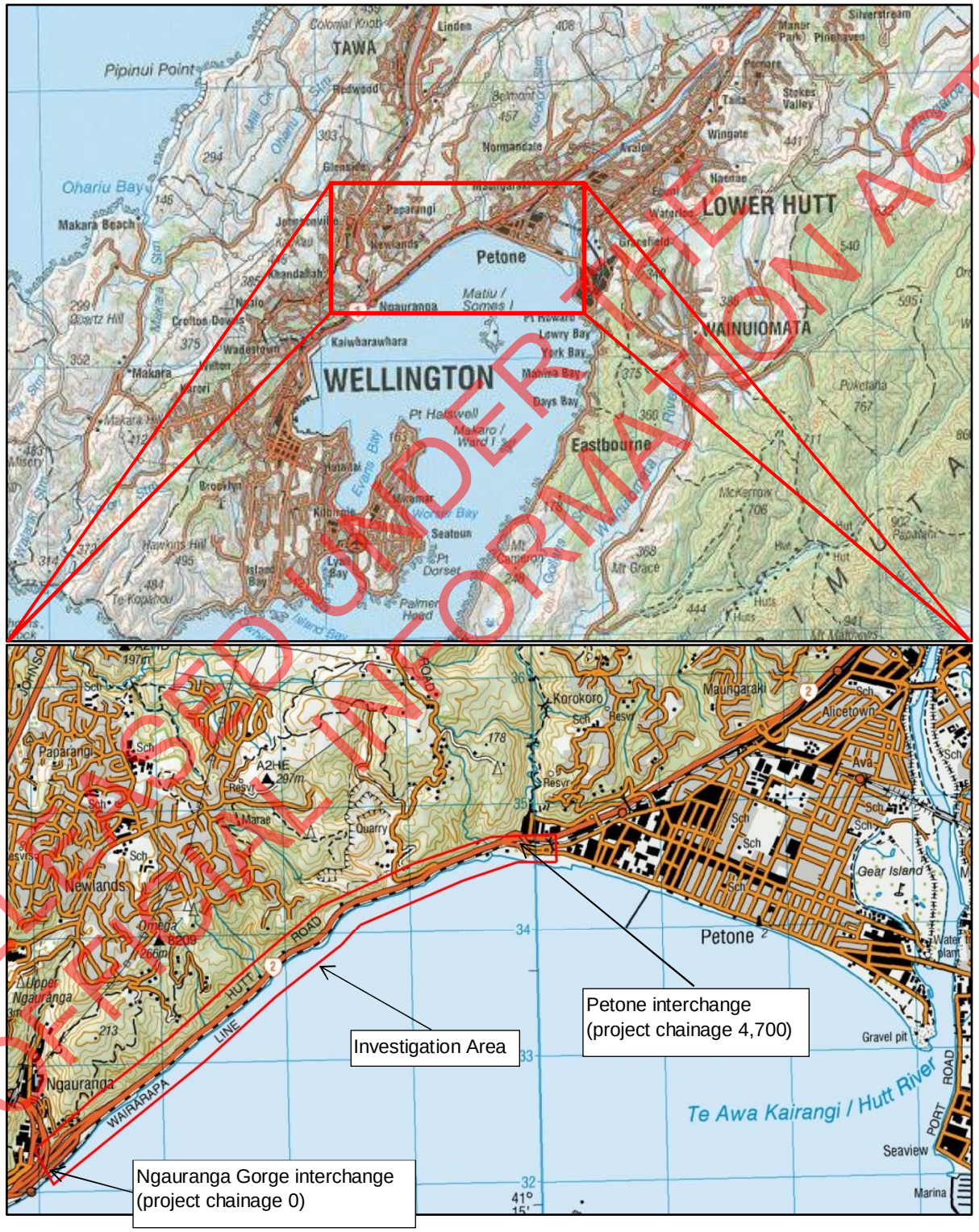
D R A F T

Appendix A

Location Plan

D R A F T

Appendix A Location Plan



D R A F T

Appendix B

Investigation Location Plans

Last saved: Tue, 25 Feb 2014 10:39 am

Legend

P2G – Proposed investigations (23/10/13)

- Borelhole
- Cone Pentration Test
- Trial Pit

P2N – Proposed cycleway investigation

- Drillhole
- Trial Pit

GEOTECHNICAL INVESTIGATION TABLE

ID	EASTING	NORTHING	DEPTH	LEGAL DESCRIPTION	LAND PARCEL	OWNERSHIP
DH 06	1752517	5432596	13.5m		RAILWAY PARCEL	

FOR INFORMATION ONLY

REVISIONS

No.	BY	DATE	DESCRIPTION	APPD

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DRAWN	GD	CHECKED	
APPROVED		DATE	

SCALES:

SCALE B 0 10 20 25m

1 : 1000 (A3) 1 : 500 (A1)

AECOM New Zealand Limited

CLIENT: NZ TRANSPORT AGENCY WAKA KOTAHI

PETONE TO NGAURANGA CYCLEWAY

GEOTECHNICAL INVESTIGATION

-

A1 | STATUS: FOR INFORMATION ONLY | DRAWING NO: SK120 | REV:

CAD Ref: D:\Temp\AcPublish_3456\SK130_Geotechnical Investigation.dwg

Legend

P2G – Proposed investigations (23/10/13)

- Borelhole
- Cone Pentration Test
- Trial Pit

P2N – Proposed cycleway investigation

- Drillhole
- Trial Pit

GEOTECHNICAL INVESTIGATION TABLE

ID	EASTING	NORTHING	DEPTH	LEGAL DESCRIPTION	LAND PARCEL	OWNERSHIP
DH_04	1755069	5434388	8.1m		ROAD PARCEL	
DH_05	1754304	5433973	2m		ROAD PARCEL	

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DESIGNED	PR	CHECKED	
DRAWN	GD	CHECKED	
APPROVED		DATE	

REVISIONS

No.	BY	DATE	DESCRIPTION	APPD

SCALES:

SCALE B 0 10 20 25m

1 : 1000 (A3) 1 : 500 (A1)

