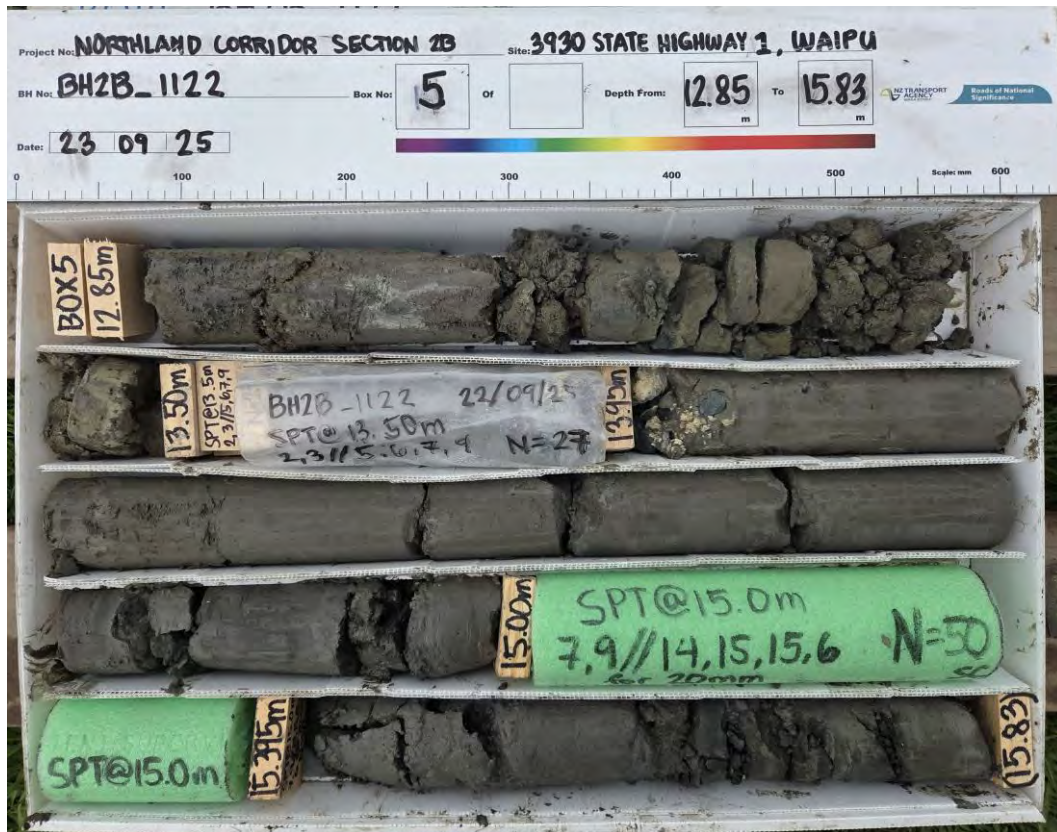
BH2B_1122

Photographed By:

CM

Date Photographed:

22/09/2025-24/09/2025



BH2B 1122 BOX005 12.85m-15.83m



BH2B_1122_BOX006_15.83m-18.4m

Borehole Reference:

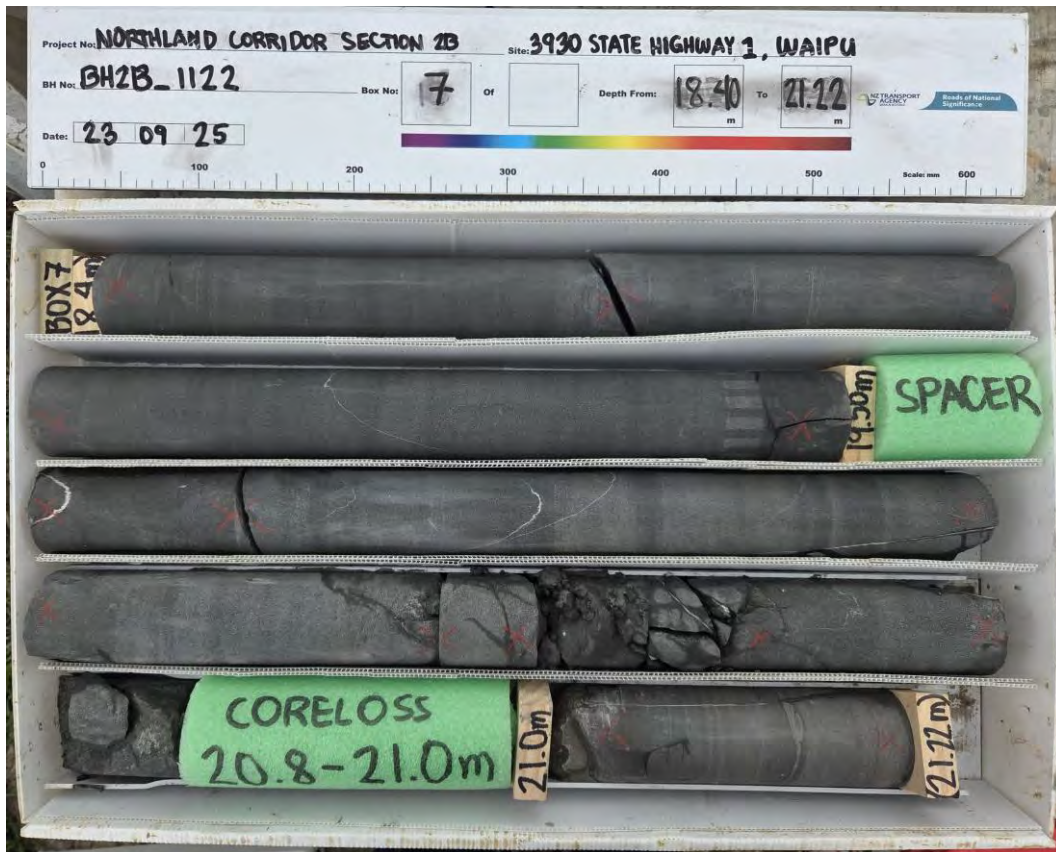
BH2B_1122

Photographed By:

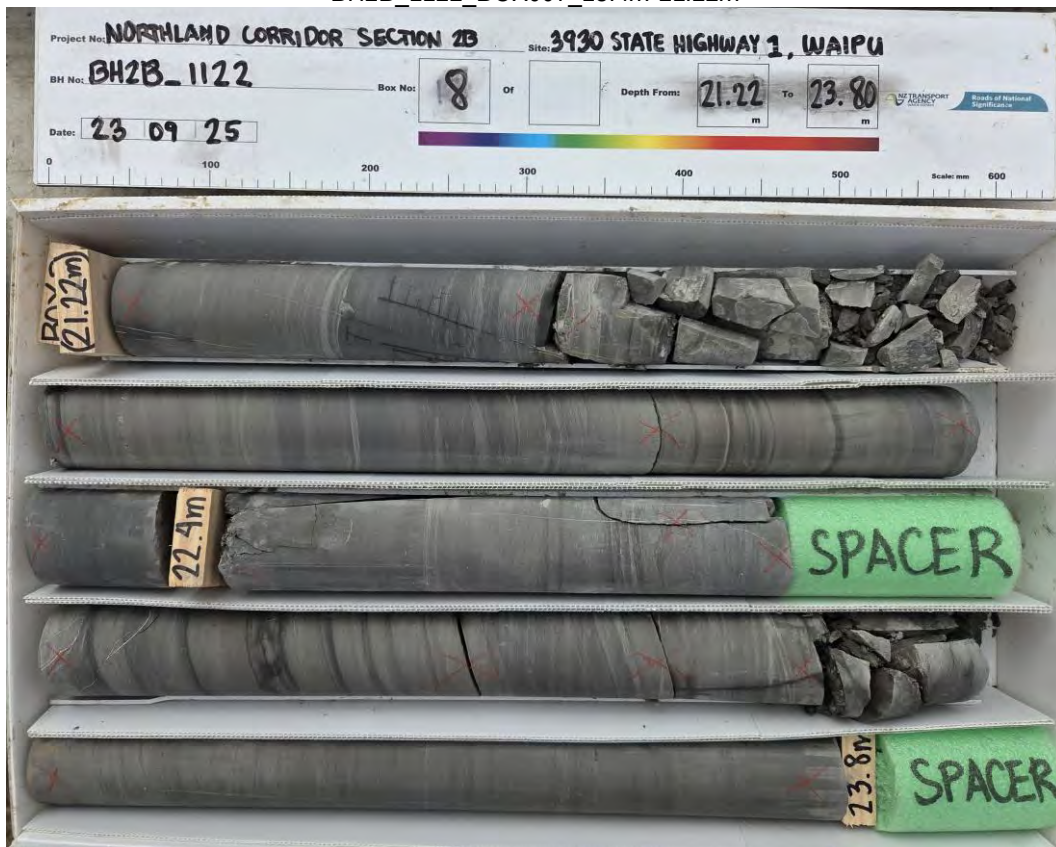
CM

Date Photographed:

22/09/2025-24/09/2025



BH2B_1122_BOX007_18.4m-21.22m



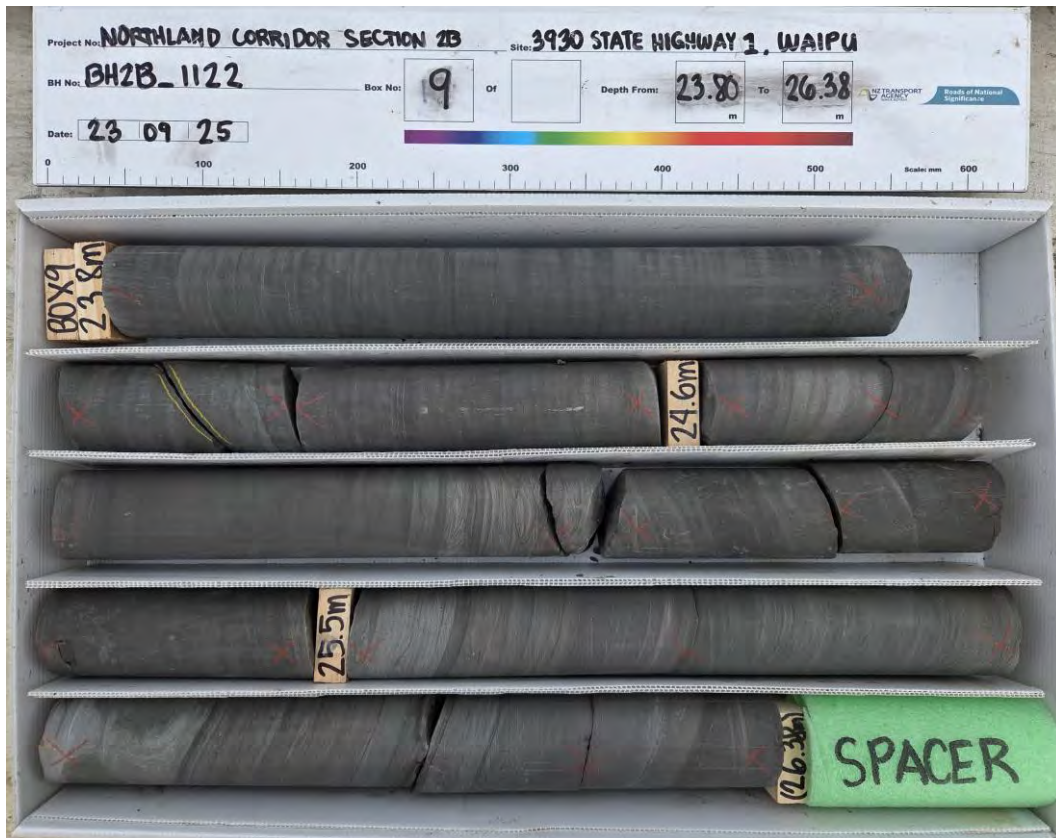
BH2B_1122_BOX008_21.22m-23.8m

Borehole Reference: BH2B_1122

Photographed By: CM

Date Photographed:

22/09/2025-24/09/2025



BH2B_1122_BOX009_23.8m-26.38m



BH2B_1122_BOX010_26.38m-29.06m

Borehole Reference:

BH2B_1122

Photographed By:

CM

Date Photographed:

22/09/2025-24/09/2025



BH2B_1122_BOX011_29.06m-32m



BH2B_1122_BOX012_32m-34.7m

Borehole Reference:

BH2B_1122

Photographed By:

CM

Date Photographed:

22/09/2025-24/09/2025



BH2B 1122 BOX013 34.7m-37.5m



BH2B_1122_BOX014_37.5m-40.3m

NZ TRANSPORT AGENCY Roads of National Significance Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zone 1, 3930 State Highway 1, Waipu Project Reference: Aurecon WSP JV		BH2B_1122A													
Method: Wash Drill Equipment: Hanjin D&B-8D - track Contractor: McMillan Drilling Ltd		CO-ORDINATES: NZTM2000 Easting: 1727700.63 Northing: 6015421.32 Ground level: 12.579m (NZVD2016)		Date started: 26/09/2025 Date completed: 02/10/2025 Inclination: 90° Azimuth: N/A		Logged: C. Mariscal Input: A. Pola Reviewed: Verified:											
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS WS MWS VCS VGS EGS			STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
	WASH HQ				0.00m: Wash Drilled (No Recovery)												
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 3 mm and vertical accuracy +/- 66 mm. 2. BH2B_1122A was completed approx. 2.70m from BH1122 as an additional borehole for Vertical Seismic Profiling (VSP) and downhole iVane testing. 3. Hole was backfilled with a 50mm uPVC standpipe for Vertical Seismic Profiling (VSP).															Water Level Readings: DateTimeHole DepthWater Level		

Method: Wash Drill
Equipment: Hanjin D&B-8D - track
Contractor: McMillan Drilling Ltd

CO-ORDINATES:	NZTM2000
Easting:	1727700.63
Northing:	6015421.32
Ground level:	12.579m (NZVD2016)

Date started:	26/09/2025
Date completed:	02/10/2025
Inclination:	90°
Azimuth:	N/A

Logged:	C. Mariscal
Input:	A. Pola
Reviewed:	
Verified:	

CORE BOX					
METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weathering/USC
					SAMPLES & FIELD TESTS
					TCR (%)
					SCR (%)
					RQD (%)
					VWS VCS MWS CS VCS ECS
					FRACTURE LOG
					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES
					INSTALLATION / BACKFILL

Remarks:

- Remarks:**
- 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 3 mm and vertical accuracy +/- 66 mm.
 - 2. BH2B_1122A was completed approx. 2.70m from BH1122 as an additional borehole for Vertical Seismic Profiling (VSP) and downhole iVane testing.
 - 3. Hole was backfilled with a 50mm upVC standpipe for Vertical Seismic Profiling (VSP).

