

***Sloane Weldon* Pty.Ltd.**

Engineering & Groundwater Geologists

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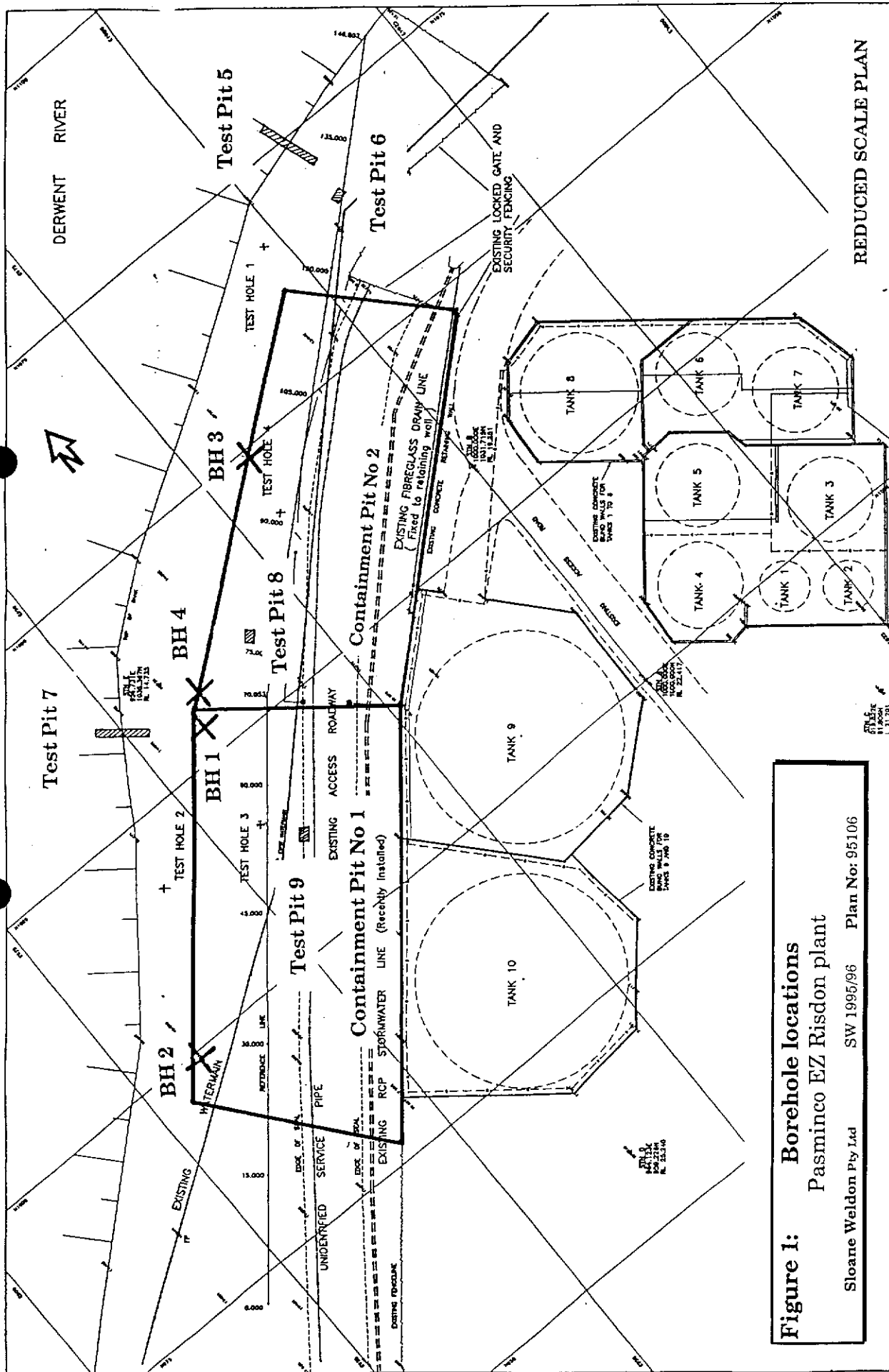
SW Report: 1995/96

