SOIL PROFILE LOG 201368-01

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 600	Gradual	5YR 3/3	Dark Reddish Borwn	CL	Nil	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	600 - 1100	Gradual Gradual	5YR 5/6	Yellowish Red	MC	Nil	Moderate	R	N/A	N/A	+ Nodular Mn	Mottled Red / Grey
C	1100 - 3500	Gradual Gradual	Fractured shale layer.						N/A	N/A	+ Diffuse Mn	Moist but no free flowing groundwater.
C	3500 - 3800	Gradual	Pedo-logically disorganised mix of fractured shale and mottled yellow/grey light to medium clay.						N/A	N/A	+ Diffuse Mn	Suspected former slip horizon. Moist.

ASC: Australian Soil Classification

Notes:

1. Profile in area of former land-slip.
2. Profile terminated at a depth of 3.8 metres in a mix of light to medium clay and fractured shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-02

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 800	Gradual Gradual	5YR 3/3	Dark Reddish Borwn	CL	Nil	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	800 - 1700	Gradual Gradual	5YR 5/6	Yellowish Red	MC	Nil	Moderate	R	N/A	N/A	+ Nodular Mn	Mottled Red / Grey. Pedo-logically organised. No mixing.
B/C	1700 - 2700	Gradual	7.5YR 5/4	Brown	MC	20-40% shale	Weak	R	N/A	N/A	+ Nodular Mn	Pedologically dis-organised. Possible slip zone.
C	>2700	Shale.									+ Nodular Mn	Moist.

ASC: Australian Soil Classification

Notes:

1. Profile in area of former land-slip.
2. Profile terminated at a depth of 2.7 metres in shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-03

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 450	Gradual Gradual	5YR 5/3	Reddish Brown	CL	Nil	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	450 - 900	Gradual Gradual	2.5YR 5/3	Red	MC	Nil	Moderate	R	N/A	N/A	-	Pedo-logically organised. No mixing.
B/C	900 - 1700	Gradual Gradual	2.5YR 5/1	Reddish Grey	MC	5 - 20% shale	Weak	R	N/A	N/A	+ Diffuse Mn	
C	>1700	Gradual	Shale									

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 1.7 metres in shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-04

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 500	Gradual Gradual	2.5YR 4/4	Reddish Brown	CL	Nil	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	500 - 2500	Gradual Gradual	2.5YR 4/6	Red	MC	Nil	Moderate	R	N/A	N/A	+ Nodular Mn	Pedo-logically organised. No mixing.
B/C	2500 - 4000	Gradual Gradual	5Y 8/1	White	MC	5 - 10% shale	Weak	R	N/A	N/A	-	Yellow mottles.
C	>4000	Gradual	Highly weathered shale									

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 4.0 metres in highly weathered shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-05

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 350	Gradual Gradual	5YR 5/3	Reddish Brown	CL	Nil	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	350 - 650	Gradual Sharp	2.5YR 5/3	Red	MC	5% shale	Moderate	R	N/A	N/A	-	Pedo-logically organised. No mixing.
Possible slip horizon	650-750	Shale layer overlaying B horizon										Possible Slip zone
B	750 - 1900	Sharp Gradual	2.5YR 5/3	Red	MC	Nil	Moderate	R	N/A	N/A	-	Pedo-logically organised. No mixing. Grey mottles
B/C	>1900	Gradual	Weathered shale									

ASC: Australian Soil Classification

Notes:

1. 750mm deep land-slip overlying a residual soil profile.
2. Profile terminated at a depth of 1.9 metres in weathered shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-06

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 500	Gradual Gradual	2.5YR 3/1	Very dark grey	CL	1-2 % shale	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised. No mixing.
B	500 - 1100	Gradual Gradual	2.5YR 6/6	Olive yellow	LC	Nil	Massive	R	N/A	N/A	-	Pedo-logically organised. No mixing. Porous
B/C	1100 - 2900	Gradual Gradual	2.5YR 6/6	Olive yellow	LC	5 - 10% shale	Weak	R	N/A	N/A	-	Pedo-logically organised. No mixing. Porous
C	>2900	Gradual	Highly weathered shale									

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 2.9 metres in highly weathered shale.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-07

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 900	Gradual Gradual	5YR 4/3	Reddish brown	CL	Nil.	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	900 - 3500	Gradual Gradual	5YR 5/3	Reddish Brown	LC	1-2% shale	Massive	R	N/A	N/A	+ Nodular Mn	Pedo-logically organised. Porous. Very hard
$B2_2$	3500 - 4000	Gradual Gradual	2.5YR 5/6	Red	MC	Nil	Weak	R	N/A	N/A	+ Diffuse Mn	Pedo-logically organised. Grey mottles. Moist.
$B2_2$	>4000	Gradual	Highly weathered shale									

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 4.0 metres in B2 medium clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-08

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A	0 - 500	Gradual Gradual	5YR 4/3	Reddish brown	CL	Nil.	Moderate	R	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	50 - 1200	Gradual Gradual	5YR 5/3	Reddish Brown	MC	1-2% shale	Massive	R	N/A	N/A	-	Pedo-logically organised. Porous. Very hard
$B2_2$	> 1200	Gradual	2.5YR 6/2	Pale red	MC	1-2% shale	Massive	R	N/A	N/A	-	Pedo-logically organised. Porous. Very hard Mottled grey/red.