Water Level Readings:

DateTime	Hole Depth	Water Level
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NZ TRANSPORT AGENCY ROADS ROADS OF NATIONAL SIGNIFICANCE Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Client: New Zealand Transport Agency Project: Northland Corridor, Alternative to Brynderwyn Hills Location: Zone 1, 3930 State Highway 1, Waipu Project Reference: Aurecon WSP JV		BH2B_1122A													
Method: Wash Drill Equipment: Hanjin D&B-8D - track Contractor: McMillan Drilling Ltd		CO-ORDINATES: NZTM2000 Easting: 1727700.63 Northing: 6015421.32 Ground level: 12.579m (NZVD2016)		Date started: 26/09/2025 Date completed: 02/10/2025 Inclination: 90° Azimuth: N/A		Logged: C. Mariscal Input: A. Pola Reviewed: Verified:											
CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG VWS WS MWS VCS VGS EGS			STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL		
	WASH HQ																
					Terminated at 30.00 m. Target depth.												
Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 3 mm and vertical accuracy +/- 66 mm. 2. BH2B_1122A was completed approx. 2.70m from BH1122 as an additional borehole for Vertical Seismic Profiling (VSP) and downhole iVane testing. 3. Hole was backfilled with a 50mm uPVC standpipe for Vertical Seismic Profiling (VSP).															Water Level Readings: DateTimeHole DepthWater Level		

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 25/09/2025	Logged: I. Mans/ A. Pola
Method:	Rotary Core Wireline	Easting: 1727515.44	Date completed: 01/10/2025	Input: A. Pola
Equipment:	Tech Drill 250 HD	Northing: 6008338.17	Inclination: 90°	Reviewed: F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level: 227.178m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL																	
													VWS	WS	NWS	VCS	EGS																			
1	HA	SPT	227	1		WPR	0.00m: Silty CLAY with minor sand; orange-brown mottled light grey. Very stiff, moist, high plasticity. Relict bedding and zones of highly weathered very weak siltstone which breaks down easily between strong finger pressure. Minor iron oxide and manganese oxide staining. [COMPLETELY WEATHERED GREYWACKE]	CW	0.5m: ISHSV 173/16 kPa	100																										
			226				1m: ISHSV 141/47 kPa																													
			2				1.50-1.70m: ...Bluish grey, stiff 1.70-1.80m: ...Clayey SAND		1.5m: ISHSV 94/36 kPa 1.5m: SPT 0, 1// 1, 1, 1, 2 N = 5																											
			225																																	
			HQ3			SPT	224	3		WPH	2.41m: Highly weathered, light grey mottled orange, GREYWACKE SILTSTONE. Extremely weak. Disintegrates under firm blow of hammer. Zones of very weak SILTSTONE. Iron oxide and manganese oxide staining along surfaces. (SILT; very stiff). [HIGHLY WEATHERED GREYWACKE] 2.75-2.95m: ...Sandy GREYWACKE SILTSTONE; very weak	HW	3m: SPT 3, 3// 4, 5, 6, 7 N = 22	100																						
							223																													
							WPR				3.45m: Clayey SILT with some sand; light grey mottled orange. Stiff, moist, high plasticity. [COMPLETELY WEATHERED GREYWACKE] 3.69m: CORE LOSS: (810mm) Fines washed out		CW																							
											4																									
							HQ3				SPT		222										5		WPH	4.50m: Highly weathered, light grey mottled orange, GREYWACKE SILTSTONE. Extremely weak. Disintegrates under firm blow of hammer. Zones of very weak SILTSTONE. Iron oxide and manganese oxide staining along surfaces. (SILT; hard). [HIGHLY WEATHERED GREYWACKE] 5.05m: CORE LOSS: (550mm) Fines washed out	HW	4.5m: SPT 2, 4// 5, 6, 6, 6 N = 23	100							
													221																							
2	HQ3	SPT	221	6		WPH	5.60m: Highly weathered, light grey mottled orange, GREYWACKE SILTSTONE. Extremely weak. Iron oxide staining along relict incipient joint surfaces. (SILT with some sand; hard). 5.82-6.00m: ...CORE LOSS (180mm) 6.00m: ...Very closely spaced veining with soft white infill	HW	6m: SPT 2, 3// 4, 5, 6, 8 N = 23	100																										
			220																																	
			HQ3				SPT		219										7		WPH	7.00m: ...Very weak		7.5m: SPT 7, 8// 10, 9, 11, 16 N = 46	100											
									218																											
									217																											
									216																											
									215																											
									214																											
									213																											
									212																											

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 115mm and vertical accuracy +/- 157.5mm.
2. One vibrating wire piezometer was installed on 1/10/2025. BH2B_1124_PZ01 was installed at 25.5m bgl, Serial No. 377919.
3. Geophysical profiling was undertaken on 01/10/2025, comprising optical and acoustic televiewer.
4. Falling/rising head testing undertaken with data logger at borehole depth 30.0m on 29/09/2025.
5. Low grade metamorphic minerals prevalent throughout Waipapa Terrane (composition TBC).

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

DateTime	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Tech Drill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727515.44
Northing: 6008338.17
Ground level: 227.178m (NZVD2016)

Date started: 25/09/2025
Date completed: 01/10/2025
Inclination: 90°
Azimuth: N/A

Logged: I. Mans/ A. Pola
Input: A. Pola
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
6	HQ3	211												
			17										16.50m: Driller notes 85% water recovery	
	HQ3	210							100	100	100		17.20m: VE, 40°, white infill, 20mm	
7			18										18.09m: JT, 50°, Sm, Pl, Cg, MnO and FeO	
			209										18.29m: JT, 50°, Sm, Pl, Cg, MnO and FeO	
	HQ3		19						97	97	89		19.10m: JT, 50°, Sm, Pl, Cg, MnO and FeO	
			208											
						19.50-19.86m: ...Mosaic pack breccia structure								
						19.75-19.85m: ...Manganese oxide, weathered infill								
			20											
	HQ3	207							100	65	65		20.33m: CZ, 15°, 25mm, Fine to coarse angular gravel in silt matrix	
8			21			20.50m: Moderately weathered, grey and orange-brown, GREYWACKE FAULT BRECCIA. Extremely weak. Mosaic float breccia, with clasts of fine SANDSTONE in a fine to coarse SAND with minor silt matrix. Top lithological contact dipping 50°. Very closely spaced veining with soft white infill that degrades to clay when handled. [GREYWACKE FAULT ZONE]	MW						20.85-21.00m: Damaged during removal from catcher	
			206			21.00m: Slightly weathered, grey, GREYWACKE FAULT BRECCIA. Extremely weak. Mosaic pack breccia, with angular clasts of fine SANDSTONE. Iron oxide staining throughout. Closely spaced white veining.							21.25m: JT, 70°, Sm, Pl, Cn	
	HQ3		22						100	100	0		22.25m: JT, 70°, Sm, Pl, Cn	
			205											
9			23										22.95m: JT, 70°, Sm, Pl, Cn	
	HQ3	204							100	100	0			
						23.90m: Unweathered, grey, HEALED GREYWACKE FAULT BRECCIA. Extremely weak. Healed crackle pack breccia, with tightly interlocked clasts of angular fine SANDSTONE. Closely spaced white veining. [UNWEATHERED GREYWACKE]	UW						23.70m: CZ, 10°, Silty fine to coarse sand, 10mm	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 115mm and vertical accuracy +/- 157.5mm.
- One vibrating wire piezometer was installed on 1/10/2025. BH2B_1124_PZ01 was installed at 25.5m bgl, Serial No. 377919.
- Geophysical profiling was undertaken on 01/10/2025, comprising optical and acoustic televiewer.
- Falling/rising head testing undertaken with data logger at borehole depth 30.0m on 29/09/2025.
- Low grade metamorphic minerals prevalent throughout Waipapa Terrane (composition TBC).

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	25/09/2025	Logged:	I. Mans/ A. Pola
Method:	Rotary Core Wireline	Easting:	1727515.44	Date completed:	01/10/2025	Input:	A. Pola
Equipment:	Tech Drill 250 HD	Northing:	6008338.17	Inclination:	90°	Reviewed:	F. Monteith
Contractor:	Drill Force NZ Ltd	Ground level:	227.178m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX		METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG					STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
9		HQ3		203		WPU		UW		100	100	100	     						
		25																	
		202																	
		26																	
		201																	
		27																	
		200																	
10		HQ3					27.17m: Unweathered, bluish grey, fine GREYWACKE SANDSTONE. Very weak. Incipient fractures extremely closely spaced with low tensile strength. Closely spaced to moderately widely spaced open joints, dipping 45 to 50°. Very closely spaced veining.	UW		100	100	100	     				27.24m: VE, 40°, Pl, White infill, 5mm 27.28m: VE, 40°, Pl, White infill 27.45m: JT, 60°, Sm, Pl, Cn 27.57m: VE, 60°, Pl, 5mm, discoloured greenish blue infill 27.77m: JT, 45°, Ro, Pl, Cn 27.85m: VE, 40°, White infill, 4mm 27.90m: VE, 40°, White infill, 4mm 28.00m: JT, 60°, Ro, Pl, Cn 28.20m: JT, 60°, Ro, Pl, Cn 28.50-30.10m: JT are very closely spaced 45-65°		
		28																	
		199																	
		29																	
		198																	
11		HQ3					29.60m: CORE LOSS: (400mm): Thought to be drilling induced			73	67	22	     				30.00-40.50m: Driller notes 90% water recovery 30.72m: JT, 45°, Sm, Pl, Cn 30.97m: JT, 45°, Sm, Pl, Cn		
		30																	
		197																	
12		HQ3				WPU	30.00m: Unweathered, bluish grey, fine GREYWACKE SANDSTONE. Weak. Incipient fractures extremely closely jointed with low tensile strength. Moderate veining.	UW		100	100	100	     				31.61m: JT, 50°, Ro, Un, Cn 31.70m: JT, 50°, Ro, Un, Cn		

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 115mm and vertical accuracy +/- 157.5mm.
2. One vibrating wire piezometer was installed on 1/10/2025. BH2B_1124_PZ01 was installed at 25.5m bgl, Serial No. 377919.
3. Geophysical profiling was undertaken on 01/10/2025, comprising optical and acoustic televiewer.
4. Falling/rising head testing undertaken with data logger at borehole depth 30.0m on 29/09/2025.
5. Low grade metamorphic minerals prevalent throughout Waipapa Terrane (composition TBC).

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Tech Drill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727515.44
Northing: 6008338.17
Ground level: 227.178m (NZVD2016)

Date started: 25/09/2025
Date completed: 01/10/2025
Inclination: 90°
Azimuth: N/A

Logged: I. Mans/ A. Pola
Input: A. Pola
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
12	HQ3	195				32.20-32.65m: ...Main incipient fracture sets are inclined 80-90° with low tensile strength. Trace pyrite deposition on joint surfaces			100	97	91		32.30-32.35m: CZ, Indistinct boundary, recovered as angular tabular gravels <50mm	
	HQ3	33												
	HQ3	194												
	HQ3	34							103	87	67		33.83m: VE, 15°, greenish white infill 33.90m: JT, 55°, Ro, Pl, Cn 33.94m: JT, 10°, Ro, Pl, Cg, white clay infill 34.07m: JT, 55°, Ro, Un, Cn 34.30m: JT, 60°, Ro, Pl, Cg, white infill	
	HQ3	193												
	HQ3	35				35.00m: ...Incipient fractures have moderate tensile strength. White crystals up to 20mm in veins.							34.74-35.84m: VE, 35-50°, x 7, white infill, 2-3mm infill	
	HQ3	192							100	100	97			
13	HQ3	36			WPU		UW							
	HQ3	191												
	HQ3	37							100	100	100			
	HQ3	190											37.33-38.57m: JT, 30-55°, Ro, Pl, Cg, white infill x3	
	HQ3	38												
14	HQ3	189							100	100	100			
	HQ3	39											39.47m: VE, 50°, Ro, Pl, Cg, white infill	
	HQ3	188							100	100	100		39.81m: VE, 50°, Ro, Cg 4	

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 115mm and vertical accuracy +/- 157.5mm.
- One vibrating wire piezometer was installed on 1/10/2025. BH2B_1124_PZ01 was installed at 25.5m bgl, Serial No. 377919.
- Geophysical profiling was undertaken on 01/10/2025, comprising optical and acoustic televiwer.
- Falling/rising head testing undertaken with data logger at borehole depth 30.0m on 29/09/2025.
- Low grade metamorphic minerals prevalent throughout Waipapa Terrane (composition TBC).

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

BOREHOLE INFORMATION

Method: Rotary Core Wireline
Equipment: Tech Drill 250 HD
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727515.44
Northing: 6008338.17
Ground level: 227.178m (NZVD2016)

Date started: 25/09/2025
Date completed: 01/10/2025
Inclination: 90°
Azimuth: N/A

Logged: I. Mans/ A. Pola
Input: A. Pola
Reviewed: F. Monteith
Verified: A. George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
15	HQ3	187			WPU		UW						40.11m: CZ, 50°, Fine to coarse sand, angular 15mm	
						Terminated at 40.50 m. Target depth.								
			41											
			186											
			42											
			185											
			43											
			184											
			44											
			183											
			45											
			182											
			46											
			181											
			47											
			180											

Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 115mm and vertical accuracy +/- 157.5mm.
- One vibrating wire piezometer was installed on 1/10/2025. BH2B_1124_PZ01 was installed at 25.5m bgl, Serial No. 377919.
- Geophysical profiling was undertaken on 01/10/2025, comprising optical and acoustic televiwer.
- Falling/rising head testing undertaken with data logger at borehole depth 30.0m on 29/09/2025.
- Low grade metamorphic minerals prevalent throughout Waipapa Terrane (composition TBC).

Shear Vane (ISHSV) Serial No. 3303, calibration constant 1.569.

Water Level Readings:

DateTime	Hole Depth	Water Level
2025-09-25 17:00	4.95m	2.44mbgl
2025-09-26 07:45	4.95m	3.84mbgl
2025-09-26 14:30	15.00m	2.10mbgl
2025-09-29 12:21	15.00m	10.78mbgl
2025-09-29 17:27	30.00m	10.60mbgl
2025-09-30 07:50	30.00m	16.46mbgl
2025-09-30 13:16	40.50m	12.44mbgl
2025-10-01 07:30	40.50m	19.80mbgl

Borehole Reference: BH2B_1124

Photographed By: AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX001_0m-3m



BH2B_1124_BOX002_3m-5.82m

Borehole Reference: BH2B_1124

Photographed By: AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX003_5.82m-8.62m



BH2B_1124_BOX004_8.62m-11.47m

Borehole Reference:

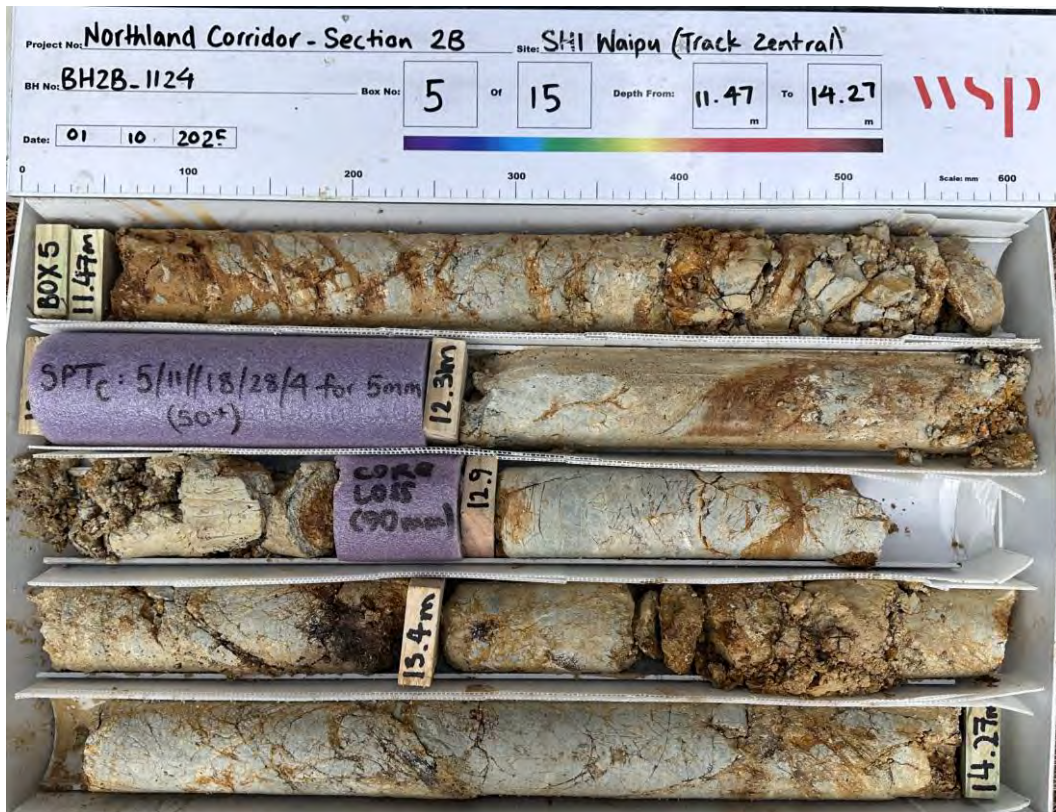
BH2B_1124

Photographed By:

AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B 1124 BOX005 11.47m-14.27m



BH2B_1124_BOX006_14.27m-17.1m

Borehole Reference:

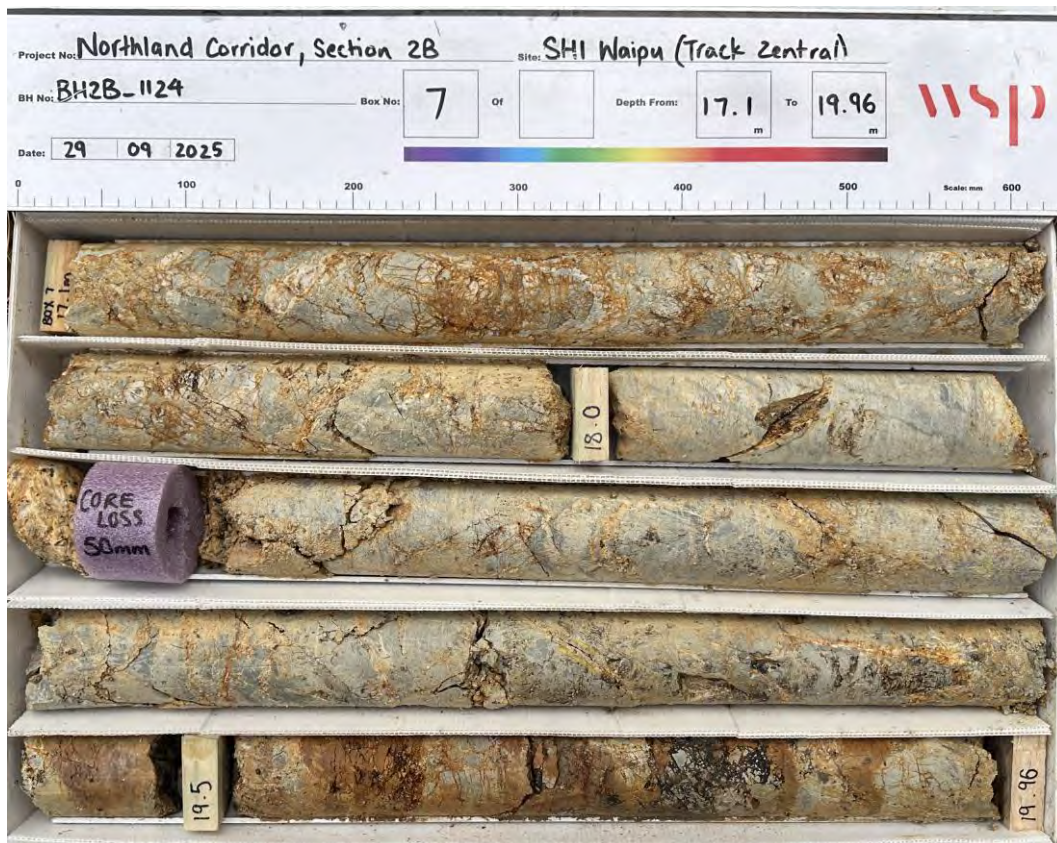
BH2B_1124

Photographed By:

AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX007_17.1m-19.96m



BH2B_1124_BOX008_19.96m-22.27m

Borehole Reference:

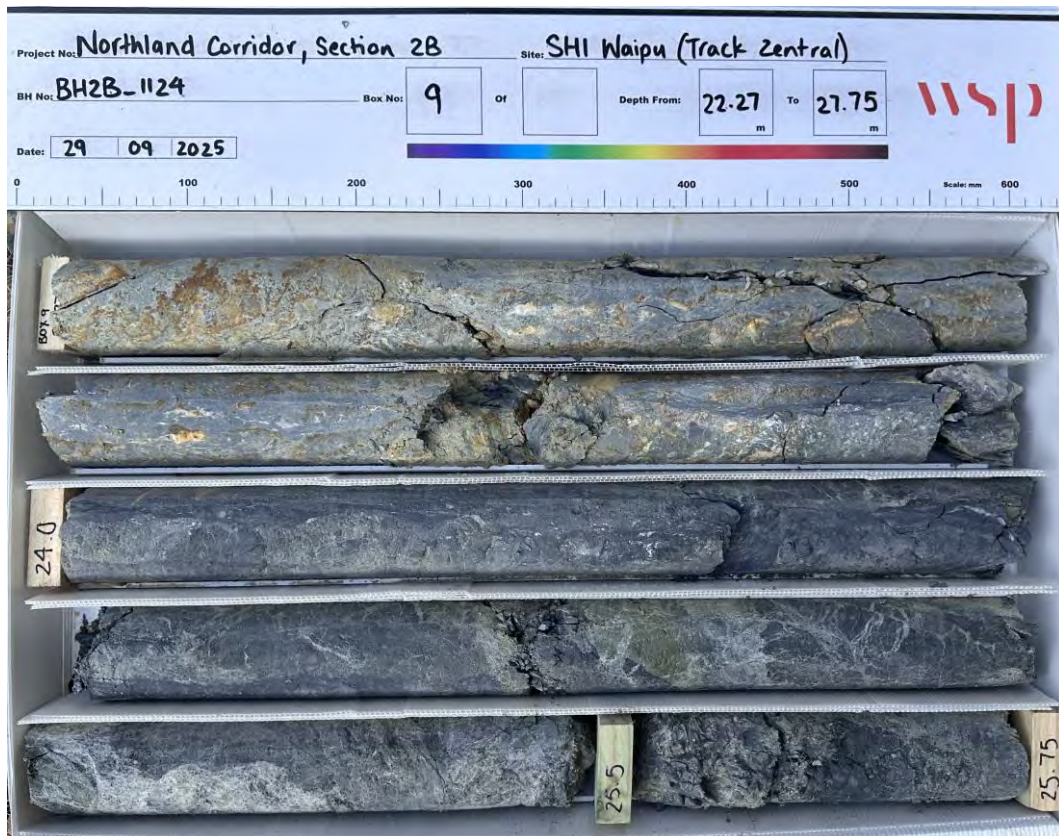
BH2B_1124

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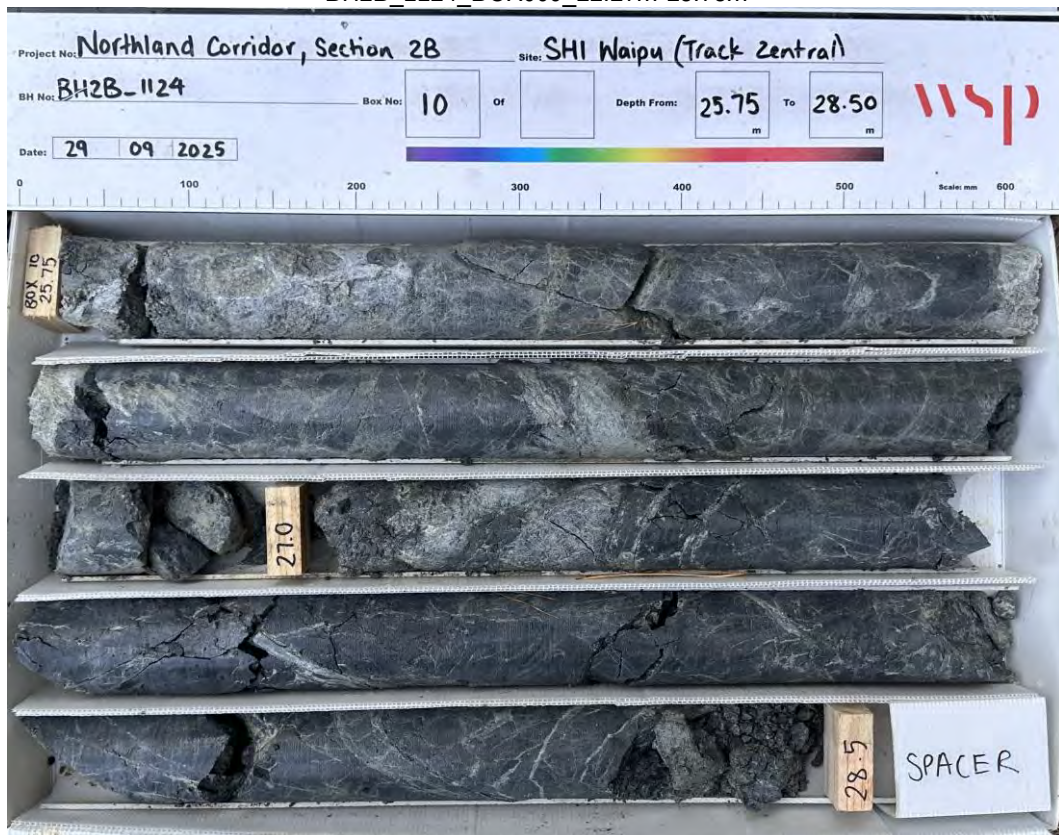
AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX009_22.27m-25.75m



BH2B_1124_BOX010_25.75m-28.5m

Borehole Reference:

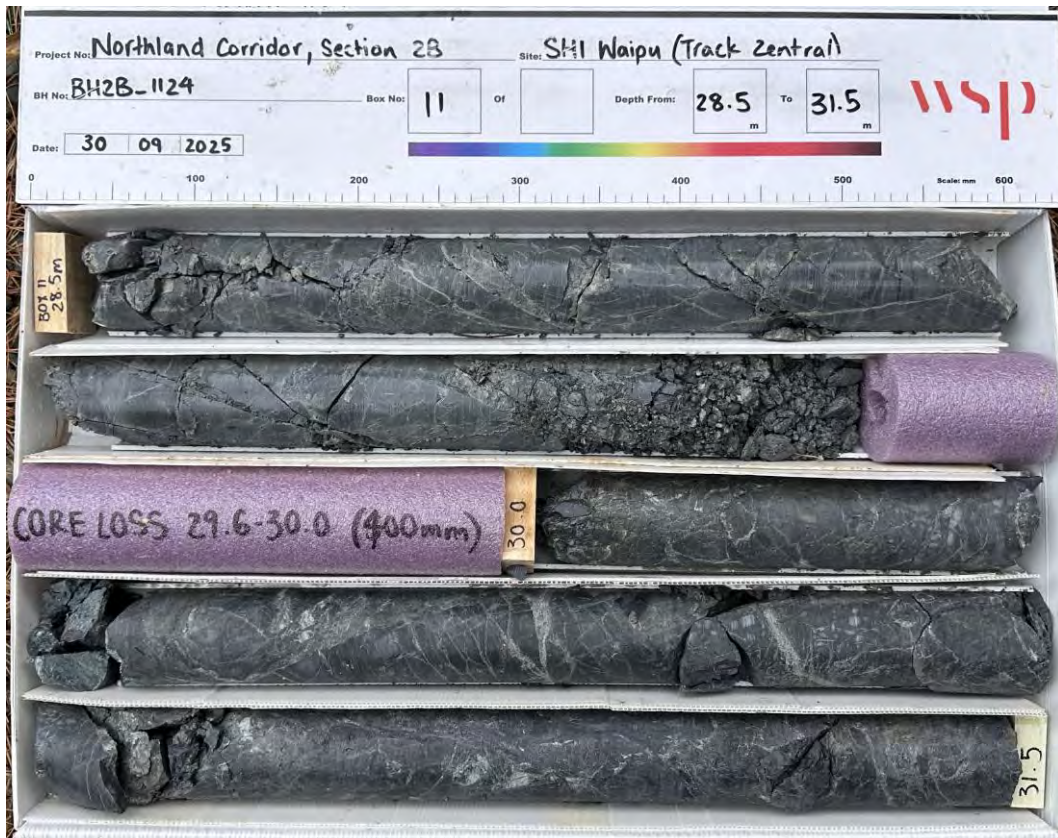
BH2B_1124

Photographed By:

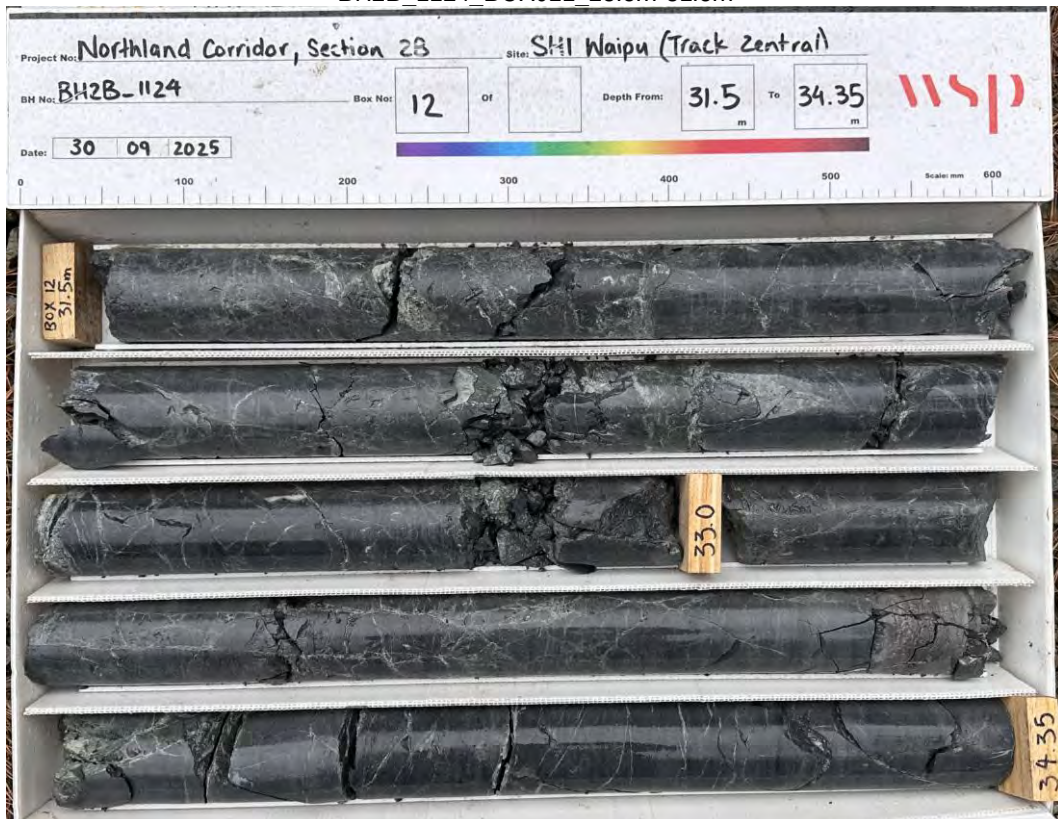
AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX011_28.5m-31.5m



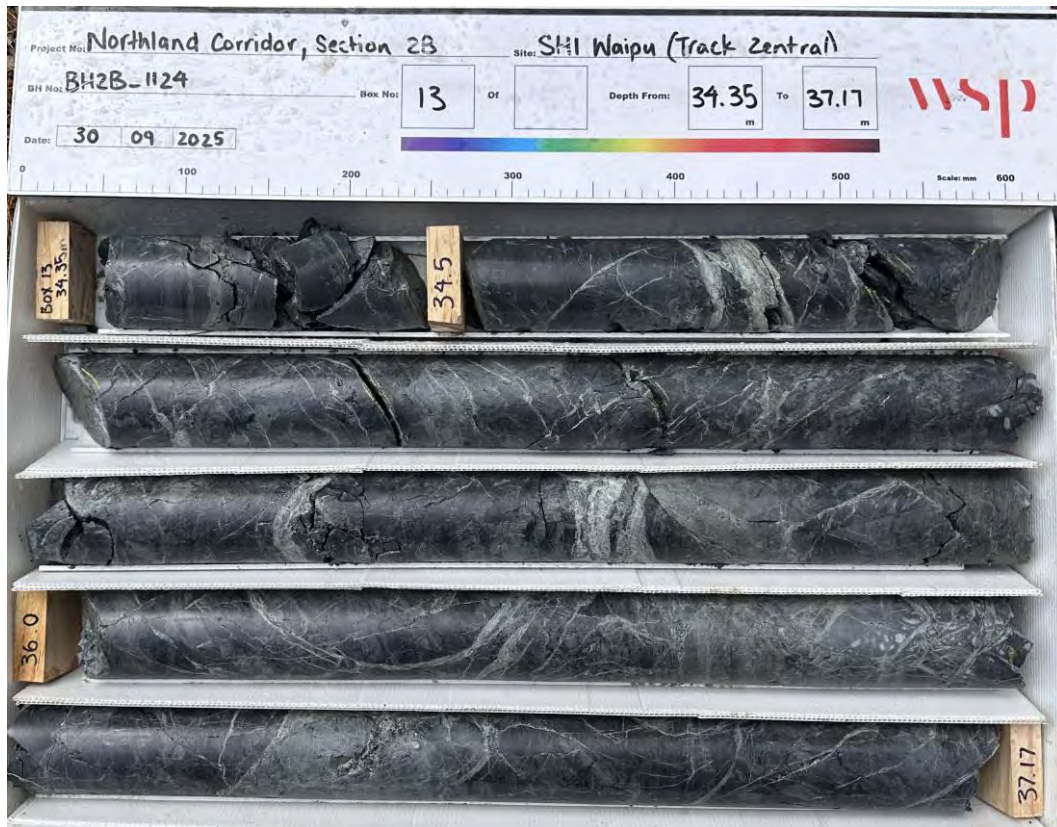
BH2B_1124_BOX012_31.5m-34.35m

Borehole Reference: BH2B_1124

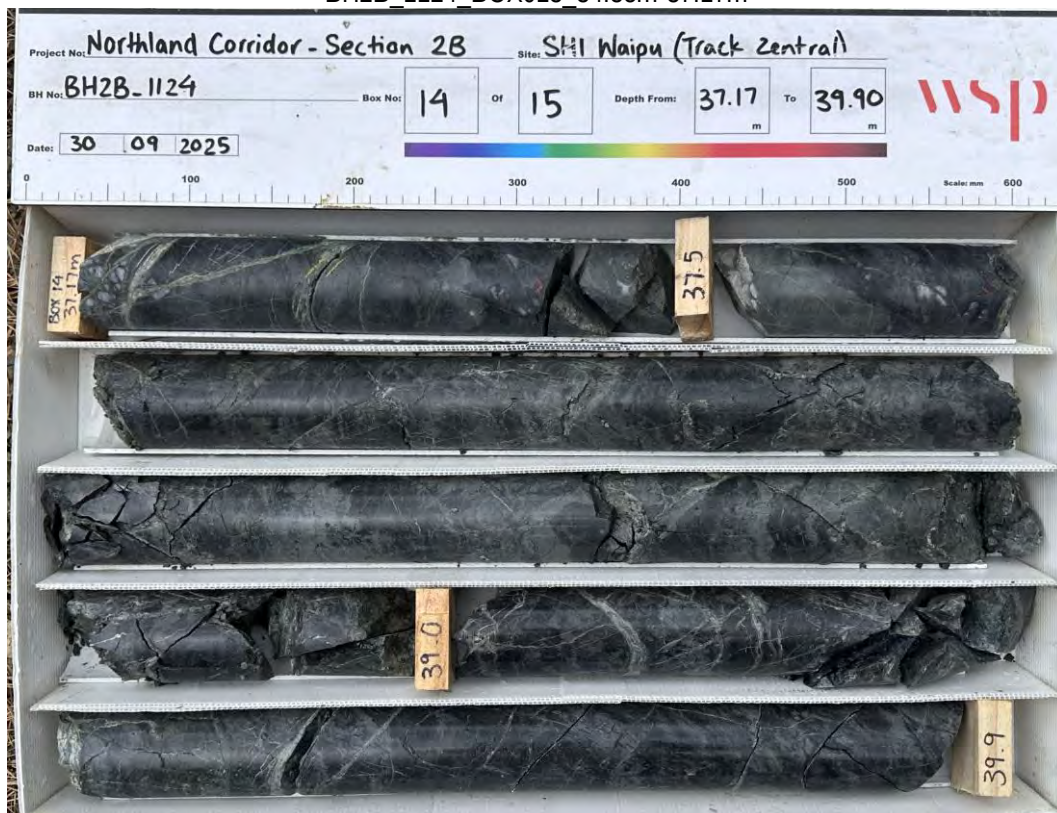
Photographed By: AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX013_34.35m-37.17m