AECOM

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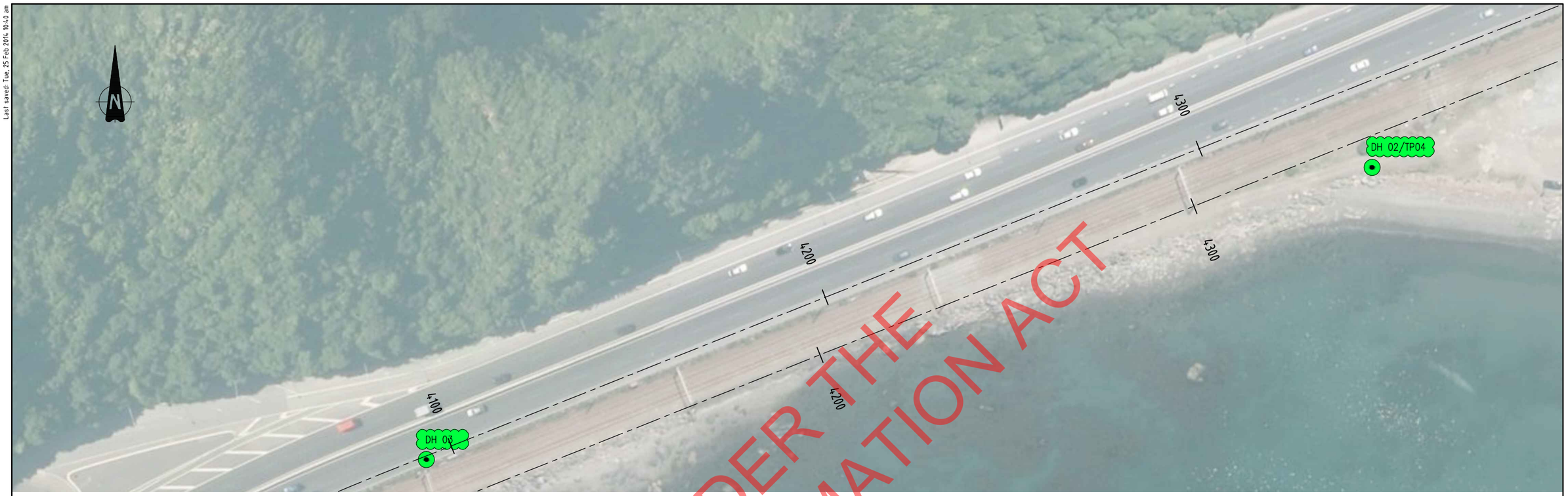
CLIENT: NZ TRANSPORT AGENCY WAKA KOTAHI

PETONE TO NGAURANGA CYCLEWAY

GEOTECHNICAL INVESTIGATION

-

A1 | STATUS: FOR INFORMATION ONLY | DRAWING NO: SK130 | REV:



Legend

P2G – Proposed investigations (23/10/13)

- Borelhole
- Cone Pentration Test
- Trial Pit

P2N – Proposed cycleway investigation

- Drillhole
- Trial Pit

GEOTECHNICAL INVESTIGATION TABLE

ID	EASTING	NORTHING	DEPTH	LEGAL DESCRIPTION	LAND PARCEL	OWNERSHIP
DH 02/TP04	1755518	5434577	7.5m		RAILWAY PARCEL	
DH 03	1755283	5434504	10.5m		ROAD PARCEL	

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DESIGNED	PR	CHECKED	
DRAWN	GD	CHECKED	
APPROVED		DATE	

REVISIONS

No.	BY	DATE	DESCRIPTION	APPD

SCALES:

SCALE B 0 10 20 25m

1 : 1000 (A3) 1 : 500 (A1)

AECOM New Zealand Limited

CLIENT: NZ TRANSPORT AGENCY WAKA KOTAHI

PETONE TO NGAURANGA CYCLEWAY

GEOTECHNICAL INVESTIGATION

-

A1 | STATUS: FOR INFORMATION ONLY | DRAWING NO: SK131 | REV:

Legend

P2G – Proposed investigations (23/10/13)

- Borelhole
- Cone Pentration Test
- Trial Pit

P2N – Proposed cycleway investigation

- Drillhole
- Trial Pit

GEOTECHNICAL INVESTIGATION TABLE

ID	EASTING	NORTHING	DEPTH	LEGAL DESCRIPTION	LAND PARCEL	OWNERSHIP
CPT P7	1755910	5434600	TBC	SECTION 1 SURVEY OFFICE PLAN 407772		CATHERINE MARIE AMOHIA LOVE, HOKIPERA JEAN RUAKERE, HOWARD KEVIN TAMATI, ...
TP 02	1755803	5434676	2.0m		RAILWAY PARCEL	
TP 03	1755696	5434647	2.5m		RAILWAY PARCEL	

NOT COMPLETED

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DESIGNED	PR	CHECKED	
DRAWN	GD	CHECKED	
APPROVED		DATE	

REVISIONS

No.	BY	DATE	DESCRIPTION	APPD

SCALES:

SCALE B 0 10 20 25m

1 : 1000 (A3) 1 : 500 (A1)

AECOM New Zealand Limited

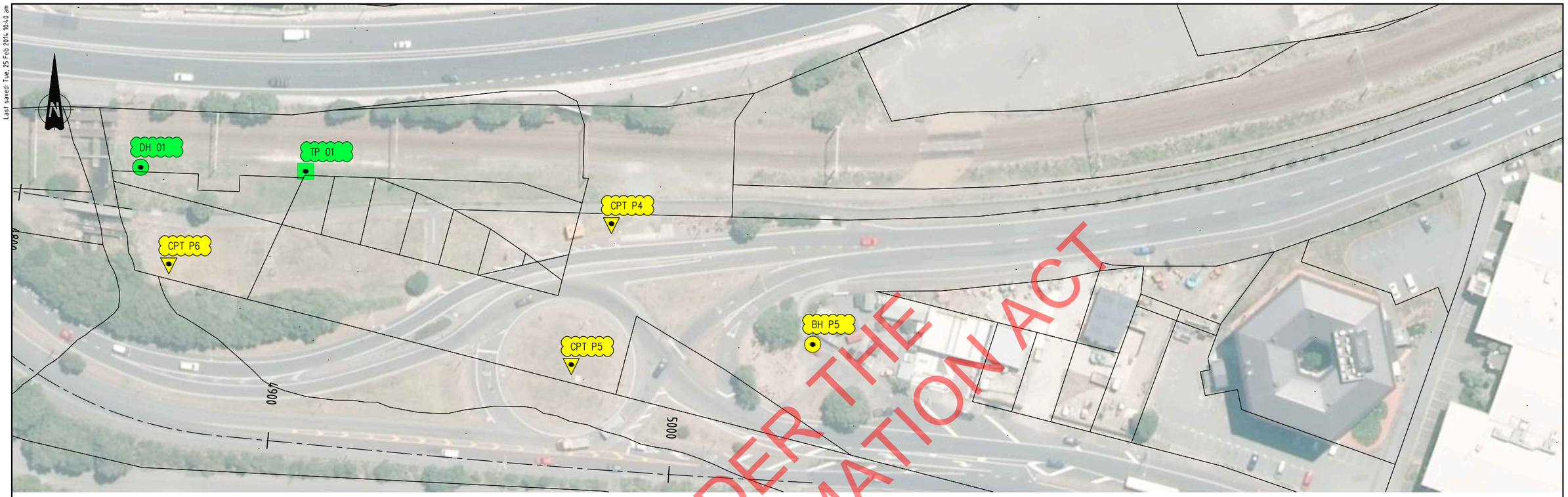
CLIENT: NZ TRANSPORT AGENCY WAKA KOTAHI

PETONE TO NGAURANGA CYCLEWAY

GEOTECHNICAL INVESTIGATION

-

A1 | STATUS: FOR INFORMATION ONLY | DRAWING NO: SK132 | REV:



Legend

P2G – Proposed investigations (23/10/13)

- Borelhole
- Cone Pentration Test
- Trial Pit

P2N – Proposed cycleway investigation

- Drillhole
- Trial Pit

GEOTECHNICAL INVESTIGATION TABLE

ID	EASTING	NORTHING	DEPTH	LEGAL DESCRIPTION	LAND PARCEL	OWNERSHIP	
BH P5	1756150	5434640	TBC		ROAD PARCEL		NOT COMPLETED
CPT P4	1756100	5434670	TBC		ROAD PARCEL		NOT COMPLETED
CPT P5	1756090	5434635	TBC		ROAD PARCEL		NOT COMPLETED
CPT P6	1755990	5434660	TBC		RAILWAY PARCEL		NOT COMPLETED
DH 01	1755983	5434684	TBC		RAILWAY PARCEL		NOT COMPLETED
TP 01	1756024	5434683	2.2m		RAILWAY PARCEL		

FOR INFORMATION ONLY

REVISIONS

No.	BY	DATE	DESCRIPTION	APPD

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DESIGNED	PR	CHECKED	
DRAWN	GD	CHECKED	
APPROVED		DATE	

SCALES:

SCALE B 0 10 20 25m

1 : 1000 (A3) 1 : 500 (A1)

AECOM New Zealand Limited

CLIENT: NZ TRANSPORT AGENCY WAKA KOTAHI

PETONE TO NGAURANGA CYCLEWAY

GEOTECHNICAL INVESTIGATION

-

A1 | STATUS: FOR INFORMATION ONLY | DRAWING NO: SK134 | REV:

D R A F T

Appendix C

Drillhole Core Logs and Photographs

TERMINOLOGY AND SYMBOLS

Drilling / Investigation Methods

CFHSA - Continuous Flight Hollow Stem Auger.
CFSSA - Continuous Flight Solid Stem Auger.
DC - Dynamic Coring (eg Terrier Rig).
DCP - Dynamic Cone Penetrometer.
HA - Hand Auger.
HQ3 - HQ Triple Tube.
HQWL - HQ Wire Line.
HWOB - Heavy Weight Open Barrel.
NQ3 - NQ Triple Tube.
NQWL - NQ Wire Line.
OB - 100mm diameter Open Barrel.
OB70 - 70mm diameter Open Barrel.
PERC - Percussion.
PQ3 - PQ Triple Tube.
PQWL - PQ Wire Line.
RC - Reverse Circulation.
RCDHH - Reverse Circulation Down Hole Hammer.
SPT - Standard Penetration Test.
SPERC - Sonic Percussion.
PT - Push Tube Sample
VAC EX - Vacuum Excavation.
WASH - Wash Drilling.

Test Results

SPT "N" value; uncorrected blow count for 300 mm penetration
/# / # / # / # / # blows per 75 mm penetration

ss - Standard Penetration Test - split spoon
sc - Standard Penetrattion Test - solid cone
SUOW - Sunk Under Own Weight

Vane Shear Strength Tests

/ # Vane shear strenght test results given as peak / remoulded shear strengths (kPa). Test as per NZGS Guideline, 2001.

$^{\#}$ = Vane test performed on core recovered prior to extrusion from core barrel.
* = Vane test performed on excavated material of suitable size.

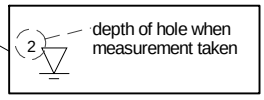
UTP - Unable to penetrate.

Piezometer Installation

Standpipe
Slotted Standpipe
Drill Cuttings
Bentonite
Grout
Cement
Gravel Pack Filer
Sand Pack Filter

Groundwater Records

Water Level (Static)
Water Level (During Drilling)
Water Inflow/Seep
Water Outflow
Complete Water Loss
Regain Circulation



Samples

PT - Thin Wall Push Sample
U - Undisturbed
D - Disturbed (Core)
B - Disturbed (Pit)

ROCK DESCRIPTIONS

Relative Strength

		USC (MPa)
ES	- Extremely strong	> 250
VS	- Very Strong	100 - 250
S	- Strong	50 - 100
MS	- Moderately Strong	20 - 50
W	- Weak	5 - 20
VW	- Very Weak	1 - 5
EW	- Extremely Weak	< 1

Weathering

UW - Unweathered
SW - Slightly Weathered
MW - Moderately Weathered
HW - Highly Weathered
CW - Completely Weathered

SOIL DESCRIPTIONS

Consistency Cohesive Soils

	Su (kPa)
Very Soft	< 12
Soft	12 - 25
Firm	25 - 50
Stiff	50 - 100
Very Stiff	100 - 200
Hard	200 - 500

Relative Density Non-cohesive soils

	SPT "N" Value (uncorrected)
Very Loose	< 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

Rock Defect Abbreviations

Defect Type
J = Joint
Slk = Slickenside
BP = Bedding Plane Defect
SZ = Shear Zone
FZ = Fracture Zone
WZ = Weak Zone
F = Fracture
BkJ = Broken Joint
L = Lamination
HJ = Healed Joint
DB = Drilling Break

Defect Apperance
BkJ = Broken Joint
L = Lamination
HJ = Healed Joint
DB = Drilling Break
R = Rough
vR = Very Rough
Sm = Smooth
T = Tight
Pl = Planar
Cn = Clean
Bed = Bedding
\\ = Parallel
Ud = Undulating
St = Stepped
Op = Open
Pol = Polished
H = Healed

Infill Material
Mn = Manganese
Fe = Iron Oxide
Qtz = Quartz
S = Sand
Gr = Graphite
Ch = Chlorite
NF = No Infill
Co = Coalified
Py = Pyrite
Slt = Silt
CC = Calcite
Cb = Carbonaceous
Cl = Clay
V = Veneer
Calc = Calcareous

Graphic Log (typical symbols)

Organic Material
Clay
Silt
Sand
Gravel / Cobbles
Mudstone
Siltstone
Sandstone
Volcanic Rock
No recovery

Rock Classification Abbreviations

GSI = Geological Strength Index
RQD = Rock Quality Designation
Jn = Joint Set Number
Jr = Joint Roughness Number
Ja = Joint Alteration Number

Soil and rock descriptions generally as in "Guidelines for the Field Description of Soil and Rock for Engineering Purposes" by the NZ Geotechnical Society Inc, December 2005.

LOG OF DRILLHOLE

HOLE IDENTIFICATION	DH02

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755518mE 5434577mN
Orientation -90° Elevation 3m (Approx)
Location KiwiRail Wairarapa Line
Feature 50m southwest of rowing clubhouse.