**FOUNDATIONS & STABILITY ASSESSMENT:
ACID STORAGE BUNDING PROJECT
PASMINCO EZ, RISDON**

REF Nos 18860 18861 18862 18863

Client: *LPH (Tas) Pty Ltd*

42 028



REDUCED SCALE PLAN

Figure 1: Borehole locations
Pasminco EZ Risdon plant

Sloane Weldon Pty Ltd SW 1995/96 Plan No: 95106

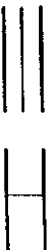
LPH (TAS) Pty Ltd CONSULTING ENGINEERS 44 Belmont Street, North Hobart, Tasmania 7280 Tel: (03) 9422 1111 Fax: (03) 9422 1112		PROPOSED BUNDING FOR ACID STORAGE TANKS AT EZ SITE		PROJECT NO: 1694-1 SHEET NO: 42 DATE: MARCH 1996 DRAWN BY: [blank] CHECKED BY: [blank]
APPROVED: [blank] DATE: [blank]		PROJECT: PASMINCO METALS PTY LTD - EZ SHEET: 42 DATE: MARCH 1996 DRAWN BY: [blank] CHECKED BY: [blank]		PROJECT NO: 1694-1 SHEET NO: 42 DATE: MARCH 1996 DRAWN BY: [blank] CHECKED BY: [blank]

EXPLANATION SHEET FOR ENGINEERING LOGS

Borehole and Excavation Log

Penetration	Water	Notes - samples and tests		Material classification
1 2 3  No resistance Ranging to Refusal	 22 Jan 80 Water level on date shown Water inflow Water outflow	UD50 Undisturbed sample 50mm diameter. D Disturbed sample. N Standard penetrometer blow count for 300mm. SV Vane Shear test. PP Pocket Penetrometer test.	Based on Unified Soil Classification System. In Graphic Log materials are represented by clear contrasting symbols for each project.	
Moisture content	Consistency		Density index	
		(kPa)		%
D Dry, looks and feels dry.	VS Very soft.	< 25	VL Very loose.	0 - 15
M Moist, no free water on hand when remoulding.	S Soft.	25 - 50	L Loose.	15 - 35
W Wet, free water on hand when remoulding.	F Firm.	50 - 100	MD Medium dense	35 - 65
LL Liquid limit.	St Stiff.	100 - 200	D Dense.	65 - 85
PL Plastic limit.	VSt Very stiff.	200 - 400	VD Very dense.	85 - 100
PI Plasticity index.	H Hard.	> 400		
	Fb Friable.			
eg: M>PL Moist, moisture content greater than plastic limit. Notes: x on log is test result ■ is range of results.				

Cored Borehole Log

Case - lift	Fluid loss	Graphic log	
 Casing used. Barrel withdrawn.	 No loss. 50% loss. 100% loss.	 Core loss assumed at top of run unless otherwise indicated. Rock substances represented by clear, contrasting symbols constant for each project.	
Weathering	Strength	Significant defects	
		Point load strength index I_{500} (MPa)	Significant defects shown graphically.
Fr Fresh.	EL Extremely low.	< 0.03	 Joint. Sheared zone. Crushed seam. Infill seam. Extremely weathered seam.
SW Slightly weathered.	VL Very low.	0.03 - 0.1	
HW Highly weathered.	L Low.	0.1 - 0.3	
EW Extremely weathered.	M Medium.	0.3 - 1.0	
	H High.	1.0 - 3.0	
	VH Very high.	3.0 - 10.0	
	EH Extremely high.	> 10	

Note: x on log is test result.

REF No 18860

E 525890

 $\pm 50^m$

82

N 5257830

83122

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Borehole Number.

BH1

ENGINEERING LOG -BOREHOLE

43 033

sheet 1 of 1

project **Acid Storage Bunding Project.**location **Pasminco EZ, Risdon**

co-ordinates E958 N1028

R.L. Approx. 14.9m

inclination Vertical

bearing

drill type Pioneer 160

drill method HQ Washbore

drill fluid Water & polymer

contractor KMR Drilling

hole commenced 12/12/95

hole completed 12/12/95

logged by BDW

checked by

penetration	water	support	notes sample, tests	metres R.L. depth	graphic log	classification symbol	material soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa	structure, geology
1 2 3											
				1.0		GC	GRAVEL: Fine to coarse; yellow-brown; moderately to slightly weathered medium subangular dolerite gravel; approx. 30-40% dolerite boulders to 400mm dia. in a highly plastic clay matrix.	M	MD		FILL
				1.55							
				2.0							
				2.94							
				3.0							
				4.0							
				4.45		CH?	CLAY: Dark brown to reddish brown washings about rods & barrel.				BURIED SOIL PROFILE?
			U50	4.70			BEDROCK: Moderately weathered medium subangular dolerite gravel; yellow-brown-grey; subvertical joints.				IN-SITU WEATHERED DOLERITE BEDROCK
				5.0							
				5.94							
				6.0			TERMINATED: Required depth 5.94m.				

REF No 18861

E 525890

N 525830

 $\pm 50^m$

82

83122

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43 032

Borehole Number.