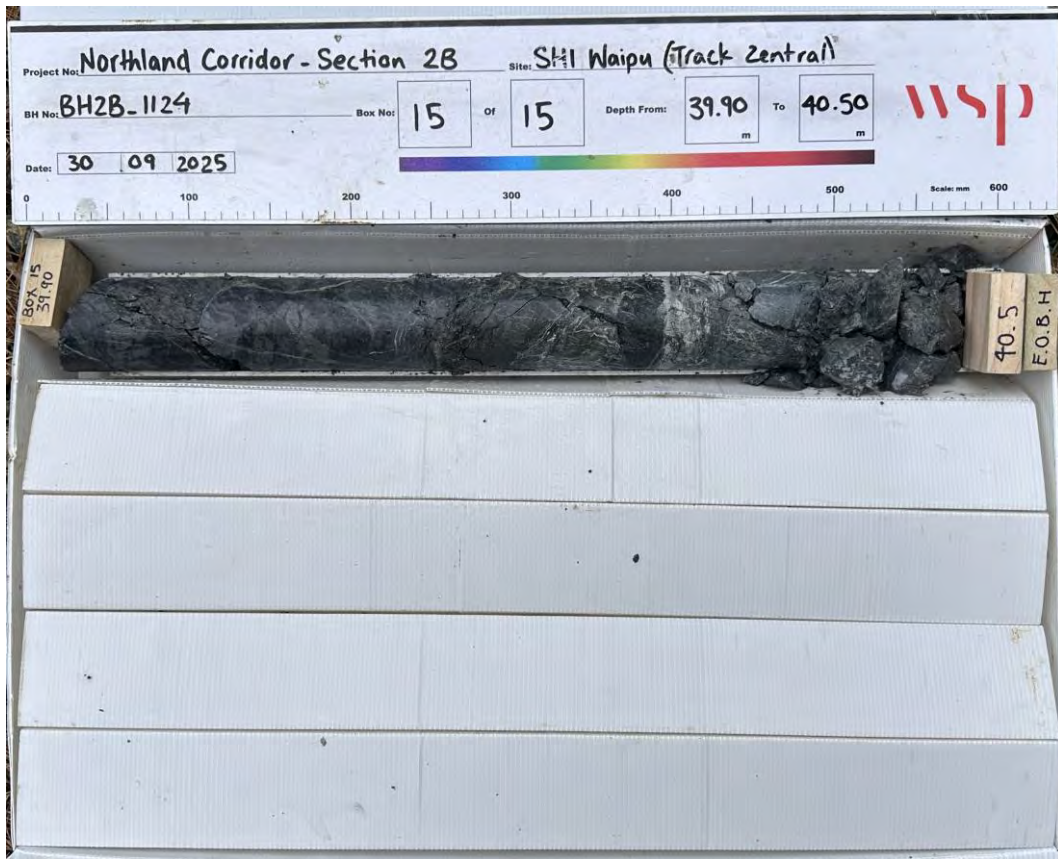
BH2B_1124_BOX014_37.17m-39.9m

Borehole Reference: BH2B_1124

Photographed By: AP, IM

Date Photographed:

26/09/2025-30/09/2025



BH2B_1124_BOX015_39.9m-40.5m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date started:	18/09/2025	Logged:	A. Pola
Method:	Rotary Core Wireline	Easting:	1727364.95	Date completed:	24/09/2025	Input:	A. Pola
Equipment:	Techdrill 250 HD	Northing:	6007596.24	Inclination:	90°	Reviewed:	B. Simons
Contractor:	Drill Force NZ Ltd	Ground level:	275.905m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

[illegible]

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 29mm and vertical accuracy +/- 57.5mm.
2. One vibrating wire piezometer was installed on 24/09/2025. BH2B_1125_PZ01 was installed at 39m bgl, Serial No. P250955.
3. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer.
4. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Shear Vane (IBHSV) Serial No. 2006, calibration constant 1.581.

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-18 17:05	15.36m	4.77mbgl
2025-09-19 07:28	15.36m	10.41mbgl
2025-09-19 13:00	22.50m	10.66mbgl
2025-09-22 09:52	22.50m	14.80mbgl
2025-09-22 16:38	31.50m	3.50mbgl
2025-09-23 07:35	31.50m	16.34mbgl
2025-09-23 15:03	40.50m	17.19mbgl
2025-09-24 08:27	40.50m	25.95mbgl

Remarks: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 29mm and vertical accuracy +/- 57.5mm. 2. One vibrating wire piezometer was installed on 24/09/2025. BH2B_1125_PZ01 was installed at 39m bgl, Serial No. P250955. 3. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer. 4. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC Shear Vane (IBHSV) Serial No. 2006, calibration constant 1.581.	Water Level Readings:		
	Date/Time	Hole Depth	Water Level
	2025-09-18 17:05	15.36m	4.77mbgl
	2025-09-19 07:28	15.36m	10.41mbgl
	2025-09-19 13:00	22.50m	10.66mbgl
	2025-09-22 09:52	22.50m	14.80mbgl
	2025-09-22 16:38	31.50m	3.50mbgl
	2025-09-23 07:35	31.50m	16.34mbgl
	2025-09-23 15:03	40.50m	17.19mbgl
	2025-09-24 08:27	40.50m	25.95mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 18/09/2025	Logged: A. Pola
Method:	Rotary Core Wireline	Easting: 1727364.95	Date completed: 24/09/2025	Input: A. Pola
Equipment:	Techdrill 250 HD	Northing: 6007596.24	Inclination: 90°	Reviewed: B. Simons
Contractor:	Drill Force NZ Ltd	Ground level: 275.905m (NZVD2016)	Azimuth: N/A	Verified: A.George

[illegible]

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 29mm and vertical accuracy +/- 57.5mm.
2. One vibrating wire piezometer was installed on 24/09/2025. BH2B_1125_P201 was installed at 39m bgl, Serial No. P250955.
3. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer.
4. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Shear Vane (IBHSV) Serial No. 2006, calibration constant 1.581.

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-18 17:05	15.36m	4.77mbgl
2025-09-19 07:28	15.36m	10.41mbgl
2025-09-19 13:00	22.50m	10.66mbgl
2025-09-22 09:52	22.50m	14.80mbgl
2025-09-22 16:38	31.50m	3.50mbgl
2025-09-23 07:35	31.50m	16.34mbgl
2025-09-23 15:03	40.50m	17.19mbgl
2025-09-24 08:27	40.50m	25.95mbal

BOREHOLE INFORMATION		CO-ORDINATES:	NZTM2000	Date started:	18/09/2025	Logged:	A. Pola
Method:	Rotary Core Wireline	Easting:	1727364.95	Date completed:	24/09/2025	Input:	A. Pola
Equipment:	Techdrill 250 HD	Northing:	6007596.24	Inclination:	90°	Reviewed:	B. Simons
Contractor:	Drill Force NZ Ltd	Ground level:	275.905m (NZVD2016)	Azimuth:	N/A	Verified:	A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL
8	HQ3		251			25.00-26.04m: ...Mottled dark bluish grey. Iron oxide staining up to 30mm around incipient joints. Top lithological contact 30°.			100	93	82	VMS WMS MWS CS VCS ECS	ingress into intact rock, 2 mm aperture 23.94m: JT, 60°, Ro, Pl, Cg CLAY, MnO and FeO staining on joint surface. 30mm FeO ingress into intact rock, 2 mm aperture 24.22m: JT, 50°, Ro, Pl, Sn MnO and FeO, very weak around joint 24.33m: JT, 50°, Ro, Pl, Cg Sandy CLAY, FeO and MnO staining on joint surface, 2 mm aperture 24.62m: JT, 50°, Ro, Pl, Sn FeO and MnO	
			25										25.20-25.30m: CZ, Indistinct boundary. Fine to medium angular SANDSTONE gravel. MnO and FeO stained.	
			250			26.00-26.30m: ...Zone of highly weathered material displaying iron staining. Low tensile strength. Disintegrates during removal from splits.							25.80m: JT, 20°, Ro, Pl, Cg SAND, FeO and MnO stained, 3 mm aperture	
	HQ3		26			26.50-26.68m: ...Zone of highly weathered material displaying iron staining. Low tensile strength. Disintegrates during removal from splits. Minor sandy clay infill.			100	100	68		26.10m: JT, 20°, Ro, Pl, Cg SAND, FeO and MnO stained, 3 mm aperture 26.25m: JT, 20°, Ro, Pl, Cg SAND, FeO and MnO stained, 3 mm aperture	
9			249				MW						27.00-27.05m: Recovered as fine to medium angular gravel. Assumed drilling induced	
			27											
	HQ3		248						100	95	95			
			28											
			247			29.00-29.30m: ...Moderately strong. Incipient joints with moderate tensile strength.							29.00-40.50m: Driller note 75% water return	
	HQ3		29						100	100	100		29.24m: JT, 60°, Ro, Pl, Cg Fine gravelly SAND, FeO and MnO staining, 5 mm aperture	
			246										29.60m: JT, 50°, Ro, Pl, Cg Fine gravelly SAND, FeO and MnO staining, 5 mm aperture 29.84m: JT, 60°, Ro, Pl, Cg Fine gravelly SAND, FeO and MnO staining, 5 mm aperture	
10			30			30.15-30.45m: ...Veining with soft white infill, up to 10mm thick - possible zeolite.							30.32m: JT, 70°, Ro, Pl, Cg MnO and FeO staining. White soft infill - possible zeolite, 2 mm aperture 30.38m: JT, 30°, Ro, Pl, Sn FeO	
			245						100	100	75		30.90-31.20m: CZ, 60-70°, Top contact 70°, bottom contact 60°. Very weak, fine to medium angular silty SANDTONE gravel, FeO stained	
			31											
11	HQ3		244			31.20m: Moderately weathered, bluish grey with zones of orange and brown mottling, fine GREYWACKE SANDSTONE. Moderately strong. Incipient joints with moderate tensile strength, extremely closely spaced. Quartz veining. Zones of orange discolouration with reduction in tensile strength of incipient joints to low tensile, increase in quartz veining and oxide staining.	MW							

Remarks:

1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 29mm and vertical accuracy +/- 57.5mm.
2. One vibrating wire piezometer was installed on 24/09/2025. BH2B_1125_PZ01 was installed at 39m bgl, Serial No. P250955.
3. Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer.
4. Low grade metamorphic minerals prevalent throughout the Waipapa Greywacke (Zeolite or Pr-Pu) - TBC

Shear Vane (IBHSV) Serial No. 2006, calibration constant 1.581.

Water Level Readings:		
DateTime	Hole Depth	Water Level
2025-09-18 17:05	15.36m	4.77mbgl
2025-09-19 07:28	15.36m	10.41mbgl
2025-09-19 13:00	22.50m	10.66mbgl
2025-09-22 09:52	22.50m	14.80mbgl
2025-09-22 16:38	31.50m	3.50mbgl
2025-09-23 07:35	31.50m	16.34mbgl
2025-09-23 15:03	40.50m	17.19mbgl
2025-09-24 08:27	40.50m	25.95mbgl

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date started: 18/09/2025	Logged: A. Pola
Method:	Rotary Core Wireline	Easting: 1727364.95	Date completed: 24/09/2025	Input: A. Pola
Equipment:	Techdrill 250 HD	Northing: 6007596.24	Inclination: 90°	Reviewed: B. Simons
Contractor:	Drill Force NZ Ltd	Ground level: 275.905m (NZVD2016)	Azimuth: N/A	Verified: A.George

CORE BOX	METHOD	RL (m)	DEPTH (m)	GRAPHIC LOG	UNIT CODE	MATERIAL DESCRIPTION	Weathering/USC	SAMPLES & FIELD TESTS	TCR (%)	SCR (%)	RQD (%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION / BACKFILL																																																		
11	HQ3	243	33		WPM		MW		100	85	85		32.04-32.30m: Fracture zone -Recovered as fine to medium gravel, FeO stained. Top contact 50°, bottom contact indistinct. Fines washed out? 32.27-32.39m: 30°, Fracture zone -Recovered as fine to medium gravel, FeO stained, fines washed out?																																																			
															242	34	93	83	69	33.30-33.50m: CZ, 40°, Bottom boundary indistinct, fine to medium gravel with sand, SANDSTONE gravel is heavily FeO, limonite stained. SILTSTONE gravel is green. 33.60-33.63m: CZ, 60°, fine angular sandy gravel, FeO stained																																												
																					241	35	100	27	27	37.97m: JT, 50°, Sm, Pl, Sn Bluish green. Possible chlorite staining																																						
																											240	36	100	100	100	38.33-38.43m: CZ, 40°, Fine to medium gravel with minor sand 38.55m: JT, 50°, Ro, Pl, Cg sandy infill, fractured around joint- possible drilling induced																																
																																	239	37	100	97	93	39.15-39.25m: CZ, 40°, recovered as fine to medium gravel																										
																																							238	38	100	85	85	39.44-39.56m: CZ, recovered as fine to medium angular gravel																				
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Remarks:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 29mm and vertical accuracy +/- 57.5mm.
- One vibrating wire piezometer was installed on 24/09/2025. BH2B_1125_PZ01 was installed at 39m bgl, Serial No. P250955.
- Geophysical profiling was undertaken on 24/09/2025, comprising optical and acoustic televiewer.
- Low grade metamorphic minerals prevalent throughout the Wajpaoda Grewacke (Zeolite or Pr-Pu) - TBC

Shear Vane (IBHSV) Serial No. 2006, calibration constant 1.581

Water Level Readings:

WaterTime	Hole Depth	Water Level
2025-09-18 17:05	15.36m	4.77mbgl
2025-09-19 07:28	15.36m	10.41mbgl
2025-09-19 13:00	22.50m	10.66mbgl
2025-09-22 09:52	22.50m	14.80mbgl
2025-09-22 16:38	31.50m	3.50mbgl
2025-09-23 07:35	31.50m	16.34mbgl
2025-09-23 15:03	40.50m	17.19mbgl
2025-09-24 08:27	40.50m	25.95mbal

Borehole Reference: BH2B_1125

Photographed By: AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX001_0m-3m



BH2B_1125_BOX002_3m-6.45m

Borehole Reference: BH2B_1125

Photographed By: AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX003_6.45m-9.85m



BH2B_1125_BOX004_9.85m-13.35m

Borehole Reference:

BH2B_1125

Photographed By:

AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX005_13.35m-16.71m



BH2B_1125_BOX006_16.71m-19.75m

Borehole Reference:

BH2B_1125

Photographed By:

AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX007_19.75m-22.5m



BH2B_1125_BOX008_22.5m-25.5m

Borehole Reference: BH2B_1125

Photographed By: AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX009_25.5m-28.5m



BH2B_1125_BOX010_28.5m-31.34m

Borehole Reference: BH2B_1125

Photographed By: AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX011_31.34m-34.13m



BH2B_1125_BOX012_34.13m-36.95m

Borehole Reference: BH2B_1125

Photographed By: AP

Date Photographed:

18/09/2025-03/11/2025



BH2B_1125_BOX013_36.95m-39.55m



BH2B_1125_BOX014_39.55m-40.5m

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: M.Zhang/K.Rozmus
Method: Rotary Core Wireline		Easting: 1728069.68mE,		Date Completed: 07/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005579.21mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 147.16m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	147			TS	Clayey SILT, with minor rootlets; dark brown. Stiff, moist, low plasticity; rootlets less than 2mm thick. [TOPSOIL].								
					NAS	Silty CLAY; brownish grey, mottled orangish brown. Very stiff, moist, high plasticity; [NORTHLAND ALLOCHTHON SOILS (RESIDUAL)].	RS	0.5m SV BH SV 81/34kPa	100	-	-			
2	SPT	146						1m SV BH SV 123/49kPa						
								1.5m SV BH SV 134/61kPa	68	-	-			
						2.11m - 2.25m: Dark grey.		1.5m SPT 1, 0/1, 1, 1, 1 N= 4						
		145							100	-	-			
						Highly weathered; bluish grey, banded dark grey, mottled chocolate brown, pervasively sheared MUDSTONE; extremely weak. (SILT with some clay, stiff, moist, low plasticity). [NORTHLAND ALLOCHTHON DEGRADED ZONE].			100	-	-		2.40m: HCl test on matrix, no reaction	
						2.50m - 2.80m: U54 sample (300mm).	HW		110	-	-		2.80m - 2.82m: Core swell (20mm)	
		144						3m SPT 1, 1/1, 2, 2, 6 N= 11	68	-	-		3.45m - 3.48m: Core Swell (30mm)	
						Moderately weathered; grey, banded dark grey, slightly calcareous, pervasively sheared, MUDSTONE; extremely weak; trace fine to medium, sub-angular silty limestone clasts throughout.			103	-	-		4.00m: HCl test on matrix, weak reaction. Strong reaction on clasts	
		143							80	-	-		4.35m - 4.50m: Core broken during extraction from splits	
						Slightly weathered; bluish grey, banded dark grey, calcareous, pervasively sheared, Intermixed MUDSTONE and SILSTONE; very weak; with some limestone clasts throughout. [NORTHLAND ALLOCHTHON MELANGE MATRIX].		4.5m SPT 13, 14/16, 15, 13, 6 for 55mm N = 50+	58	-	-		5.00m: HCl test on matrix, strong reaction	
3	SPT	142							100	90	-		5.80m: JT, 30°, SM, PL, CN	
						5.53m - 5.96m: Slightly weathered, light grey, Silty LIMESTONE; very weak. Shear fabric dips at 20°. [CALCAREOUS BLOCK?].	SW							
		141						6m SPT 8, 9/18, 9, 7, 10 N= 44	66	-	-			
						6.45-6.62m: CORE LOSS (170mm). Loss assumed from potential washout of clayey silt matrix during drilling.	SW						6.74-6.85m: CZ, 10°, handling induced, recovered as extremely weak, fine to medium, sub-angular siltstone gravel, trace fine sand	
						Slightly weathered; bluish grey, banded dark grey, calcareous, pervasively sheared, Intermixed MUDSTONE and SILSTONE; very weak; with some limestone clasts throughout.	SW		83	43	-		7.10-7.20m: CZ, 5°, handling induced, recovered as extremely weak, fine to medium, sub-angular siltstone gravel, trace fine sand	
4	HQ3	140											7.40-7.50m: CZ, 30°, handling induced, recovered as extremely weak, fine to medium, sub-angular siltstone gravel, trace fine sand	
						Slightly weathered; dark grey, SILTSTONE; very weak; 0° bedding inclination, with minor clay seams (<5mm thick) throughout..		7.5m SPT 50 for 55mm N = 50+	80	50	-			
						7.55-7.73m: CORE LOSS (180mm). Loss assumed from potential washout of extremely weak silt matrix	SW							

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 26mm and vertical accuracy +/- 61mm.
- One vibrating wire piezometer was installed on 07/10/2025. BH2B_1126_PZ01 was installed at 19.2m bgl, Serial No. 378272.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

DateTime | Hole Depth (m) | Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 02/10/2025	Logged: M.Zhang/K.Rozmus
Method: Rotary Core Wireline		Easting: 1728069.68mE,	Date Completed: 07/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005579.21mN,	Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 147.16m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL	
4	HQ3	139			NAM	during drilling.	SW		80	50	-		8.23-8.30m: HB , breakage along very closely spaced incipient joints, broken upon handling 8.35-8.47m: CZ, 10° , handling induced, recovered as extremely weak, fine , sub-angular siltstone gravel, trace clay, low plasticity		
	HQ3					7.73m - 7.87m: Highly weathered SILTSTONE; extremely weak (SILT with some clay, very stiff, moist, low plasticity).		49	-	-					
	SPT	138	9			8.47-8.74m: CORE LOSS (270mm). Loss assumed from potential washout of silt matrix during drilling.		9m SPT 6, 5/5, 5, 6, 7 N= 23	82	-	-				9.00m: HCl test on matrix, weak reaction
	HQ3					Slightly weathered; grey, banded dark grey, mottled chocolate brown, slightly calcareous, pervasively sheared, MUDSTONE; extremely weak.									9.45m - 9.61m: Core swell (160mm)
5	HQ3	137	10			10.00m - 10.50m: Shear fabric dips at 20-30°. 10.05m - 10.10m: Fine SANDSTONE with thinly laminated SILTSTONE.	SW		115	-	-		10.95m - 11.10m: Core swell (150mm) 11.00m: HCl test on matrix, weak reaction		
	SPT					10.5m SPT 6, 6/6, 9, 9, 9 N= 33	84	-	-						
	HQ3	136	11					127	-	-					
	HQ3							100	40	-					
5	SPT	135	12		NAM	Slightly weathered; grey, banded dark grey, calcareous, pervasively sheared, Intermixed MUDSTONE and SILTSTONE; very weak; trace limestone clasts throughout.	SW	12m SPT 4, 5/7, 17, 17, 9 for 25mm N = 50+	77	-	-		12.00m: HCl test on clasts and matrix, strong reaction	12.76m: JT, 30°, SM , PL , CN	
	HQ3							100	92	-					
	HQ3	134	13					98	94	-					
	SPT					Slightly weathered; dark grey, laminated to thin, SILTSTONE; very weak; 0-10° bedding inclination.		13.5m SPT 5, 20/28, 22 for 65mm N = 50+	103	-	-		13.79m - 14.04m: Core swell (250mm)		
6	HQ3	133	14				SW		120	85	-		14.45-14.55m: CZ, 5° , handling induced, recovered as very weak, fine , sub-angular siltstone gravel	14.70m: HCl test on matrix, no reaction	
	SPT	132	15			Slightly weathered; grey, banded dark grey, calcareous, pervasively sheared, Intermixed MUDSTONE and SILTSTONE; very weak.		15m SPT 10, 12/12, 14, 15, 9 for 35mm N = 50+	114	-	-				
	HQ3					15.85m - 16.25m: Shear fabric dips at 10-20°.	SW		107	96	-		15.41m - 15.49m: Core swell (80mm)		

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 26mm and vertical accuracy +/- 61mm. 2. One vibrating wire piezometer was installed on 07/10/2025. BH2B_1126_PZ01 was installed at 19.2m bgl, Serial No. 378272. 3. Shear Vane Serial No. DR1254, calibration constant 1.682.	Water Level Readings:		
	Date/Time	Hole Depth (m)	Water Level (m)

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 26mm and vertical accuracy +/- 61mm. 2. One vibrating wire piezometer was installed on 07/10/2025. BH2B_1126_PZ01 was installed at 19.2m bgl, Serial No. 378272. 3. Shear Vane Serial No. DR1254, calibration constant 1.682.	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)
	2/10/2025 5:38:00 pm	19.50	4.60
	3/10/2025 7:00:00 am	19.50	2.90
	6/10/2025 9:15:00 am	22.50	3.50

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 02/10/2025	Logged: M.Zhang/K.Rozmus
Method: Rotary Core Wireline		Easting: 1728069.68mE,	Date Completed: 07/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005579.21mN,	Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 147.16m (NZVD2016)	Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
9	HQ3	123				24.00m - 24.53m: Moderately weathered, greenish light grey, calcareous SILTSTONE, very weak. Shear fabric dips at 55-60°.	SW					WCS MWS ECS	24.10m JT, 50°, SM , PL , CN	
			25			24.93m: 15 x 10mm clast of pyrite?.			100	89	39		24.40-24.53m: SZ, 65° , recovered as weak, medium to coarse, siltstone gravel	
			122										24.60m: HCl test on matrix, strong reaction	
10	HQ3				NAL	Slightly weathered; greenish grey, banded light grey, calcareous, SILTSTONE; with minor whitish grey and blackish grey, fine to medium, irregular clasts (chlorite and siltstone?); weak. Pervasive incipient fractures with low tensile strength. Shear fabric dips at 35-40°.							24.78m JT, 35°, RG , UN , CN (Jlx2)	
			26			25.85m: 3 x 2mm pyrite crystals?.			100	96	96		25.00m JT, 46°, SM , UN , CN	
			121											
			27											
	HQ3		120			27.47-27.65m: CORE LOSS (180mm). Loss assumed from potential washout of silty gravel matrix.			72	88	23		26.57m JT, 45°, RG , UN , dark grey staining	
11	HQ3					Slightly weathered; greenish grey, banded light grey, calcareous, SILTSTONE; with minor whitish grey and blackish grey, fine to medium, irregular clasts (chlorite and siltstone?); weak. Pervasive incipient fractures with low tensile strength. Shear fabric dips at 35-40°.	SW		100	100	100		27.05m JT, 35°, SM , UN , CN	
			28										27.82m JT, 42°, RG , UN , CN	
			119										28.10m JT, 30°, RG , UN , CN	
			29			28.90m - 28.99m: Greenish grey and light grey SILTSTONE; weak; with healed joints; with light grey discoloration.							28.78m JT, 25°, RG , UN , CN	
			118						100	100	100			
			30			29.75m - 30.20m: Light greenish grey.								
			117											
12	HQ3				NAL				100	100	100			
			31											
			116											
									100	100	90			
													31.95-32.04m: JT, 65°-70°, RG , UN , CN (Jlx2)	

REMARKS: 1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 26mm and vertical accuracy +/- 61mm. 2. One vibrating wire piezometer was installed on 07/10/2025. BH2B_1126_PZ01 was installed at 19.2m bgl, Serial No. 378272. 3. Shear Vane Serial No. DR1254, calibration constant 1.682.	Water Level Readings:		
	DateTime	Hole Depth (m)	Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 02/10/2025	Logged: M.Zhang/K.Rozmus
Method: Rotary Core Wireline		Easting: 1728069.68mE,		Date Completed: 07/10/2025	Input: M.Zhang
Equipment: Fraste SRS		Northing: 6005579.21mN,		Inclination: 90	Reviewed: B. O'Loughlin
Contractor: Pro-Drill (Auck) Ltd		Ground level: 147.16m (NZVD2016)		Azimuth: N/A	Verified: A. George

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
12	HQ3	115				[CONT] Slightly weathered; greenish grey, banded light grey, calcareous, SILTSTONE; with minor whitish grey and blackish grey, fine to medium, irregular clasts (chlorite and siltstone?); weak. Pervasive incipient fractures with low tensile strength. Shear fabric dips at 35-40°.			100	100	90			
			33			33.00m - 33.30m: CORE LOSS (300mm). Loss assumed from washout across sheared zone of SILTSTONE.								
	HQ3	114							80	80	9			
			34											
	HQ3	113												
			35											
13	HQ3	112			NAL				100	100	100		35.26m JT, 47°, RG, UN, CN	
			36				SW						36.00m: HCl test on matrix, strong reaction	
	HQ3	111							100	100	100			
			37											
	HQ3	110							100	100	100			
			38											
	HQ3	109							100	100	100		38.30m JT, 50°, RG, UN, CN, 2-3mm aperture, calcitic infill, strong reaction to HCl	
			39			38.75m: 10-12mm SILTSTONE clasts, strong reaction to HCl.								
	HQ3	108							100	100	100		39.00m: HCl test on matrix, strong reaction	
15						End Of Hole: 40.00m								

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 26mm and vertical accuracy +/- 61mm.
- One vibrating wire piezometer was installed on 07/10/2025. BH2B_1126_PZ01 was installed at 19.2m bgl, Serial No. 378272.
- Shear Vane Serial No. DR1254, calibration constant 1.682.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
6/10/2025 4:29:00 pm	37.00	8.60
7/10/2025 8:02:00 am	37.00	7.15

Borehole Reference:

BH2B_1126

Photographed By:

KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX001_0m-1.5m



BH2B_1126_BOX002_1.5m-4.93m

Borehole Reference:

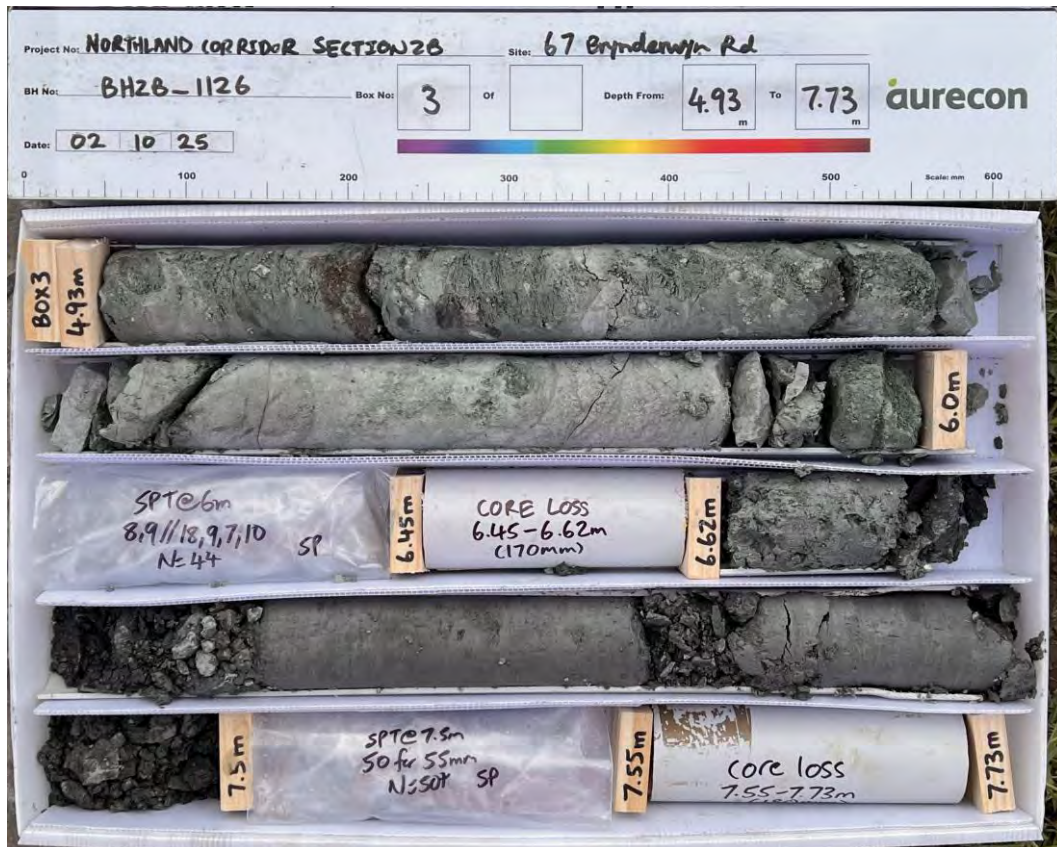
BH2B_1126

Photographed By:

KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX003_4.93m-7.73m



BH2B_1126_BOX004_7.73m-10.5m

Borehole Reference:

BH2B_1126

Photographed By:

KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX005_10.5m-13.5m



BH2B_1126_BOX006_13.5m-16.25m

Borehole Reference:

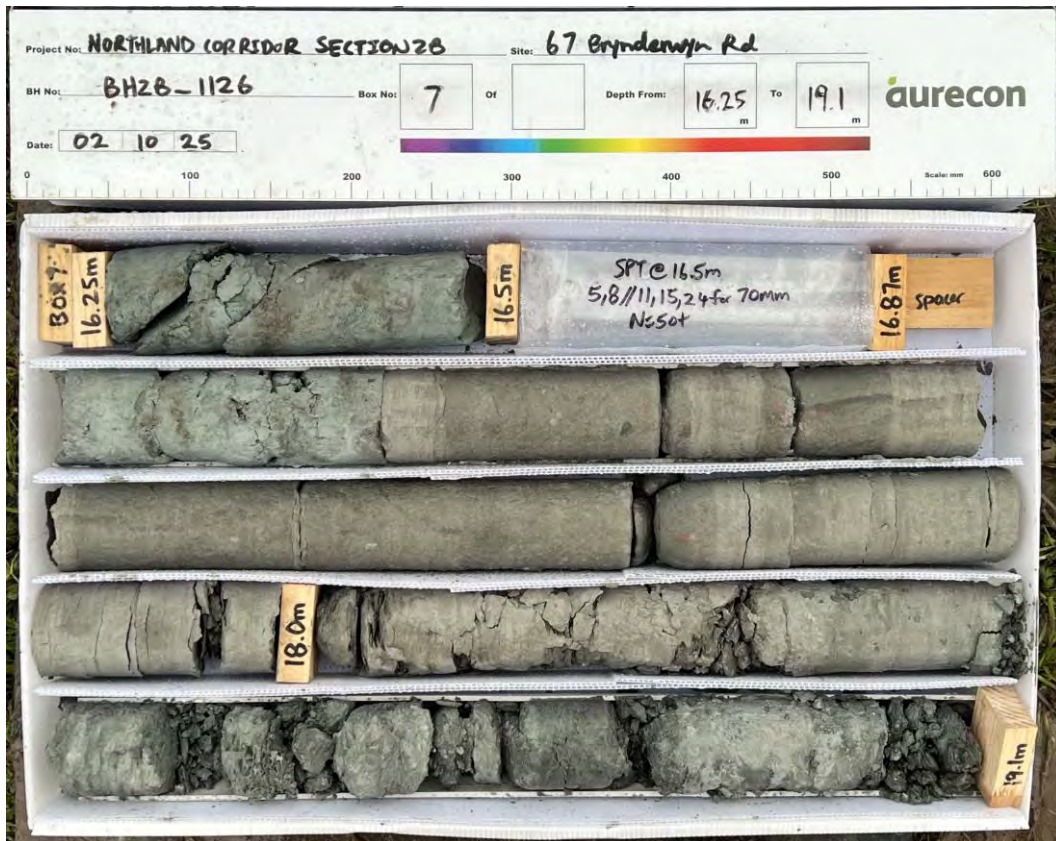
BH2B_1126

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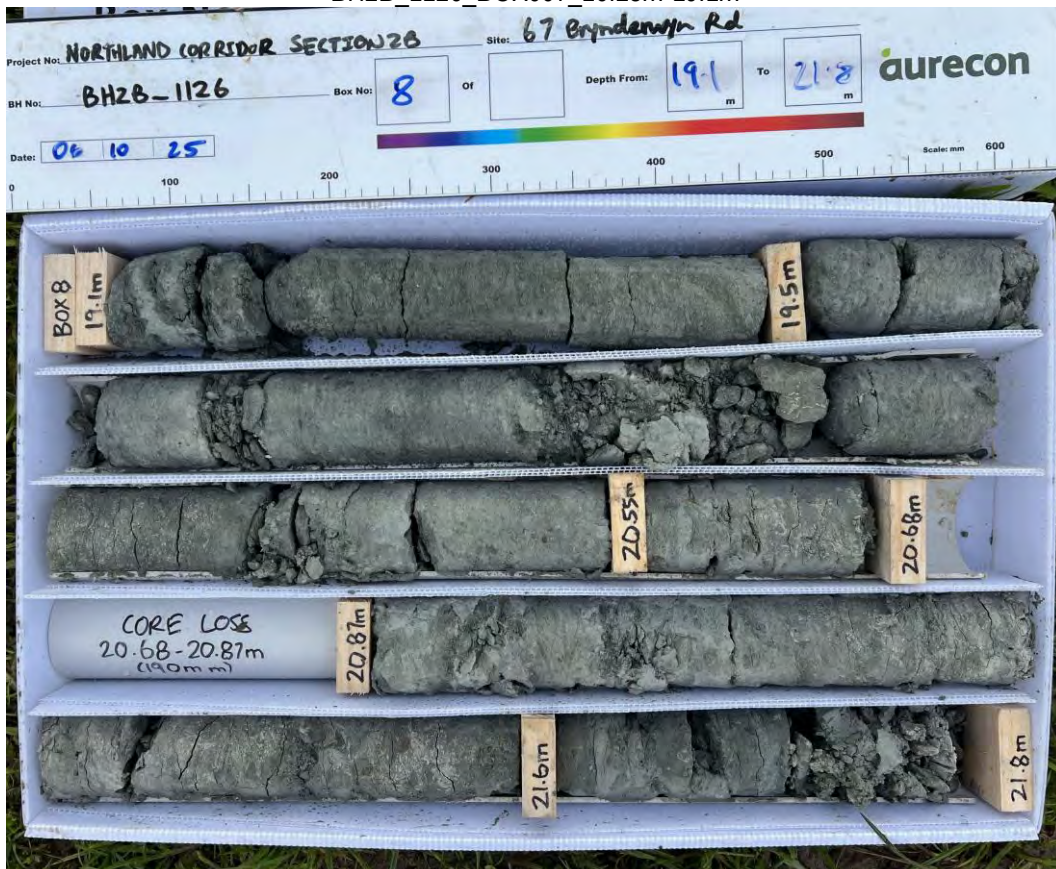
KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX007_16.25m-19.1m



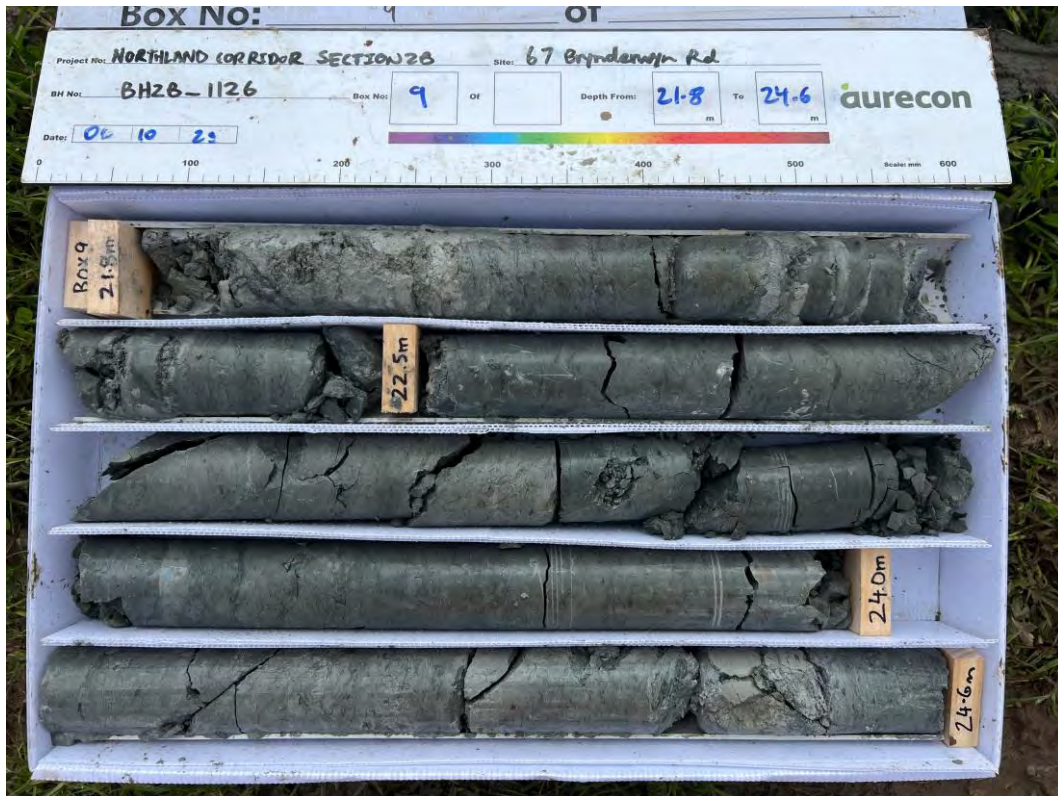
BH2B_1126_BOX008_19.1m-21.8m

Borehole Reference: BH2B_1126

Photographed By: KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX009 21.8m-24.6m



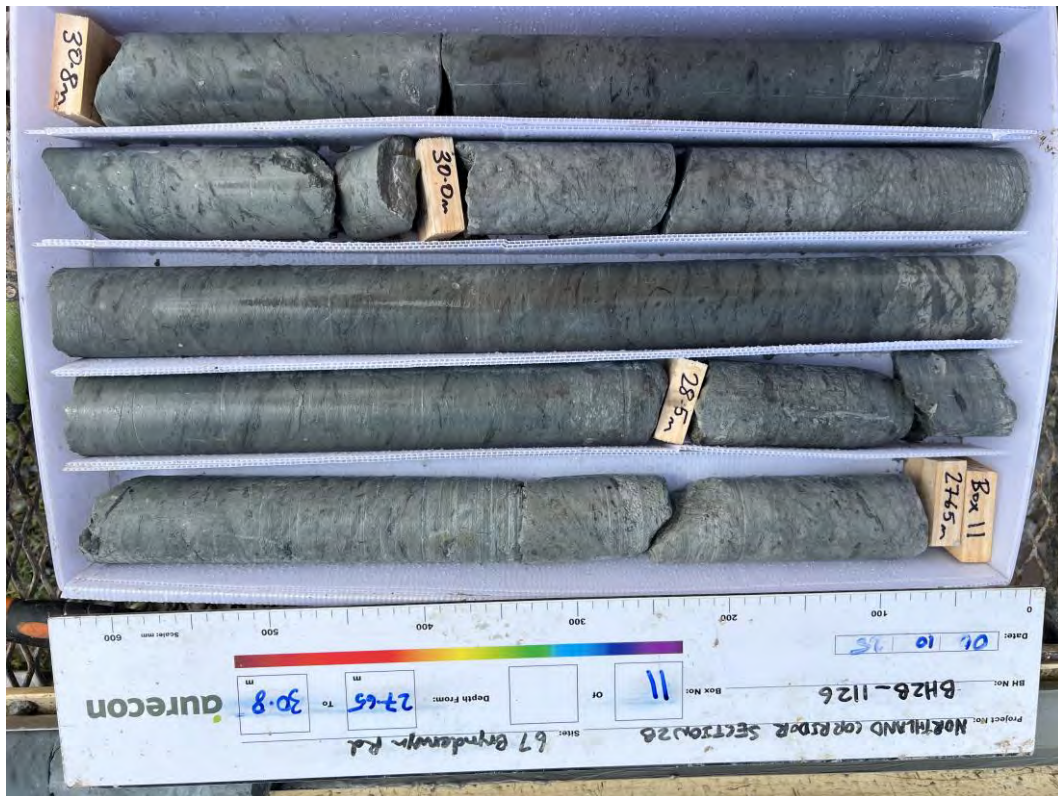
BH2B_1126_BOX010 24.6m-27.65m

Borehole Reference: BH2B_1126

Photographed By: KR

Date Photographed:

02/10/2025-22/10/2025



BH2B 1126 BOX011 27.65m-30.8m



BH2B_1126_BOX012_30.8m-33.8m

Borehole Reference:

BH2B_1126

Photographed By:

KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX013_33.8m-37m



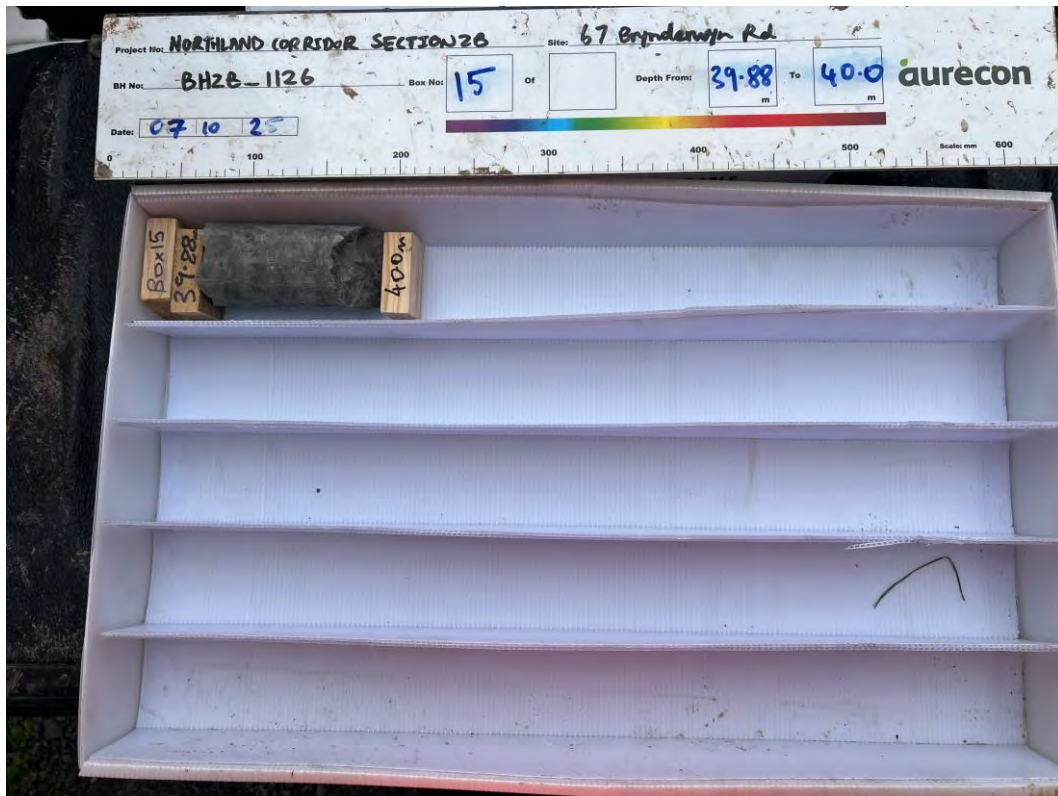
BH2B_1126_BOX014_37m-39.88m

Borehole Reference: BH2B_1126

Photographed By: KR

Date Photographed:

02/10/2025-22/10/2025



BH2B_1126_BOX015_39.88m-40m

BOREHOLE INFORMATION

Method: Rotary Wireline
Equipment: Coretech YDX1800
Contractor: Drill Force NZ Ltd

CO-ORDINATES: NZTM2000
Easting: 1727488.55mE,
Northing: 6007252.63mN,
Ground level: 267.04m (NZVD2016)

Date Started: 06/10/2025
Date Completed: 23/10/2025
Inclination: 90
Azimuth: N/A

Logged: D.Baker/J.Despojo
Input: D.Baker/J.Despojo
Reviewed: B.Simons/L.Templeton
Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
1	HA	267			TS	Clayey SILT; brown. Soft, moist, low plasticity; trace roots. [TOPSOIL].								
						CLAY; brown. Very stiff, moist, high plasticity. [RESIDUAL SOIL].								
						0.50m: Light orangish brown mottled brown.								
	SPT	266	1			1.50m: Stiff.	RS	0.5m SV FIELD SV 182/75kPa	100	-	-			
2	HQ3	265	2			Completely weathered; brown, light grey and dark orangish brown; GREYWACKE SILTSTONE. Extremely weak. Very closely spaced FeO stained relict joints. Weathered to a CLAY, with minor fine sand. Very stiff, moist, high plasticity. [COMPLETELY WEATHERED GREYWACKE].		1m SV FIELD SV 185/45kPa						
	SPT	264	3					1.5m SPT 1, 2/2, 3, 3, 3 N= 11	100	-	-			
	HQ3	263	4					3m SPT 2, 3/3, 5, 5, 5 N= 18	93	-	-			
	SPT	262	5					4.5m SPT 2, 3/3, 5, 5, 6 N= 19	100	-	-			
3	HQ3	261	6			Highly weathered, grey, brown and orange, GREYWACKE SILTSTONE. Very weak, indistinctly bedded, very closely spaced incipient fractures moderate tensile strength, dipping at around 40-60°. [HIGHLY WEATHERED GREYWACKE].		6m SPT 1, 1/3, 5, 6, 7 N= 21	100	90	0			
	SPT	260	7			6.45m - 6.60m: CLAY. Very stiff, moist, high plasticity.			100	33	0			
	HQ3					6.60m: Weak tensile strength, breaks on handling.			100	69	0			
	SPT					7.10m: Incipient fractures moderate tensile strength generally dipping at around 70-90°.		7.5m SPT 3, 3/5, 7, 11, 13 N= 36	100	100	0			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
6/10/2025 5:15:00 pm	7.95	1.57
7/10/2025 7:00:00 am	7.95	1.46

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE,	Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN,	Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)	Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
3	HQ3	259				7.95m - 8.20m: CLAY. Firm to stiff, moist, high plasticity.						ECS		
	SPT	258	9			Highly weathered, grey, brown and orange, fine GREYWACKE SANDSTONE. Very weak, indistinctly bedded, very closely spaced incipient fractures moderate tensile strength, dipping at around 0-30°.		9m SPT 5, 8/10, 11, 13, 13 N= 47	100	70	13	VCS	8.20-8.74m: JT, 70°-90°, UN, FeO, Mn stain 8.28-8.75m: JT, 10°-30°, RG, UN, FeO, Mn stain, x11	
	HQ3	257	10			10.25m - 11.75m: Very closely spaced incipient fractures dipping at 40-70°.	HW		100	66	0	ECS	8.89-8.95m: SM, completely weathered seam, silty sand, fine, medium dense, moist	
4	SPT	256	11			10.85m: Weak tensile strength, breaks on handling.		10.5m SPT 7, 12/15, 18, 17 for 50mm N = 50+	100	-	-	CS	9.64-9.75m: SM, completely weathered seam, clay, firm to stiff, moist, high plasticity 9.80-9.91m: JT, 10°-70°, RG, UN, FeO, Mn stain, x6 9.92-10.00m: SM, completely weathered seam, clay, firm to stiff, moist, high plasticity 10.08-10.18m: JT, 30°-40°, RG, UN, FeO, Mn stain, x3 10.30-10.50m: JT, 30°-75°, RG, UN, FeO, Mn stain, x6 10.40-10.50m: DB, drilling induced broken core	
	HQ3	255	12			11.75-12.00m: CORE LOSS (250mm).			78	0	0	VCS	10.88-10.90m: IS, infilled seam, clay, stiff, moist 10.93-10.94m: IS, infilled seam, clay, stiff, moist	
	SC	254	13			Highly weathered, grey, brown and orange, GREYWACKE SILTSTONE. Very weak, indistinctly bedded, MnO and FeO staining, very closely spaced incipient fractures weak tensile strength, dipping at around 0-30°.		12m SPT 8, 14/20, 27, 3 for 5mm N = 50+	-	-	-			
5	HQ3	253	14			14.03m - 14.30m: Clayey fine SAND. Medium dense, moist.	HW	13.5m SPT 9, 16/25, 25 for 50mm N = 50+	100	0	0	VCS	13.78-14.03m: DB, SPT induced broken core 14.03-14.30m: SM, completely weathered seam	
	SC	252	15			14.60m: Very weak. Moderate tensile strength.			100	50	20	MWS	15.10-15.16m: CS, recovered as angular medium to coarse gravel, FeO stain on joint faces	
	HQ3	251				15.00m: Weak tensile strength, breaks on handling.			100	39	0	CS	15.30m: JT, 20°, RG, UN, FeO stain 15.37m: JT, 60°, RG, UN, FeO stain 15.39-15.43m: CS, recovered as angular fine to medium gravel, FeO stain on joint faces 15.45m: JT, 30°, RG, UN, FeO stain 15.50-15.53m: CS, recovered as angular fine to medium gravel, FeO stain on joint faces 15.59m: JT, 0°-10°, RG, UN, FeO stain	
6	HQ3					15.30m: Very closely spaced incipient fractures dipping at 30-60°.			100	50	0	VCS		
						15.45m: Moderate tensile strength.								