GEOLOGICAL DESCRIPTION	Test Records	Drilling Method	Core Loss/Lift	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc)	N Values 0 - 50	Casing remarks	0 - 100%	S MS W VW	SW MW HW				(mm) 500 100 50 10	Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc. (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	
FILL: 0m: Reclamation FILL for rail/road corridor		Sonic				1		73		0m: Silty coarse GRAVEL with minor coarse sand, cobbles and traces of bricks and shells; dark brown. Medium dense, dry, gap graded. Gravel is moderately weathered, grey, fine SANDSTONE, strong, angular to subangular, 40-120mm.	
	ss 4,4,4, 3,3,4 N=14	SPT						100		0.8 to 3m: Grades to moist.	
		Sonic				2		100		1.1 to 1.5m: Core Loss	
COLLUVIUM: 3m: Reworked COLLUVIUM and alluvial fan sediments deposited on shore platform	ss 1,2,1, 2,2,2 N=7	SPT				3		100		2.4 to 3m: Rock fragments are moderately weathered, grey with black staining, fine SANDSTONE, moderately strong.	
		Sonic				4		100		3m: Fine to coarse GRAVEL with some coarse sand; dark greyish brown. Loose, moist, poorly graded. Gravel is moderately weathered, fine SANDSTONE, moderately strong, rounded to subrounded, 5-30mm.	
RAKAIA TERRANE: 4.1m: Slightly weathered, bluish grey, fine SANDSTONE. Extremely weak, sheared (possibly associated with the Wellington Fault) [TORLESSE SUPERGROUP greywacke].	ss 14,27,27, 23 for 60mm N>50	SPT						100		4.1m: Recovered as silty fine to medium GRAVEL (sonic drilling induced); bluish grey. Dense, wet, gap graded. Gravel is moderately weathered, fine SANDSTONE, moderately strong, rounded to subrounded, 5-20mm.	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 20/12/2013
Logged PGR
Checked DAB

Remarks
Drillhole was pre-excavated and backfilled to 2.0m depth to remove large site obstacles.
Drillhole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
19/12/2013
Finished
19/12/2013
Drill Rig
Sonic
Core Boxes 3

Page 1 of 4

DRILLHOLE LOG DH02.GPJ BASE.GDT 03/03/14

3/03/2014

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH02**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755518mE 5434577mN
Orientation -90° Elevation 3m (Approx)
Location KiwiRail Wairarapa Line
Feature 50m southwest of rowing clubhouse.

GEOLOGICAL DESCRIPTION	Test Records	Drilling Method / Casing remarks	Core Loss/Lift	Relative Strength	Rock Weathering	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
RAKAIA TERRANE 4.1m: Slightly weathered, bluish grey, fine SANDSTONE. Extremely weak, sheared (possibly associated with the Wellington Fault) [TORLESSE SUPERGROUP greywacke].	N Values 0 - 50	Sonic	0 - 100%	S MS W VW	SW MW HW	6		100 [60] 40	500 100 50 10	4.1m: Recovered as silty fine to medium GRAVEL (sonic drilling induced); bluish grey. Dense, wet, gap graded. Gravel is moderately weathered, fine SANDSTONE, moderately strong, rounded to subrounded, 5-20mm. 5 to 6m: Recovered as rock fragments crumbling under finger pressure into coarse sandy fine to coarse GRAVEL (sonic drilling induced); grey. Moist. Gravel is 5-50mm.	
		Sonic				7		90 [0] 0		6 to 7m: Recovered as coarse gravel with some coarse sand (sonic drilling induced). Dense, dry, poorly graded. Gravel is 10-60mm. 7 to 7.5m: Recovered core has a smooth vibration induced coating on the outside, 3mm (sonic drilling induced).	
						8				DH02 terminated at 7.5m Target Depth	
						9					

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH

VS - Very strong
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W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING

UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 20/12/2013
Logged PGR
Checked DAB

Remarks

Drillhole was pre-excavated and backfilled to 2.0m depth to remove large site obstacles.
Drillhole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
19/12/2013
Finished
19/12/2013
Drill Rig
Sonic
Core Boxes 3

DRILLHOLE LOG DH02.GPJ BASE.GDT 03/03/14

3/03/2014

Box: 1 of 3 - Depth: 0.00m to 3.45m of 7.50m

Date Drilled 19/12/2013 to 19/12/2013 - Date Photographed: 19/12/2013

Box: 2 of 3 - Depth: 3.45m to 6.15m of 7.50m

Date Drilled 19/12/2013 to 19/12/2013 - Date Photographed: 19/12/2013

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project P2N Cycleway

Location

HOLE IDENTIFICATION **DH02**

Box: 3 of 3 - Depth: 6.15m to 7.50m of 7.50m

Date Drilled 19/12/2013 to 19/12/2013 - Date Photographed: 19/12/2013

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH03**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755283mE 5434504mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder opposite to Horokiwi Quarry access.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc. Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	Instrumentation
FILL: 0m: Road pavement.										0m: Asphalt.	
FILL: 0.2m: Reclamation FILL for road/rail corridor		VAC EX				1		0		0.2m: Vacuum excavation, no recovery	
		Sonic				2		0		2.3 to 3m: Core Loss	
3m: Possibly reworked colluvium and alluvial fan sediments	SS 2,3,8, 7,5,8 N=28	SPT				3		100		3m: Medium to coarse GRAVEL with minor fine to coarse sand; greyish black, brown. Medium dense, wet, uniform grading. Gravel is slightly weathered, fine SANDSTONE, strong, angular.	
		Sonic				4		100		3.7m: GRAVEL with some fine to coarse sand, silt and minor clay; light brown. Medium dense, wet, well graded. Gravel is slightly weathered, fine SANDSTONE, strong, angular.	
COLLUVIUM: 4.5m: Reworked COLLUVIUM and alluvial fan sediments deposited on shore platform.	SS 3,5,5, 6,4,4 N=19	SPT						100		4.5m: Fine to medium sandy GRAVEL with some silt and clay; dark grey. Medium dense, wet, well graded. Gravel is slightly weathered to unweathered, fine SANDSTONE, strong, angular to subangular.	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 13/12/2013
Logged JM
Checked DAB

Remarks
Drill hole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
12/12/2013
Finished
13/12/2013
Drill Rig
Sonic
Core Boxes 3

LOG OF DRILLHOLE

HOLE IDENTIFICATION	DH03

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755283mE 5434504mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder opposite to Horokiwi Quarry access.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift 0 - 100%	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) 500 100 50 10	SOIL PROPERTIES / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	Instrumentation
COLLUVIUM 4.5m: Reworked COLLUVIUM and alluvial fan sediments deposited on shore platform.		Sonic						100		4.5m: Fine to medium sandy GRAVEL with some silt and clay; dark grey. Medium dense, wet, well graded. Gravel is slightly weathered to unweathered, fine SANDSTONE, strong, angular to subangular. 5 to 6m: Grades to dense.	
RAKAIA TERRANE 6m: Slightly weathered, bluish grey, fine SANDSTONE. Extremely weak, sheared (possibly associated with Wellington Fault) [TORLESSE SUPERGROUP greywacke].	ss 6,18,23, 9 for 0mm N>50	SPT				6		100		6m: Clayey, fine to coarse SAND with some silt and gravel; dark bluish grey. Very dense, moist, well graded. Gravel is slightly weathered to unweathered, fine SANDSTONE, strong, angular to subangular.	
		Sonic				7		100 [0] 0		6.5m: Grades to clayey GRAVEL with trace cobbles. 7m: Grades to clayey, fine to coarse SAND with some silt and gravel.	
	ss 20,30,30 for 0mm N>50	SPT						100			
		Sonic				8		100 [0] 0		8.5m: Recovered as fine to coarse SAND with some silt, gravel and trace cobbles (sonic drilling induced); dark greyish brown. Very dense, dry, well graded. Gravel is slighlty weathered to unweathered, fine SANDSTONE, strong, angular to subangular.	
		Sonic				9		100 [0] 0		9m: Recovered as clayey GRAVEL with minor silt and fine to coarse sand (sonic drilling induced); bluish grey. Very dense, wet, gap graded. Gravel is slighlty weathered to unweathered, fine SANDSTONE, strong, angular to subangular. 9.8m: Grades to fine to coarse sandy GRAVEL with minor silt and clay.	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 13/12/2013
Logged JM
Checked DAB

