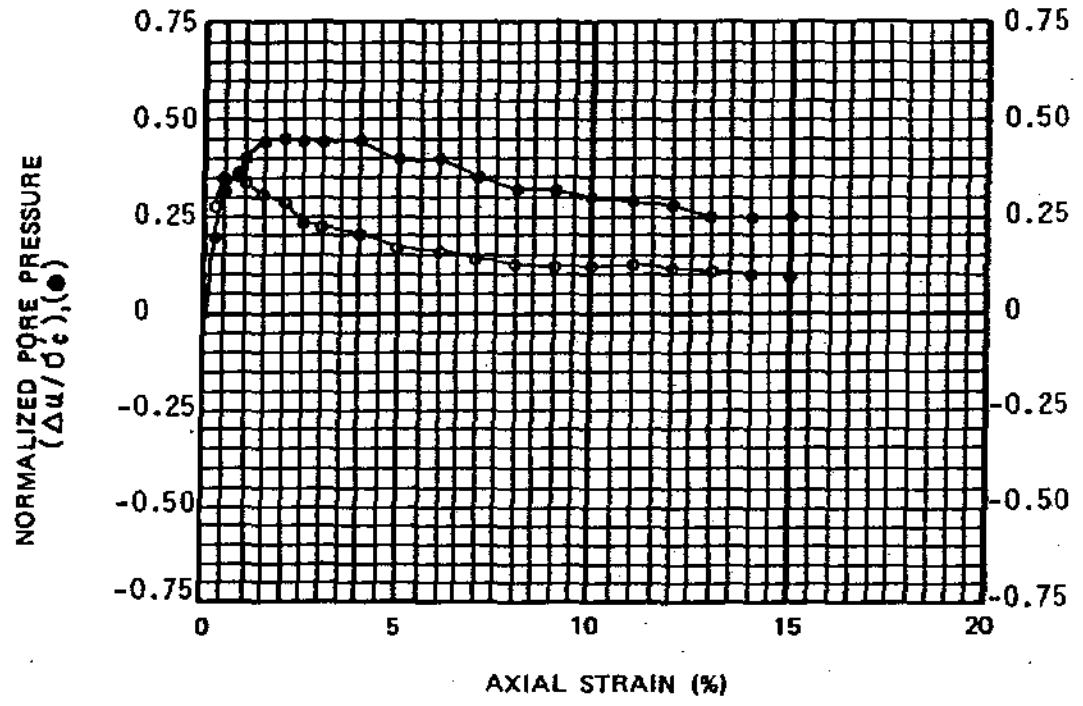


EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1 / \sigma_3)$ , (○)



PORE PRESSURE PARAMETER A  $\left( \frac{e_0 \Delta \sigma_3 - \Delta u}{\Delta \sigma_3 - \Delta \sigma_1} \right)$ , (○)

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
DIAMETER(in.)	2.87	HEIGHT(in)	6.45	MOISTURE CONTENT	$w_0$	70.2 %	$w_f$	66.1 %
OVERBURDEN PRESS. $\sigma_{vo}'$	460 psf	VOID RATIO	$e_0$	1.875	$e_f$	1.728		
CONSOLIDATION PRESS. $\sigma_c'$	- psf	SATURATION	$S_0$	97	$S_f$	100 %		
STRAIN RATE	- %/min	DRY DENSITY	$\gamma_d$	56	$\gamma_d$	60 pcf		
LL	--	PL	--	PI	--	$G_s$	2.60	

CLASSIFICATION

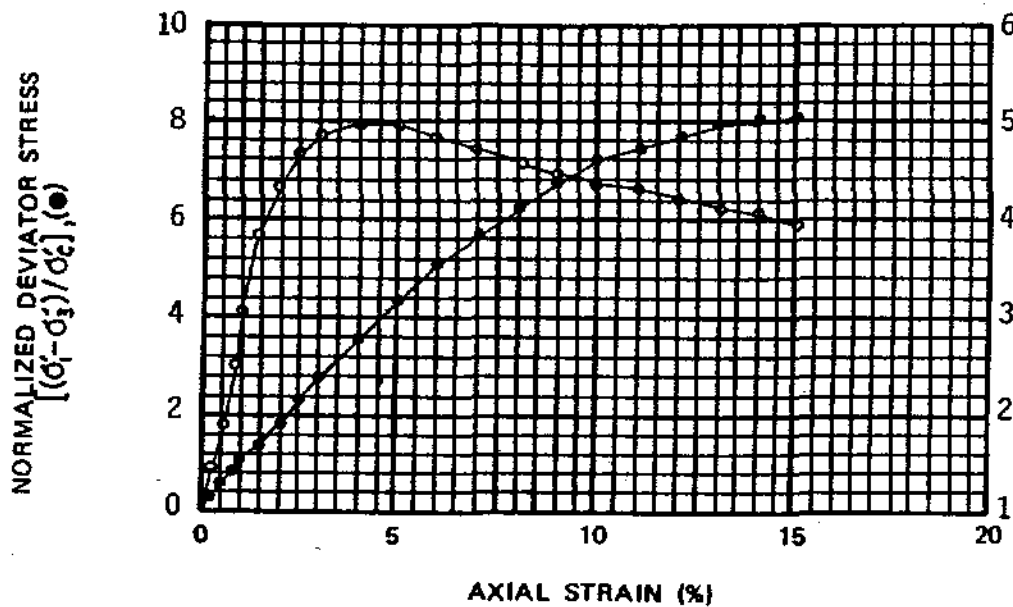
SOURCE Boring 2 at 8.4'