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE	Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN	Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)	Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
6	HQ3	251			WPH	16.00m: Moderate tensile strength.	HW					CS	16.00m: HCl test: no reaction	
						16.15m: Weak tensile strength, breaks on handling.						VCS	16.10m: JT, 10°, RG, UN, FeO, Mn stain	
						16.55m: Moderate tensile strength.						CS	16.50-16.77m: JT, 10°, 30°, RG, UN, FeO, Mn stain, x8	
												CS	16.68-16.80m: JT, 80°, RG, UN, FeO, Mn stain	
												CS	16.80m: JT, 35°, RG, UN, FeO, Mn stain	
												CS	16.87-16.91m: SM, completely weathered seam, clay, stiff, moist, high plasticity	
7	HQ3	250	17		WPH		HW					VCS	17.00-17.02m: SM, completely weathered seam, clay, stiff, moist, high plasticity	
												CS	17.00-17.02m: SM, completely weathered seam, clay, stiff, moist, high plasticity	
												CS	17.08m: JT, 20°, RG, UN, FeO, Mn stain	
												ECS	17.29-17.58m: CS, recovered as angular fine to coarse gravel with thickness ranging from 60-160 mm	
												CS	17.58-17.80m: JT, 80°, 90°, RG, UN, FeO, Mn stain, x2	
												VCS	17.61-17.80m: JT, 20°, 50°, RG, UN, FeO, Mn stain, x6	
8	HQ3	249	18		WPH	17.80-18.15m: CORE LOSS (350mm).	HW							
						CLAY, with some sand and gravel; light grey with light brown. Hard, moist, high plasticity. Sand, fine to coarse; gravel, highly weathered, fine to medium, sub-angular sandstone. [FAULT GOUGE].						ECS	17.20m - 39.80m: 10-20% water loss on moist runs	
													18.15-18.80m: FT, 70°, shear fabric	
													18.20m: HCl test: no reaction	
													18.40m: HCl test: no reaction	
													18.80-19.78m: SZ	
9	HQ3	248	19		WPH	Highly weathered, brown with orange, fine GREYWACKE SANDSTONE. Extremely weak, sheared. Recovered as fine to coarse, angular, sandstone gravel, clast supported in sandy clay matrix. [HIGHLY WEATHERED GREYWACKE].	HW					ECS		
10	HQ3	247	20		WPH	Highly weathered, grey, brown with orange, fine GREYWACKE SANDSTONE with some thin to moderately thin GREYWACKE SILTSTONE beds. Very weak, very closely spaced incipient fractures, weak tensile strength, breaks upon handling, dipping at around 10-30° and 60-80°.	HW					CS	20.00-20.20m: CS, zones recovered as angular fine to coarse gravel, FeO stain, thickness ranging from 40-70mm	
						20.32m - 20.39m: Moderate tensile strength.						VCS	20.27-20.44m: JT, 30°-60°, RG, UN, FeO stain, x4	
												CS	20.48-20.55m: CS, recovered as angular fine to coarse gravel, FeO stain	
												ECS	20.58-20.75m: JT, 90°, RG, UN, FeO stain	
												VCS	20.61-20.75m: JT, 20°-35°, RG, UN, FeO stain, x3	
													20.80-21.00m: JT, 75°, RG, UN, FeO stain	
11	HQ3	246	21		WPH	21.07m - 21.30m: Moderate tensile strength.	HW					CS	21.18-21.50m: CS, zones recovered as angular fine to medium gravel, FeO stain, thickness ranges from 50-200mm	
												ECS		
													21.54-21.65m: JT, 20°, RG, UN, FeO stain, x2	
												CS	21.87-22.20m: CS, zones recovered as angular fine to medium gravel, clast supported in clay matrix, thickness ranges from 10-60mm	
												CS		
												ECS		
12	HQ3	245	22		WPH	22.25m - 26.35m: Laminated to moderately thin bedding, generally dipping at 30°.	HW					VCS	22.32-22.41m: JT, 20°, RG, UN, 1-10mm FeO stain, x2	
												CS		
												ECS		
													22.75-22.94m: JT, 80°, RG, UN, FeO stain	
												VCS	22.80-22.95m: JT, 10°-30°, RG, UN, FeO, Mn stain, x5	
													23.00-23.16m: CS, zones recovered as angular fine to medium gravel, clast supported in clay matrix, thickness ranges from 40-60mm	
13	HQ3	244	23		WPH	23.35m: Moderate to strong tensile strength, incipient fractures healed with up to 1mm FeO infill.	HW					CS	23.25-23.32m: FZ, recovered as angular fine to coarse gravel, clast supported in clay matrix	
												ECS		
													23.55-23.85m: JT, 10°-30°, RG, UN, FeO, Mn stain, x5	
												CS		
													23.80-23.88m: JT, 70°, RG, UN, FeO stain	
												VCS	23.88-24.14m: CS, zones recovered as angular fine to coarse gravel, clast supported in clay matrix	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
8/10/2025 7:00:00 am	20.00	5.81

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 06/10/2025		Logged: D.Baker/J.Despojo	
Method: Rotary Wireline		Easting: 1727488.55mE,		Date Completed: 23/10/2025		Input: D.Baker/J.Despojo	
Equipment: Coretech YDX1800		Northing: 6007252.63mN,		Inclination: 90		Reviewed: B.Simons/L.Templeton	
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)		Azimuth: N/A		Verified: C.Parkes	

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
8	HQ3	243				[CONT] Highly weathered, grey, brown with orange, fine GREYWACKE SANDSTONE with some thin to moderately thin GREYWACKE SILTSTONE beds. Very weak, very closely spaced incipient fractures, weak tensile strength, breaks upon handling, dipping at around 10-30° and 60-80°. 24.50m: Weak; strong tensile strength.	HW		100	6	20	CS	matrix, thickness ranges from 10-60mm	
	HQ3											ECS	24.22-24.50m: JT, 70°-90°, RG, UN, FeO, Mn stain, x2	
	HQ3											VCS	24.23-24.68m: CS, zones recovered as angular fine to coarse gravel, clast supported in clay matrix, thickness ranges from 50-120mm	
	HQ3											CS	24.41m: JT, 45°, RG, UN, FeO stain	
9	HQ3	242	25			25.35m: Very weak; weak to moderate tensile strength. 25.75m - 25.90m: Fine to coarse SANDSTONE.	HW		100	45	30	CS	24.76-24.88m: JT, 50°-60°, RG, PL, FeO stain, FeO stain	
	HQ3											VCS	24.92-25.00m: DB, recovered as angular fine to coarse gravel, broken during drilling	
	HQ3											CS	25.13-25.22m: JT, 10°-20°, RG, UN, FeO stain, x2	
	HQ3											VCS	25.39-25.41m: CS, recovered as angular fine to medium gravel	
10	HQ3	241	26			27.35-27.50m: CORE LOSS (150mm). Highly weathered, grey, brown and orange, fine GREYWACKE SANDSTONE with some thin to moderately thin GREYWACKE SILTSTONE beds. Very weak, very closely spaced incipient fractures, weak tensile strength, breaks upon handling, generally dipping at around 20-80°.	HW		100	55	20	ECS	25.45m: JT, 60°, RG, PL, FeO stain	
	HQ3											VCS	25.46-25.67m: SZ, 60°, recovered as angular fine to coarse gravel	
	HQ3											CS	25.68-25.71m: JT, 10°-20°, RG, UN, FeO stain, x2	
	HQ3											ECS	25.70-26.00m: JT, 80°-90°, RG, UN, FeO stain	
11	HQ3	240	27			28.60-28.90m: CORE LOSS (300mm). Highly weathered, grey, brown and orange, fine GREYWACKE SANDSTONE with some thin to moderately thin GREYWACKE SILTSTONE beds. Weak. Very closely spaced incipient fractures, moderate tensile strength, generally dipping at around 20-90°.	HW		100	46	0	CS	25.80-25.90m: FZ, healed with 1mm FeO, up to 20mm displacement	
	HQ3											CS	26.01-26.28m: JT, 80°, RG, UN, FeO stain	
	HQ3											VCS	26.03-26.11m: CS, recovered as angular fine to coarse gravel	
	HQ3											ECS	26.28m: JT, 45°, RG, PL, FeO stain	
12	HQ3	239	28			29.50m: Weak tensile strength, breaks upon handling. 29.82m: Strong tensile strength. 29.95m - 30.00m: CORE LOSS (50mm).	HW		73	13	0	VCS	26.75-26.95m: DB, drilling induced broken core	
	HQ3											ECS	27.05-27.95m: SS, zones recovered as angular fine to medium gravel, clast supported in clay matrix, thickness ranges from 90-250mm	
	HQ3											VCS	28.00-28.25m: DB, drilling induced broken core	
	HQ3											VCS	28.97m: JT, 40°, RG, PL, FeO stain	
13	HQ3	238	29			30.30-30.60m: CORE LOSS (300mm). Slightly weathered, grey, fine GREYWACKE SANDSTONE; weak; very closely spaced sub-vertical to vertical fractures. [SLIGHTLY WEATHERED GREYWACKE].	HW		100	26	0	CS	29.16-29.26m: CS, recovered as angular fine to coarse gravel	
	HQ3											ECS	29.43-29.45m: DB, drilling induced broken core	
	HQ3											VCS	29.45-29.50m: DB, drilling induced broken core, dropped down hole and recovered on subsequent run	
	HQ3											CS	29.82m: JT, 20°, RG, UN, FeO stain	
14	HQ3	237	30			31.30-31.50: CORE LOSS (200mm). Slightly weathered, light grey and dark grey, fine GREYWACKE SANDSTONE with some thin to moderately thin GREYWACKE SILTSTONE interbeds; very weak; laminated to very thin bedding	SW		85	51	34	CS	29.85m: JT, 80°, RG, UN, FeO stain	
	HQ3											CS	29.88m: JT, 20°, RG, UN, FeO stain	
	HQ3											ECS	30.09-30.15m: CS, recovered as angular fine to medium gravel, clast supported in clay matrix	
	HQ3											CS	30.60-30.77m: DB, drilling induced broken core	
15	HQ3	236	31				SW		100	50	0	VCS	30.77-30.90m: JT, 80°, RG, UN, FeO stain	
	HQ3											VCS	30.90-31.15m: JT, 80°-90°, RG, UN, FeO stain, x3	
	HQ3											VCS	31.05-31.30m: DB, drilling induced broken core, inferred very closely spaced sub-vertical joints	
	HQ3											CS	31.50-31.70m: JT, 80°-90°, RG, UN, less than 1 mm silt, x3	
16	HQ3						SW		100	0	0	CS	31.56-31.70m: JT, 10°-30°, RG, UN, less than 1 mm silt, x4	
	HQ3											ECS	31.70-32.78m: FZ, 0°-90°, RG, UN, less than 1 mm silt	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
8/10/2025 5:00:00 pm	30.00	0.00
9/10/2025 7:00:00 am	30.00	8.44

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE,		Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN,		Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)		Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
11	HQ3	235			WPU	dipping at 20°.	SW		100	0	0			
	HQ3					32.40m - 32.50m: CORE LOSS (100mm). Loss due to washout of brecciated greywacke.			100	0	0	ECS		
	HQ3								83	30	0	CS	32.84m: JT, 55°, RG, UN, dark green chlorite stain	
	HQ3	234	33										32.93m: JT, 45°, RG, UN, dark green chlorite stain	
12	HQ3				WPU	33.35-33.60: CORE LOSS (250mm).	SW		100	0	0	ECS	33.00-33.06m: CZ, recovered as angular fine to medium gravel, clast supported in clay matrix	
	HQ3								16	0	0		33.06-34.20m: CZ, recovered as angular fine to coarse gravel, clast supported in clay matrix	
	HQ3					Slightly weathered, grey, fine GREYWACKE SANDSTONE; very weak; indistinctly bedded.			100	0	0	ECS		
	HQ3								100	0	0			
	HQ3	233	34						100	0	0			
	HQ3					34.60m: Very closely spaced incipient fractures generally dipping at 10-90°, less than 1mm silt infill, weak to moderate tensile strength.			100	0	0	VCS	34.20-34.40m: JT, 10°-40°, RG, UN, dark grey stain, x6	
	HQ3								100	0	0		34.35m - 35.60m: All drilling breaks along very closely spaced incipient fractures, recovered as fine to coarse, angular greywacke gravel	
	HQ3								100	64	0			
	HQ3								100	0	0	ECS	34.85-35.00m: SZ, recovered as angular fine to medium gravel, clast supported in clay matrix	
	HQ3	232	35			35.00-35.15: CORE LOSS (150mm).			75	0	0	VCS		
13	HQ3				WPFZ	Slightly weathered, grey, fine GREYWACKE SANDSTONE; very weak; indistinctly bedded.	SW							
	HQ3													
	HQ3	231	36			Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; weak. Breccia comprises clast-supported angular clasts fine greywacke sandstone (5-50mm). Clasts have minimal rotation and good geometric fit, altered with light grey mineral veining. Matrix is light grey firm clay, highly plastic. Clasts (90%), Matrix (10%). Very closely spaced incipient fractures, weak tensile strength, dipping at around 10-60°. [CRACKLE BRECCIA].			98	0	0	ECS	35.60m - 38.30m: All crush zones and shear zones recovered as fine, angular, greywacke gravel	
	HQ3					35.75m - 36.15m: Moderate tensile strength.			100	0	0		36.00m: HCl test on matrix: no reaction	
	HQ3												36.18-36.48m: SZ, 40°, SM, PL, sandy fine to medium gravel, angular, clay infill	
	HQ3								100	0	0		36.48-36.77m: FZ, 20°-30°	
	HQ3												36.77-36.95m: SZ, 30°, SM, PL, sandy fine to coarse gravel, angular	
	HQ3	230	37			36.95-37.15m CORE LOSS (200mm). Loss assumed from wash out of fault breccia.			44	0	0		37.15-38.10m: SZ, 50°-90°, SM, PL, recovered as fine to coarse, sub-angular to angular gravel, trace fine sand, broken during extraction from splits	
	HQ3					37.40m - 37.70m: Moderate tensile strength.			100	0	0			
	HQ3								100	0	0			
14	HQ3				WPFZ	38.10m: Moderate tensile strength.	SW		100	0	0		38.00m: HCl test on matrix: no reaction	
	HQ3	229	38						100	0	0		38.20-38.29m: SZ, 20°, recovered as fine to medium, angular to sub-angular gravel, trace fine sand	
	HQ3								100	0	0		38.34-38.40m: DB, breakage along extremely closely spaced incipient fractures (1040°)	
	HQ3								100	0	0		38.35m: VN, 2mm quartz	
	HQ3								93	0	0			
	HQ3								100	0	0		38.78m: VN, 3mm quartz	
	HQ3					38.80m - 38.90m: Very closely spaced incipient fractures moderate tensile strength, dipping at around 10-40°.			100	0	0			
	HQ3					39.00m - 39.35m: Extremely closely spaced to very closely spaced incipient fractures, weak tensile strength, breaks upon handling, dipping at around 10-20°.			100	0	0			
	HQ3	228	39						100	0	0		39.40-39.70m: HB	
	HQ3								93	0	0			
						39.80-40.15m CORE LOSS (350mm). Loss			0	-	-		39.80m - 39.90m: 20% water loss	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
9/10/2025 5:33:00 pm	33.30	0.30
10/10/2025 7:27:00 am	33.30	13.57
13/10/2025 10:10:00 am	36.00	15.30
14/10/2025 6:45:00 am	37.95	7.58
15/10/2025 6:50:00 am	39.70	15.25