Remarks
Drill hole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
12/12/2013
Finished
13/12/2013
Drill Rig
Sonic
Core Boxes 3

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH03**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755283mE 5434504mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder opposite to Horokiwi Quarry access.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
		Sonic						100 [0] 0		9.8m: Grades to fine to coarse sandy GRAVEL with minor silt and clay.	
						11				DH03 terminated at 10.5m Target Depth	
						12					
						13					
						14					

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH

VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING

UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 13/12/2013
Logged JM
Checked DAB

Remarks
Drill hole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
12/12/2013
Finished
13/12/2013
Drill Rig
Sonic
Core Boxes 3

DRILLHOLE LOG P2N CYCLEWAY DRILLHOLES.GPJ BASE.GDT 03/03/14

3/03/2014

Box: 1 of 3 - Depth: 2.30m to 5.55m of 10.50m

Date Drilled 12/12/2013 to 13/12/2013 - Date Photographed: 18/12/2013

Box: 2 of 3 - Depth: 5.55m to 8.25m of 10.50m

Date Drilled 12/12/2013 to 13/12/2013 - Date Photographed: 18/12/2013

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project P2N Cycleway

Location

HOLE IDENTIFICATION **DH03**

Box: 3 of 3 - Depth: 8.25m to 10.50m of 10.50m

Date Drilled 12/12/2013 to 13/12/2013 - Date Photographed: 18/12/2013

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH04**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755069mE 5434388mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder 100m south of the Horokiwi Quarry access.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc. Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	Instrumentation
FILL: 0m: Road pavement.										0m: Asphalt.	
FILL: 0.2m: Reclamation FILL for road/rail corridor		VAC EX				1		0		0.2m: Vacuum excavation, no recovery	
						2					
		Sonic						75		2.2m: GRAVEL with some clay, silt and fine to coarse minor sand; brown. Medium dense, saturated, well graded. Gravel is slightly weathered, fine SANDSTONE, strong, angular to subangular.	
										2.8 to 3m: Core Loss	
3m: Possibly reworked colluvium and alluvial fan sediments	ss 3,5,7, 5,4,4 N=20	SPT				3		100		3m: Fine to coarse sandy GRAVEL with some silt and minor clay; greyish brown. Medium dense to dense, wet, well graded. Gravel is slightly weathered, fine SANDSTONE, strong, angular to subangular.	
		Sonic						100			
COLLUVIUM: 4m: Reworked COLLUVIUM and alluvial fan sediments deposited on shore platform.						4				4m: Fine to coarse sandy GRAVEL with trace silt; grey, brown, speckled white and black. Dense to very dense, moist, moderately graded. Gravel is slightly weathered, fine to coarse, strong, rounded to subrounded.	
	ss 5,8,13, 12,10,15 N=50	SPT						100			

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 16/12/2013
Logged PGR
Checked DAB

Remarks
Drill hole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
15/12/2013
Finished
16/12/2013
Drill Rig
Sonic
Core Boxes 3

Page 1 of 4

DRILLHOLE LOG P2N CYCLEWAY DRILLHOLES.GPJ BASE.GDT 03/03/14

3/03/2014

LOG OF DRILLHOLE

HOLE IDENTIFICATION	DH04

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755069mE 5434388mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder 100m south of the Horokiwi Quarry access.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc. Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	Instrumentation
RAKAIA TERRANE 5m: Completely weathered, grey, fine SANDSTONE. Extremely weak [TORLESSE SUPERGROUP greywacke].		Sonic				6		100 [0] 0		5m: Silty GRAVEL with some fine sand; grey. Dense to very dense, moist, gap graded. Gravel is slightly weathered, fine SANDSTONE, strong, angular, 2-5mm. 5.3 to 6m: Grades to dry (sonic drilling induced).	
6m: Slightly weathered, bluish grey, fine SANDSTONE. Extremely weak, sheared (possibly associated with Wellington Fault) [TORLESSE SUPERGROUP greywacke].	ss 4,50 for 0mm N>50	SPT Sonic				7		100 [0] 0 100 [15] 0		6m: Recovered as silty GRAVEL with minor clay (sonic drilling induced); dark grey. Dense to very dense, moist, gap graded. Gravel is slightly weathered, fine SANDSTONE, strong, angular, 10-30mm. 6.4 to 8.1m: Grades to dry (sonic drilling induced). 6.6 to 8.1m: 30-100mm rock fragments. 7.5 to 8.1m: Grades to 5-20mm (sonic drilling induced).	
		Sonic				8		100 [0] 0			
						9				DH04 terminated at 8.1m Target Depth	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH

VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING

UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

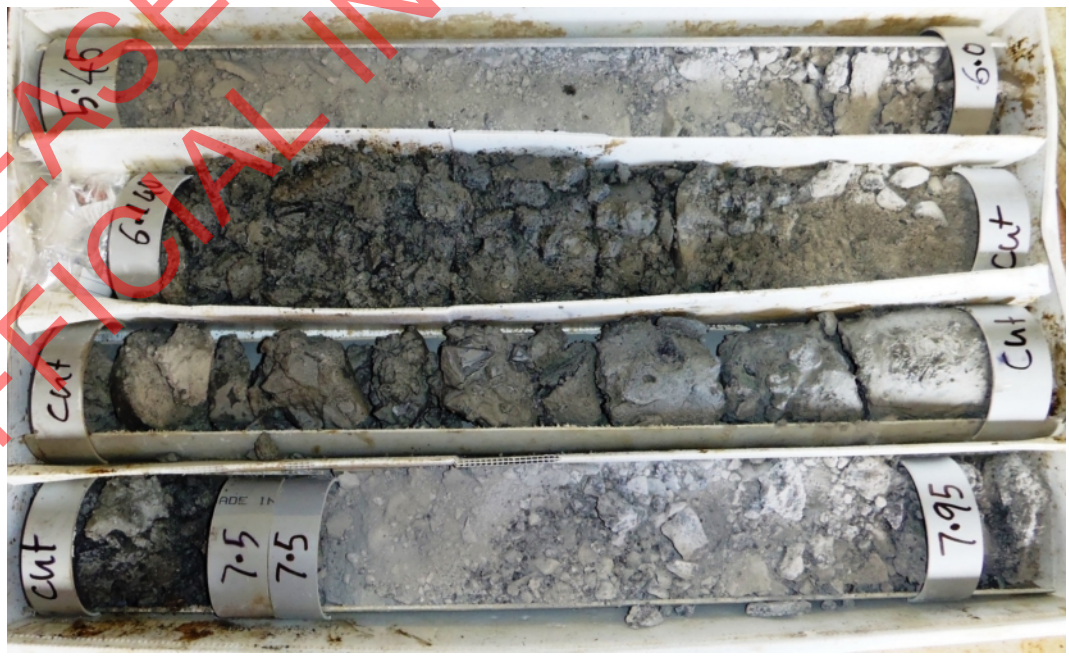
Date logged 16/12/2013
Logged PGR
Checked DAB