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 1.2 metres in $B2_2$ medium clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-09

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 500	Gradual Gradual	7.5YR 5/1	Grey	CL	Nil.	Massive	-	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	500 - 1200	Gradual Gradual	2.5Y 6/4	Light yellowish brown	LC	Nil.	Weak	R	N/A	N/A	+ Nodular Mn	Pedo-logically organised. Porous. Periodically saturates.
$B2_2$	1200- 3800	Gradual	Gley 1 7/N	Light grey	MC	Nil.	Weak	R	N/A	N/A	-	Pedo-logically organised. Porous. Mottled grey/red.
$B2_3$	3800- 4200	Gradual	2.5YR 6/2	Pale red	MC	Nil.	Massive	R	N/A	N/A	+ Nodular Mn	Pedo-logically organised. Porous. Mottled grey/red.

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 4.2 metres in $B2_3$ medium clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-10

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 250	Gradual Gradual	7.5YR 5/1	Grey	CL	Nil.	Massive	-	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	250 - 1000	Gradual Gradual	10YR 6/6	Brownish yellow	MC	Nil.	Weak	R	N/A	N/A	-	Pedo-logically organised. Porous.
$B2_2$	1000 - 1200	Gradual	10YR 7/1	Light grey	MC	Nil.	Weak	R	N/A	N/A	-	Pedo-logically organised. Mottled grey/yellow.

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 1.2 metres in $B2_2$ medium clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-11

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 400	Gradual Gradual	5 YR 5/1	Grey	CL	Nil.	Massive	-	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	400 - 1700	Gradual Gradual	5YR 5/6	Yellowish red	MC	Nil.	Weak	R	N/A	N/A	+ Diffuse and nodular Mn	Pedo-logically organised. Porous. Mottled red/grey

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 1.7 metres in $B2_1$ medium clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-12

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Alluvium overlying Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 600	Gradual Gradual	5YR 4/1	Dark grey	Clayey Sand	Nil.	Massive	-	N/A	N/A	-	Alluvium Hard-setting and porous.
A2	600 - 1200	Gradual Gradual	2.5Y 7/1	Light Grey	Clayey Sand	Nil	Massive	-				Bleached Alluvium Hard-setting Porous
$B2_1$	1200- 3200	Gradual	5YR 5/6	Yellowish red	FSLC	Nil.	Weak	R	N/A	N/A	+ Diffuse and nodular Mn	Pedo-logically organised. Mottled red/grey

ASC: Australian Soil Classification

Notes:

1. Alluvium overlying a residual soil profile.
2. Profile terminated at a depth of 3.2 metres in $B2_1$ FSLC clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
FSLC = Fine Sandy Light Clay
N/A = Not assessed
R = Rough
S = Smooth
OM = Organic Matter
Mn = Ferromagniferous Manganese
WS = Weathered shale

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-13

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 400	Gradual Gradual	2.5YR 6/3	Light Yellowish Brown	CL	Nil.	Weak	-	N/A	N/A	+ Diffuse Mn or OM	Topsoil, pedo-logically organised.
$B2_1$	400 - 800	Gradual Gradual	7.5YR 5/6	Strong Brown	LC	Nil.	Weak	R	N/A	N/A	+ Nodular Mn	Pedo-logically organised. Porous. Periodically saturates.
$B2_2$	800- 4300	Gradual	Gley 1 7/N	Light grey	MC	Nil.	Weak	R	N/A	N/A	-	Pedo-logically organised. Porous. Mottled grey/red.

ASC: Australian Soil Classification

Notes:

1. Residual soil profile.
2. Profile terminated at a depth of 4.3 metres in $B2_3$ medium clay horizon.
3. Free flowing groundwater present at 4.2 metres

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
N/A = Not assessed
R = Rough
S = Smooth
WS = Weathered shale
OM = Organic Matter
Mn = Ferromagniferous Manganese
LC = Light Clay

Author	JC
Date Logged	09/01/2013

SOIL PROFILE LOG 201368-14

Project	Re-zoning	**Method of Investigation**	Mechanical excavation
Job Number	201368	**Aspect**	
Location	No. 1 Abbotsford Road, Abbotsford	**Slope**	
Land Use	Grazing	**Topography**	
Geology	Alluvium overlying Ashfield Shale	**Soil Landscape Unit**	
ASC Classification		**External Drainage**	

Horizon	Depth (mm)	Boundary	Munsell Colour	Colour Class	Texture	Coarse Fraction	Structure	Fabric	$CaCO_3$	pH	H_2O_2 test	Comments
A1	0 - 300	Gradual Gradual	7.5YR 4/4	Strong Brown	FSCL	Nil.	Massive	-	N/A	N/A	-	Alluvium Hard-setting and porous.
A2	300 - 1200	Gradual Gradual	7.5YR 5/6	Strong Brown	Sandy Clay	Nil	Massive	-			+ Diffuse	Bleached Alluvium Hard-setting Porous
$B2_1$	1200- 2900	Gradual	5YR 5/6	Yellowish red	Sandy Clay	Nil.	Weak	R	N/A	N/A	+ Diffuse and nodular Mn	Pedo-logically organised. Mottled Yellow/grey

ASC: Australian Soil Classification

Notes:

1. Alluvium overlying a residual soil profile.
2. Profile terminated at a depth of 2.9 metres in $B2_1$ Sandy Clay horizon.

Abbreviations:

CL = Clay Loam
MC = Medium Clay
HC = Heavy Clay
FSLC = Fine Sandy Light Clay
N/A = Not assessed
R = Rough
S = Smooth
OM = Organic Matter
Mn = Ferromagniferous Manganese
WS = Weathered shale

Author	JC
Date Logged	09/01/2013