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE,		Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN,		Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)		Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
14	HQ3	227			WPfZ	assumed from wash out of fault breccia.	SW						40.00m: HCl test on matrix: no reaction 40.15m - 40.70m: 40% water loss	
	HQ3					Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; weak; extremely closely spaced incipient fractures, weak tensile strength, dipping at around 10-40°. [CRACKLE BRECCIA].			100	0	0	ECS		
	HQ3					40.40-40.85m CORE LOSS (450mm). Loss assumed from wash out of fault breccia.			0	-	-			
	HQ3								0	-	-			
	HQ3								100	0	0	ECS	40.85-40.95m: SZ, no apparent dip, recovered as fine to medium, angular to sub-angular gravel, minor fine sand	
	HQ3								75	0	0		41.00-41.15m: SZ, 10°-80°, recovered as fine to coarse, angular gravel, trace fine sand	
	HQ3					Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; weak. Breccia comprises clast-supported angular clasts fine greywacke sandstone (5-50mm). Clasts have minimal rotation and good geometric fit, altered with light grey mineral veining. Matrix is light grey firm clay, highly plastic. Clasts (90%), Matrix (10%). Very closely spaced incipient fractures, weak tensile strength, dipping at around 10-60°. [CRACKLE BRECCIA].	SW		100	100	0	VCS		
	HQ3					40.95m - 41.00m: CORE LOSS (50mm). Loss assumed from wash out of fault breccia.			97	87	0			
	HQ3					41.15m: Incipient fractures, strong tensile strength, dipping around 0-80°, 1-5 mm inferred zeolite mineralization infill.			100	88	0			
	HQ3								100	80	0	CS	42.82-42.92m: JT, 60°, SM, PL, inferred zeolite	
	HQ3					42.82m - 43.10m: Very closely spaced incipient fractures, weak tensile strength, dipping around 60-90°, <2mm inferred zeolite mineralization infill.			100	84	84	VCS	42.98-43.10m: HB	
	HQ3					43.15-43.20m CORE LOSS (50mm). Loss assumed from wash out of breccia.			100	83	0		43.10-43.15m: DB, breakage along incipient fractures	
	HQ3					Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong. Closely spaced pervasive incipient fractures with moderate tensile strength. Shear fabric dips at 10-70°. Inferred zeolite and chlorite veins, up to 3mm thick. [SLIGHTLY WEATHERED GREYWACKE].			100	84	84		43.20-43.35m: DB, breakage along incipient fractures	
	HQ3								100	84	84		43.26m JT, 60°, RG, PL, CN	
	HQ3								100	84	84		43.40m - 43.95m: 40% water loss	
	HQ3								100	98	85	CS	43.95m - 46.50m: 60% water loss	
	HQ3					45.00m - 45.10m: CORE LOSS (100mm). Loss due to washout.			93	73	59	MWS	44.18m JT, 30°, SM, UN, dark grey staining	
	HQ3					Slightly weathered, grey, GREYWACKE FAULT BRECCIA. Breccia comprises clast supported clasts (5-50mm) of slightly weathered, weak fine greywacke sandstone. Clasts have minimal rotation and good geometric fit. Matrix is dark grey to yellowish brown clay, highly plastic. Clasts (75%), Matrix (15%). Shear fabric dips 20-80° Very closely spaced to closely spaced incipient fractures, weak tensile strength. [MOSAIC BRECCIA].	SW		100	79	79	VCS	44.50m: HCl test on matrix: no reaction	
	HQ3								100	79	79		44.68m JT, 65°, SM, UN, dark grey staining	
	HQ3								97	67	36	CS	44.90m JT, 45°, SM, UN, zeolite infill	
	HQ3					Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; weak. Breccia comprises clast-supported angular clasts fine greywacke sandstone (5-100mm). Clasts have minimal rotation and good geometric fit, altered with light grey mineral veining. Matrix is light grey firm clay, highly plastic. Clasts (95%), Matrix (15%).							45.18-45.23m: SZ, 20°, RG, UN, recovered as fine to coarse, angular to sub-angular gravel	
	HQ3												45.65m: FAULT BRECCIA zones closely to moderately widely spaced	
	HQ3												46.50m - 48.40m: 30% water loss	
	HQ3												47.18-47.35m: SZ, 60°, breakage along very closely spaced, weak tensile strength incipient fractures, recovered as medium to coarse, sub-angular gravel	
	HQ3												47.70m JT, 45°, SM, PL, CN	
	HQ3												47.75-47.85m: JT, 40°-60°, SM, UN, CN	
	HQ3												47.96-48.11m: SZ, 30°, recovered as fine to	

REMARKS:

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- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
15/10/2025 4:56:00 pm	40.85	1.10
16/10/2025 6:57:00 am	40.85	8.41
16/10/2025 4:45:00 pm	43.50	5.67
17/10/2025 7:01:00 am	43.50	9.61

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000	Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE,	Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN,	Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)	Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL	
17	HQ3		219		WPFZ	Extremely to very closely spaced incipient fractures, weak to moderate tensile strength. Some fracture surfaces coated with pyrite. Preferential breakage along incipient fractures. Shear fabric dips at 45-70°, inferred zeolite veins, 1-5mm thick, some zones disintegrate upon handling, breaking to a sandy fine to medium gravel with some silt and clay or a fine to coarse gravel. [CRACKLE BRECCIA]. 48.11m - 48.27m: FAULT ZONE, brecciated fabric dips at 20°, matrix of greywacke with some silt, low plasticity, very weak.	SW		100	75	10	VCS	coarse, sub-angular gravel, drilling induced? 48.11-48.27m: FT		
			CS									48.41m: CS, 30°, RG , UN , silty fine sand (3mm)			
VCS															
CS	49.21m: JT, 60°, RG , UN , CN 49.26m: JT, 10°, RG , UN , CN														
VCS	49.40m - 52.10m: 70% water loss														
CS	49.75m: SZ, 70° , SM , PL , sandy fine to medium gravel, angular														
CS	49.95m: JT, 70° , SM , UN , coated silt 50.10m: JT, 50° , SL , PL , coated silt														
CS	50.30m: VN, 45° , RG , UN , 2mm inferred zeolite														
CS															
CS															
18	HQ3		217	50		WPFZ	52.45m - 53.70m: Shear fabric dips up to 80°.	SW		100	100	20	VCS		
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
19	HQ3		216	51	WPFZ		52.45m - 53.70m: Shear fabric dips up to 80°.	SW		100	100	11	VCS		
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
19	HQ3		215	52		WPFZ	52.45m - 53.70m: Shear fabric dips up to 80°.	SW		100	10	0	VCS	52.10m - 53.40m: 60% water loss	
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
19	HQ3		214	53	WPFZ		52.45m - 53.70m: Shear fabric dips up to 80°.	SW		100	75	75	VCS	53.40m - 54.00m: 50% water loss	
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
20	HQ3		213	54		WPFZ	54.42m - 54.50m: Disintegrates upon handling, sandy fine to medium gravel with some silt.	SW		100	45	45	VCS	54.00m - 55.50m: 40% water loss	
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
20	HQ3		212	55	WPFZ		54.42m - 54.50m: Disintegrates upon handling, sandy fine to medium gravel with some silt.	SW		100	27	27	VCS	55.30m: No HCl reaction on veins 55.50m - 57.00m: 30% water loss	
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
20	HQ3					WPFZ	55.50m - 56.60m: Sheared at 30-50°.	SW		100			VCS		
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
20	HQ3				WPFZ		55.50m - 56.60m: Sheared at 30-50°.	SW		100			VCS		
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															
20	HQ3					WPFZ	55.85m - 56.15m: Disintegrates upon handling, sandy fine	SW		100			VCS		
			CS												
VCS															
CS															
CS															
CS															
CS															
CS															
CS															
CS															

BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 06/10/2025	Logged: D.Baker/J.Despojo
Method: Rotary Wireline		Easting: 1727488.55mE,		Date Completed: 23/10/2025	Input: D.Baker/J.Despojo
Equipment: Coretech YDX1800		Northing: 6007252.63mN,		Inclination: 90	Reviewed: B.Simons/L.Templeton
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)		Azimuth: N/A	Verified: C.Parkes

CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
20	HQ3	211				[CONT] Extremely to very closely spaced incipient fractures, weak to moderate tensile strength. Some fracture surfaces coated with pyrite. Preferential breakage along incipient fractures. Shear fabric dips at 45-70°, inferred zeolite veins, 1-5mm thick, some zones disintegrate upon handling, breaking to a sandy fine to medium gravel with some silt and clay or a fine to coarse gravel. [CRACKLE BRECCIA]. 56.25m - 56.60m: Disintegrates upon handling, sandy fine to medium gravel with some clay and silt; clay, high plasticity.			100	27	27	VCS ECS	57.00m - 58.50m: 40% water loss	
21	HQ3	210	57		WPFZ				100	88	83	VCS	58.50m - 63.00m: 50% water loss	
		209	58			58.95m - 59.35m: Disintegrates upon handling, matrix supported; sandy fine to medium with some clay and silt, clay, high plasticity.			100	67	67	ECS		
	HQ3	208	59			Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong. Very closely spaced to widely spaced incipient fractures, moderate to strong tensile strength; inferred drilling and handling induced breaks along incipient fractures; zones of extremely closely spaced inferred zeolite veining, up to 5mm thick. [SLIGHTLY WEATHERED GREYWACKE]. 60.35m - 60.60m: FAULT BRECCIA; clast supported, 5-30mm in size, angular, matrix 0.50mm thick, fine sand, breaks along incipient fractures when handled.	SW		100	83	83	CS MWS VCS	60.70m: No HCl reaction	
22	HQ3	207	60						100	100	100	WS	63.00m - 69.00m: 30% water loss	
		206	61		WPU				100	67	67	VCS WS		
23	HQ3	205	62			63.35m - 63.70m: Incipient fractures, weak to moderately strong tensile strength; some zones disintegrates upon handling to a clayey/silty fine to coarse gravel, angular.			100	67	67	VCS WS		
		204	63						100	100	100			

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
- Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.
- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

DateTime

Hole Depth (m)

Water Level (m)

BOREHOLE INFORMATION

Method: Rotary Wireline
Equipment: Coretech YDX1800
Contractor: Drill Force NZ Ltd

CO-ORDINATES:

NZTM2000
Easting: 1727488.55mE,
Northing: 6007252.63mN,
Ground level: 267.04m (NZVD2016)

Date Started: 06/10/2025
Date Completed: 23/10/2025
Inclination: 90
Azimuth: N/A

Logged: D.Baker/J.Despojo
Input: D.Baker/J.Despojo
Reviewed: B.Simons/L.Templeton
Verified: C.Parkes

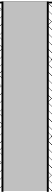
CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL
23	HQ3	203			WPU	[CONT] Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong. Very closely spaced to widely spaced incipient fractures, moderate to strong tensile strength; inferred drilling and handling induced breaks along incipient fractures; zones of extremely closely spaced inferred zeolite veining, up to 5mm thick. [SLIGHTLY WEATHERED GREYWACKE].	SW		100	67	67	WCS MWS VCS ECS		
24	HQ3	202	65			Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; moderately strong. Breccia comprises clast-supported angular clasts fine greywacke sandstone (5-40mm). Clasts have minimal rotation and good geometric fit. Matrix is light grey stiff clay, highly plastic, some matrix well cemented. Clasts (95%), Matrix (5%). Very closely to moderately widely spaced incipient fractures, moderate to strong tensile strength. Shear fabric dips at 70-80°; inferred zeolite veins, 1-15mm thick, some zones intensely veined; some zones disintegrate upon handling, breaking due to soft matrix or along incipient fractures. [CRACKLE BRECCIA].			100	76	76	MWS		
	HQ3	201	66			65.00m - 65.25m: Weak tensile strength. Disintegrates upon handling to a fine to coarse gravel with some sand and silt.			100	51	51	CS		
	HQ3	200	67			66.00m - 69.25m: Weak tensile strength, breaks along incipient fractures to fine to coarse gravel, with minor sand and silt.								
25	HQ3	199	68		WPFZ		SW		100	87	65	MWS	69.00m - 70.00m: 20% water loss	
	HQ3	198	69			69.25m - 70.25m: Incipient fractures, weak to moderate tensile strength, disintegrates to a fine to coarse gravel with some sand, silt and drilling induced crushed inferred zeolite veins.			100	25	25			
	HQ3	197	70										70.00m - 71.50m: 80% water loss	
26	HQ3	196	71			70.55m - 70.62m: Weak to moderate tensile strength, disintegrates to a fine to coarse gravel with some sand, silt and drilling induced crushed inferred zeolite veins.			100	23	0	VCS		
	HQ3					70.95m - 71.50m: Weak tensile strength, disintegrates to a silty/ sandy fine to coarse gravel with trace clay.								
	HQ3					71.50m - 72.55m: Weak tensile strength. Incipient fractures disturbed by drilling, recovered as a fine to coarse gravel, angular.			100	0	0		71.50m - 72.00m: Core bound, 60% water loss	

REMARKS:

- Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.
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- Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.
- Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.
- Shear Vane Serial No. 3303, calibration constant 1.569.

Water Level Readings:

Date/Time	Hole Depth (m)	Water Level (m)
21/10/2025 5:30:00 pm	70.00	3.28
22/10/2025 7:40:00 am	70.00	22.57

NZ TRANSPORT AGENCY WAIKA ROTARU Roads of National Significance Project Office Level 17, Aon Centre, 21/29 Customs Street West, Auckland Central, Auckland 1010		Client: New Zealand Transport Agency		Project: Northland Corridor, Alternative to Brynderwyn Hills		BH2B_1127									
		Location: State Highway 1, Waipu Track		Project Reference: Aurecon WSP JV		Sheet 10 of 10									
BOREHOLE INFORMATION		CO-ORDINATES: NZTM2000		Date Started: 06/10/2025		Logged: D.Baker/J.Despojo									
Method: Rotary Wireline		Easting: 1727488.55mE,		Date Completed: 23/10/2025		Input: D.Baker/J.Despojo									
Equipment: Coretech YDX1800		Northing: 6007252.63mN,		Inclination: 90		Reviewed: B.Simons/L.Templeton									
Contractor: Drill Force NZ Ltd		Ground level: 267.04m (NZVD2016)		Azimuth: N/A		Verified: C.Parkes									
CORE BOX	METHOD	R.L. (m)	DEPTH (m)	GRAPHIC LOG	GEO CODE	MATERIAL DESCRIPTION	Weathering	SAMPLES & FIELD TESTS	TCR(%)	SCR(%)	RQD(%)	FRACTURE LOG	STRATIGRAPHY DEFECT DESCRIPTION ADDITIONAL NOTES	INSTALLATION/ BACKFILL	
26	HQ3	195			WPFZ	[CONT] Slightly weathered, bluish grey, brecciated fine GREYWACKE SANDSTONE; moderately strong. Breccia comprises clast-supported angular clasts fine greywacke sandstone (5-40mm). Clasts have minimal rotation and good geometric fit. Matix is light grey stiff clay, highly plastic, some matrix well cemented. Clasts (95%), Matrix (5%). Very closely to moderately widely spaced incipient fractures, moderate to strong tensile strength. Shear fabric dips at 70-80°; inferred zeolite veins, 1-15mm thick, some zones intensely veined; some zones disintegrate upon handling, breaking due to soft matrix or along incipient fractures. [CRACKLE BRECCIA].	SW		100	85	85	VCS CS	72.00m - 73.00m: 20% water loss		
27		194	73		WPU								Slightly weathered, bluish grey, fine GREYWACKE SANDSTONE; moderately strong. Very closely spaced to closely spaced incipient fractures, weak to moderate tensile strength; inferred drilling and handling induced breaks along incipient fractures. [SLIGHTLY WEATHERED GREYWACKE].		End Of Hole: 73.00m
		193	74												
		192	75												
		191	76												
		190	77												
		189	78												
		188	79												
REMARKS:										Water Level Readings:					
1. Coordinates captured using a Trimble R12i Receiver and TSC5 Controller, with a horizontal accuracy +/- 71mm and vertical accuracy +/- 97.5mm.										DateTime		Hole Depth (m)		Water Level (m)	
2. Two vibrating wire piezometers were installed on 23/10/2025. BH2B_1127_PZ01 was installed at 20.45m bgl, Serial No. 378291. BH2B_1127_PZ02 was installed at 70.25m bgl, Serial No. P252809.										23/10/2025 8:15:00 am		73.00		26.83	
3. Falling/rising head testing undertaken with data logger at borehole depth 33.30m on 09/10/2025. Second Falling/rising head testing undertaken with data logger at borehole depth 39.70m on 14/10/2025.															
4. Geophysical profiling was undertaken on 22-23/10/2025, comprising optical and acoustic televiwer.															
5. Shear Vane Serial No. 3303, calibration constant 1.569.															

Borehole Reference: BH2B_1127

Photographed By: DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX001_0m-3.45m



BH2B_1127_BOX002_3.45m-6.45m

Borehole Reference:

BH2B_1127

Photographed By:

DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX003_6.45m-9.57m



BH2B_1127_BOX004_9.57m-12.89m

Borehole Reference:

BH2B_1127

Photographed By:

DRB, JD

Date Photographed:

08/10/2025-03/12/2025



BH2B_1127_BOX005_12.89m-15.7m



BH2B_1127_BOX006_15.7m-18.5m