Remarks
Drill hole was back filled upon completion.

Driller
Griffiths Drilling Ltd.
Started
15/12/2013
Finished
16/12/2013
Drill Rig
Sonic
Core Boxes 3

Box: 1 of 3 - Depth: 2.20m to 5.45m of 8.10m

Date Drilled 15/12/2013 to 16/12/2013 - Date Photographed: 18/12/2013



Box: 2 of 3 - Depth: 5.45m to 7.95m of 8.10m

Date Drilled 15/12/2013 to 16/12/2013 - Date Photographed: 18/12/2013

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project P2N Cycleway

Location

HOLE IDENTIFICATION **DH04**

Box: 3 of 3 - Depth: 7.95m to 8.10m of 8.10m

Date Drilled 15/12/2013 to 16/12/2013 - Date Photographed: 18/12/2013

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH05**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1754304mE 5433973mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature Southbound shoulder 60m north of Kiwirail seaward building

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
FILL 0m: Road pavement. 0.2m: Reclamation FILL for road/rail corridor		VAC EX				1 2 3 4		0		0m: Asphalt. 0.2m: Vacuum excavation. Angular cobbles (rock fill) up to 150mm width. DH05 terminated at 2m Unable to advance due to services	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 16/12/2013
Logged JP
Checked DAB

Remarks
Drillhole was interrupted due to presence of unmarked service.

Driller
Griffiths
Started
16/12/2013
Finished
16/12/2013
Drill Rig
Sonic
Core Boxes 0

DRILLHOLE LOG P2N CYCLEWAY DRILLHOLES.GPJ BASE.GDT 03/03/14

3/03/2014

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH06**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1752517mE 5432596mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature 650m northeast of Ngauranga Station.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm) (500, 100, 50, 10)	SOIL PROPERTIES / DEFECT DESCRIPTION (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc. Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, continuity, roughness, infilling, etc.)	Instrumentation
FILL 0m: Reclamation FILL for road/rail corridor		VAC EX				1		0		0m: Vacuum excavation, no recovery	
		HQ3				2		87		1.5m: Recovered as coarse GRAVEL with minor cobbles. Loosely packed, dry. Gravel is angular, slightly weathered, strong greywacke. Cobbles up to 70mm diameter. 1.6m: Clayey, silty medium to coarse GRAVEL; brown. Medium dense, moist. Gravel is subangular to angular, moderately to slightly weathered, strong greywacke. 1.7m: Increase in silt content. Firm, moist, low plasticity. 2m: Medium to coarse GRAVEL with some silt and sand; greyish brown. Medium dense, moist. Gravels as described above. 2.3m: Sandy medium to coarse GRAVEL with minor silt and trace cobbles and boulders; greyish brown. Sand is fine to medium. Gravels as described above. Cobbles estimated size up to 80mm diameter.	
	SS 6,6,5, 5,5,4 N=19	SPT				3		78			
		HQ3				4		51		3.95 to 4.16m: Boulder; moderately weathered, moderately strong greywacke. Some white veins, brown joint staining.	
	SS 2,2,4, 2,2,3 N=11	SPT						22		4.5m: Sandy, silty GRAVEL; brown. Loose to medium dense, moist. Sand is fine to medium. Gravel is medium to coarse, subangular to angular, moderately to slightly weathered, moderately strong greywacke.	

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH

VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING

UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 21/02/2014
Logged JP
Checked DAB

Driller Griffiths
Started 19/02/2014
Finished 21/02/2014
Drill Rig HC 150
Core Boxes 3

Remarks
Drillhole was back filled upon completion.

AECOM

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH06**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1752517mE 5432596mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature 650m northeast of Ngauranga Station.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
FILL	ss 2,2,2, 1,2,4 N=9	HQ3				6		81		4.5m: Sandy, silty GRAVEL; brown. Loose to medium dense, moist. Sand is fine to medium. Gravel is medium to coarse, subangular to angular, moderately to slightly weathered, moderately strong greywacke.	
		SPT						67		6m: Recovered as loose packed gravel where fine material was washed away during drilling.	
COLLUVIUM 6.65m: Reworked COLLUVIUM and alluvial fan sediments		HQ3				7		38		6.65m: Silty, gravelly medium to coarse SAND with minor clay; bluish grey. Loose to dense, moist, slightly cohesive. Gravel as described above.	9.45 ▽
	ss 10,10,10, 10,9,9 N=38	SPT						89		7.5 to 7.95m: Grades to dense.	
		HQ3				8		14		7.95m: Sandy medium to coarse GRAVEL with some silt and minor cobbles; greyish brown. Medium dense, moist. Sand is medium to coarse. Gravel as described above. Cobbles are slightly weathered, strong greywacke, up to 70mm.	
	ss 20,19,8, 5,6,5 N=24	SPT				9		69			
		HQ3									

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)
20/02/2014 09:00	9.45	9.5	7

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 21/02/2014
Logged JP
Checked DAB

Remarks
Drillhole was back filled upon completion.

Driller Griffiths
Started 19/02/2014
Finished 21/02/2014
Drill Rig HC 150
Core Boxes 3

AECOM

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH06**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1752517mE 5432596mN
Orientation -90° Elevation 3m (Approx)
Location State Highway 2, Wellington
Feature 650m northeast of Ngauranga Station.

GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records (N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Relative Strength (S, MS, W, VW)	Rock Weathering (SW, MW, HW)	Depth	Graphic Log	TCR [SCR] RQD (%)	Spacing of Natural Defects (mm)	SOIL PROPERTIES / DEFECT DESCRIPTION	Instrumentation
COLLUVIUM		HQ3						40		7.95m: Sandy medium to coarse GRAVEL with some silt and minor cobbles; greyish brown. Medium dense, moist. Sand is medium to coarse. Gravel as described above. Cobbles are slightly weathered, strong greywacke, up to 70mm.	
	ss 7,7,7, 7,6,8 N=28	SPT						76			
		HQ3				11		0			
	ss 50,10 for 45mm N>50	SPT				12		58			
		HQ3						0			
		HQ3						100		12.97m: Grades to coarse gravels, subrounded.	
RAKAIA TERRANE 13m: Slightly weathered, grey, fine SANDSTONE [Greywacke]. Very strong, very closely spaced joints (possibly Wellington Fault deformation zone)		HQ3				13		96 [38] 38		13.4 to 13.5m: Recovered as loose packed fine to medium gravel (drilling induced). DH06 terminated at 13.5m Target Depth	
						14					

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

RELATIVE STRENGTH
VS - Very strong
S - Strong
MS - Moderately strong
W - Weak
VW - Very weak
EW - Extremely weak

WEATHERING
UW - Unweathered
SW - Slightly weathered
MW - Moderately weathered
HW - Highly weathered
CW - Completely weathered
RW - Residually weathered

Date logged 21/02/2014
Logged JP
Checked DAB

Remarks
Drillhole was back filled upon completion.

Driller Griffiths
Started 19/02/2014
Finished 21/02/2014
Drill Rig HC 150
Core Boxes 3

DRILLHOLE LOG P2N CYCLEWAY DRILLHOLES.GPJ BASE.GDT 03/03/14

3/03/2014

Box: 1 of 3 - Depth: 1.50m to 4.50m of of 13.50m

Date Drilled 19/02/2014 to 21/02/2014

Box: 2 of 3 - Depth: 4.50m to 10.50m of of 13.50m

Date Drilled 19/02/2014 to 21/02/2014

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project P2N Cycleway

Location

HOLE IDENTIFICATION **DH06**

Box: 3 of 3 - Depth: 10.50m to 13.50m of of 13.50m

Date Drilled 19/02/2014 to 21/02/2014

D R A F T

Appendix D

Investigation Pit Logs and Photographs

LOG OF INSPECTION PIT

INSPECTION PIT IDENTIFICATION	**TP01**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1756024mE 5434683mN
Orientation -90° Elevation 2m (Approx)
Location KiwiRail Wairarapa Line
Feature 50m E of Korokoro Stream Rail Bridge

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per 100 mm)	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.2	FILL: 0m: Fill			5	0m: Rock Fragments in a silty matrix. Rock is MW light brown fine SANDSTONE, strong, fragments size 30-200mm, orange and black stained, angular to subangular. Matrix is Silt light brown, stiff to very stiff, dry, slightly plastic.		
0.4				21			
0.6		130/31		18			
0.8				10			
1.0				6			
1.2				6	0.6m: Yellow pipe, sealed with tape at one end, 80mm diameter. Out of use supply to demolished building		
1.4				5			
1.6				5			
1.8				2			
2.0		104/25		3	1m: Glass, brick and timber		
2.2	COLLUVIUM: 1.9m: Reworked COLLUVIUM and alluvial fan deposits			3			
2.4				2			
2.6				2	1.2m: Fine SAND (ash?) with minor rock fragments, black, medium dense, dry. Leaves dry black trace on finger when handled. Rock fragments as above.		
2.8				6			
				3	1.4m: Gravelly SILT, dark brown, very stiff, moist, non plastic. Gravel is MW brown fine sandstone, strong, 5-20mm subangular.		
				6			
				19			
				15			
				16			
				6	1.9m: Coarse sandy GRAVEL with minor clay, brownish dark grey, dense, wet. Gravel is SW brown fine SANDSTONE, strong, 10-30mm, rounded to subrounded		2.2 ▽
				13			
				7			
				6	TP01 terminated at 2.2m Unable to advance as too difficult to excavate		
				6			
				16			
				20			

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)
10/02/2014 00:00	2.20	-	2.1

Hand Held Shear Vane
1179: 19mm blade: Correction Factor = 1.387
Vane shear strength per NZGS guideline

Length 2.5m
Width 1.5m
Stability Stable
Excavation Method 12t excavator
Orientation B

Remarks

Started 10/02/2014
Finished 10/02/2014
Date logged 10/02/2014
Logged PGR
Checked DAB

17/03/2014

LOG OF INSPECTION PIT

INSPECTION PIT IDENTIFICATION	**TP02**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755803mE 5434676mN
Orientation -90° Elevation 2m (Approx)
Location KiwiRail Wairarapa Line
Feature Opposite Boat Ski Clubhouse

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per 100 mm)	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.2	FILL: 0m: Old Ballast.			3, 5	0m: GRAVEL with minor silt and fine to coarse sand; dark brown. Loose, dry, poorly graded. Gravel is fine to coarse, slightly weathered fine sandstone, very strong and subangular to angular.		
0.4	FILL: 0.2m: Rock fill comprising sand, gravel, cobbles and boulders.			15	0.2m: Fine to coarse sandy GRAVEL with minor cobbles and boulders; brown. Medium dense, dry, well graded. Gravel is fine to coarse, slightly weathered fine sandstone, strong to very strong and sub angular to angular. Boulders are up to 700mmx500mmx250mm.		
0.6							
0.8							
1.0					1.1 to 1.5m: Grades to moist, no boulders.		
1.2			LB1				
1.4							
1.6	COLLUVIUM: 1.5m: Reworked COLLUVIUM and alluvial fan deposits				1.5m: GRAVEL with some fine to coarse sand and minor silt; dark greyish black. Medium dense, wet, well graded. Gravel is fine to coarse, slightly weathered fine sandstone, very strong and subrounded to rounded.		
1.8					1.8 to 2m: Grades to very dense.		
2.0			LB2				
2.2					TP02 terminated at 2m Unstable pit wall(s) / Spalling from pit wall(s)		
2.4							
2.6							
2.8							