BH2

sheet 1 of 1

ENGINEERING LOG - BOREHOLE

project Acid Storage Bunding Project.						location Pasminco EZ, Risdon					
co-ordinates		E933 N998		drill type		Pioneer 160		hole commenced		12/12/95	
R.L.		Approx. 16.3m		drill method		HQ Washbore		hole completed		12/12/95	
inclination		Vertical		drill fluid		Water & polymer		logged by		BDW	
bearing				contractor		KMR Drilling		checked by			
penetration	water	support	notes sample, tests	metres R.L. depth	graphic log	classification symbol	material soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa	structure, geology
123						GC	GRAVEL: Fine to coarse; yellow-brown; moderately to slightly weathered medium subangular dolerite gravel; approx. 30-40% dolerite boulders to 400mm dia. in a highly plastic clay matrix.	M	MD		FILL
				1.0							
				1.45							
				1.91							
				2.0							
				2.95							
				3.0							
				3.49		CH	CLAY: Medium to high plasticity; greyish-brown; some medium to coarse sand and moderately to slightly weathered dolerite, fine gravel.	M	St		BURIED SOIL
			0.50	3.59			BEDROCK: Moderately weathered medium subangular dolerite gravel; yellow-brown-grey; subvertical joints.				IN-SITU WEATHERED DOLERITE BEDROCK
				4.0							
				4.45			TERMINATED: Required depth 4.45m.				

REF No 18862

E 525890

± 50^m

93122

82

N 5257830

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43 031

Borehole Number.

BH3

sheet 1 of 1

ENGINEERING LOG -BOREHOLE

project Acid Storage Bunding Project.				location Pasminco EZ, Risdon					
co-ordinates		drill type		hole commenced		hole completed			
RL		drill method		logged by		checked by			
inclination		drill fluid		contractor					
bearing		contractor							
E982 N1048		Pioneer 160		12/12/95		12/12/95			
Approx. 14.0m		HQ Washbore		BDW					
Vertical		Water & polymer							
		KMR Drilling							
penetration	water	support	notes	metres	material	moisture	consistency	hand penetrometer	structure, geology
1 2 3			sample, tests	RL depth	soil type; plasticity or particle characteristics, colour, secondary and minor components	condition	density index	kPa	
				1.0	GRAVEL: Fine to coarse; yellow-brown; moderately to slightly weathered medium subangular dolerite gravel; approx. 30-40% dolerite boulders to 400mm dia. in a highly plastic clay matrix.	M	MD		FILL
				1.45					
				2.0					
				2.31					
				2.81					
				2.95					
				3.0					
				3.97					
				4.0					
			U50	4.45	CH? CLAY: High plasticity?; yellow-brown to dark brown clay with some fine sand washings about barrel & rods.				BURIED SOIL PROFILE
				5.0	BEDROCK: Moderately weathered medium subangular dolerite gravel; yellow-brown-grey; subvertical joints.				IN-SITU WEATHERED DOLERITE BEDROCK
				5.20					
					TERMINATED: Required depth 5.20m.				
				6.0					

REF No 18863

E 525890 $\pm 50^m$
N 525783082
83122**Sloane Weldon Pty. Ltd.**
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Borehole Number.

BH4

ENGINEERING LOG - BOREHOLE

43 030

sheet 1 of 1

project Acid Storage Bunding Project.						location Pasminco EZ, Risdon					
co-ordinates		E960 N1032		drill type		Pioneer 160		hole commenced		12/12/95	
R.L.		Approx. 14.7m		drill method		HQ Washbore		hole completed		12/12/95	
inclination		Vertical		drill fluid		Water & polymer		logged by		BDW	
bearing				contractor		KMR Drilling		checked by			
penetration	water	support	notes sample, tests	metres R.L. depth	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr- ometer kPa	structure, geology
1 2 3						GC	GRAVEL: Fine to coarse; yellow-brown; moderately to slightly weathered medium subangular dolerite gravel; approx. 30-40% dolerite boulders to 400mm dia. in a highly plastic clay matrix.	M	MD		FILL
				1.0							
				1.50							
				2.0							
				3.00							
				4.00							
			U50	4.27		CH?	CLAY: High plasticity?; dark brown-black; when barrel withdrawn.				BURIED SOIL PROFILE?
				4.50		CH	CLAY: High plasticity; dark brown; trace coarse, subangular to angular moderately to slightly weathered dolerite gravel; MC>PL.	M	St		
				4.70							
				5.05			BEDROCK: Moderately weathered medium subangular dolerite gravel; yellow-brown-grey; subvertical joints.				IN-SITU WEATHERED DOLERITE BEDROCK
				6.00							
							TERMINATED: Required depth 6.00m.				