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

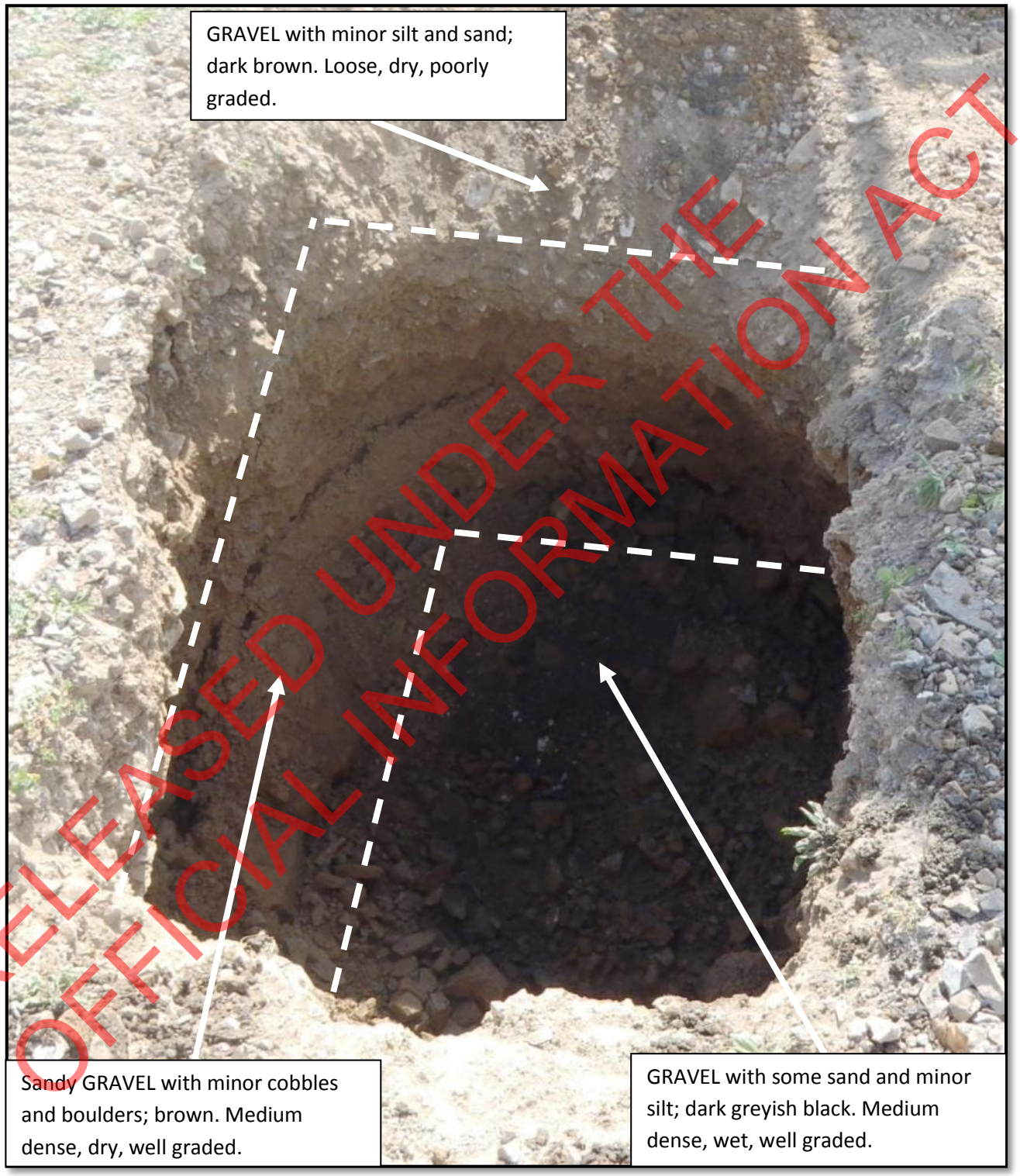
Vane shear strength per NZGS guideline

Length 2.5m
Width 1.5m
Stability Unstable
Excavation Method 12t excavator
Orientation B

Remarks
Wall caving in with hole at 2.0m depth.
Test Pit was backfilled upon completion.
No groundwater encountered

Started 17/12/2013
Finished 17/12/2013
Date logged 17/12/2013
Logged JM
Checked DAB

17/03/2014



LOG OF INSPECTION PIT

INSPECTION PIT IDENTIFICATION **TP03**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755696mE 5434647mN
Orientation -90° Elevation 2m (Approx)
Location KiwiRail Wairarapa Line
Feature 50m NE of Rowing Clubhouse

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per 100 mm)	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.0	0m: Old Ballast.			3	0m: GRAVEL with minor silt and fine to coarse sand; dark brown. Loose, dry, poorly graded. Gravel is fine to coarse, slightly weathered fine sandstone, very strong and subangular to angular.		
0.2	0.2m: Fill comprising clay, silt, sand, gravel and cobbles.			4	0.2m: GRAVEL with some fine to coarse sand; dark brown. Loose, dry, poorly graded. Gravel is coarse, slightly weathered fine sandstone, strong and subrounded to rounded.		
0.4				7	0.45m: GRAVEL with some clay, silt, fine to coarse sand and trace cobbles; dark brown. Medium dense, moist, well graded. Gravel is fine to coarse, slightly weathered fine sandstone, strong and angular. Red staining of joints.		
0.6				15			
0.8							
1.0							
1.2	FILL						
1.4							
1.6							
1.8					1.7 to 2.3m: Grades to wet.		
2.0							
2.2							
2.4	COLLUVIUM 2.4m: Reworked COLLUVIUM and alluvial fan deposits				2.3 to 2.4m: Grades to saturated.		2.5 ▽
2.6					2.4m: Gravelly, fine to coarse SAND; dark greyish black. Dense, saturated, uniformly graded. Gravel is fine to medium, slightly weathered fine sandstone, strong and rounded to subrounded.		
2.8					TP03 terminated at 2.5m Unable to advance as too difficult to excavate		

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)
13/12/2013 11:00	2.50	-	2.4

Hand Held Shear Vane

Vane shear strength per NZGS guideline

Length 2.5m
Width 1.5m
Stability Unstable

Excavation Method 12t excavator
Orientation B

Remarks
Wall caving in with hole at 2.5m depth.
Test Pit was backfilled upon completion.

Started 17/12/2013
Finished 17/12/2013
Date logged 17/12/2013
Logged JM
Checked DAB

17/03/2014

LOG OF INSPECTION PIT

INSPECTION PIT IDENTIFICATION **TP04**

Client NZTA
Project P2N Cycleway
Project number 60306339

Co-ordinates 1755518mE 5434577mN
Orientation -90° Elevation 2m (Approx)
Location KiwiRail Wairarapa Line
Feature 50m SW of Rowing Clubhouse

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per 100 mm)	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.2	FILL: 0m: Reclamation FILL for rail/road corridor			1, 4, 15	0m: GRAVEL with some silt, fine to coarse sand and trace cobbles, brick and glass; dark brown. Medium dense, moist, well graded. Gravel is fine to coarse, slightly weathered, strong and angular.		
0.4							
0.6					0.6 to 0.75m: Concrete block, 800mmx900mmx150mm.		
0.8							
1.0							
1.2							
1.4							
1.6							
1.8	COLLUVIUM: 1.7m: Reworked COLLUVIUM and alluvial fan deposits				1.7m: Gravelly, fine to coarse SAND with minor silt; light grey and brown mottling. Medium dense, wet, poorly graded. Gravel is fine to medium, slightly weathered, strong and rounded to subrounded.		
2.0					2m: Gravelly fine to coarse SAND; dark greyish black. Medium dense, saturated, uniformly graded. Gravel is fine to medium, slightly weathered, strong and rounded to subrounded.		
2.2					TP04 terminated at 2.2m Unstable pit wall(s) / Spalling from pit wall(s)		
2.4							
2.6							
2.8							

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

Vane shear strength per NZGS guideline

Length 2.5m
Width 1.5m
Stability Unstable
Excavation Method 12t excavator
Orientation B

Remarks
Wall caving in with hole at 1.7m depth.
Test Pit was backfilled upon completion.
No groundwater encountered

Started 17/12/2013
Finished 17/12/2013
Date logged 17/12/2013
Logged JM
Checked DAB

17/03/2014