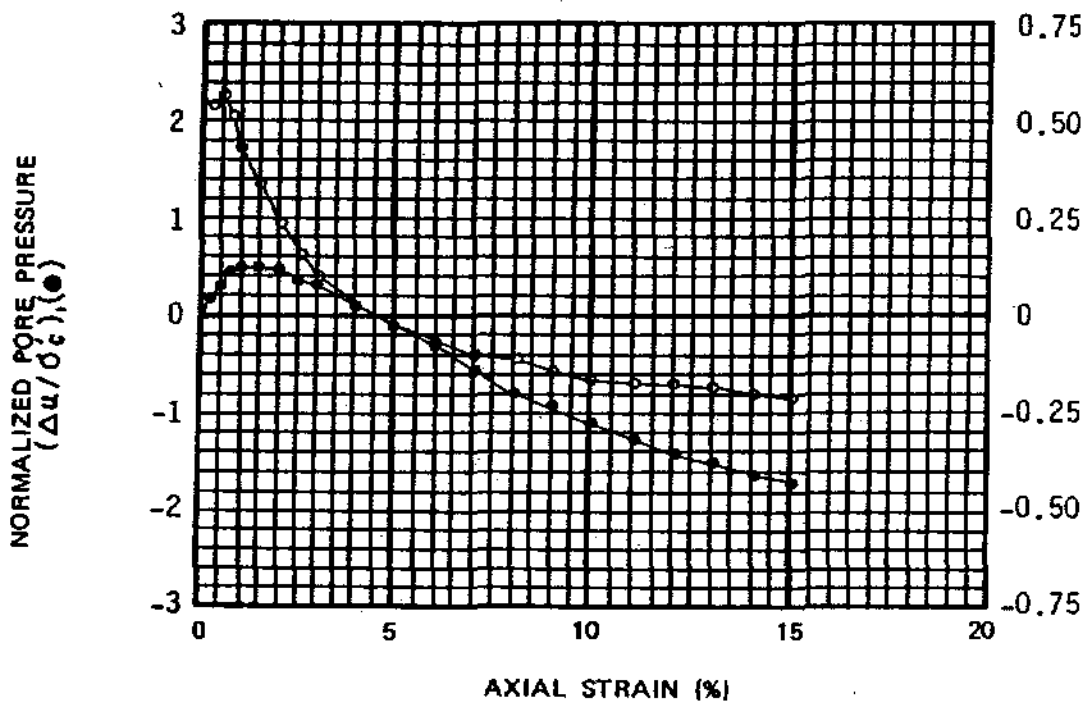
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-77**



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1' / \sigma_3'), (\sigma)$



PORE PRESSURE PARAMETER A  $(\frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3}), (\sigma)$

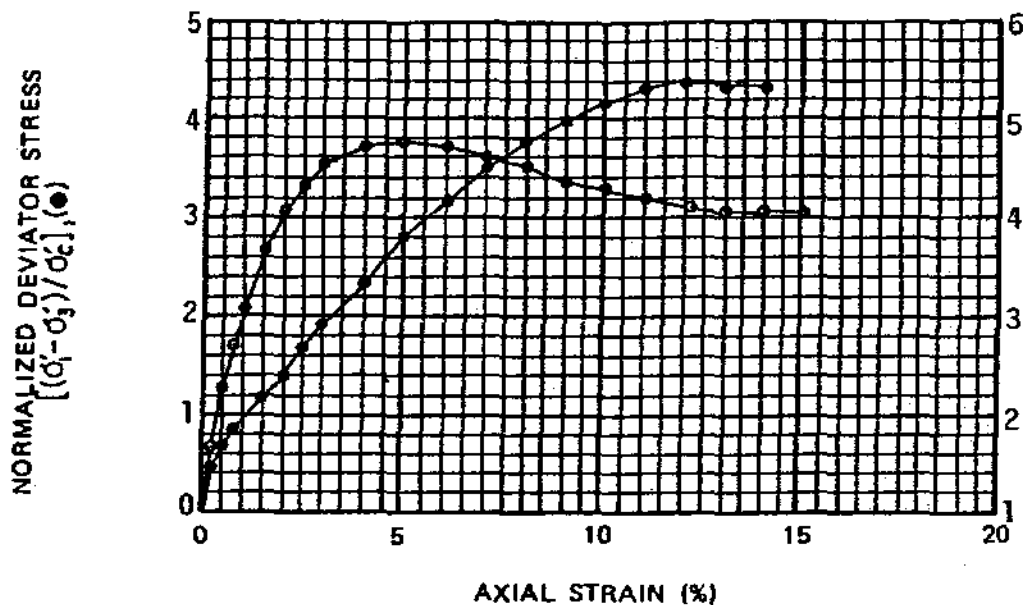
TYPE OF SPECIMEN Undisturbed		BEFORE TEST				AFTER TEST	
DIAMETER (in.)	2.87	HEIGHT (in.)	6.45	MOISTURE CONTENT	$w_o$ 21.2 %	$w_f$ 20.0 %	
OVERBURDEN PRESS., $\sigma_{vo}'$	2210 psf	VOID RATIO	$e_o$ 0.616			$e_f$ 0.546	
CONSOLIDATION PRESS., $\sigma_c'$	2000 psf	SATURATION	$S_o$ 94 %			$S_f$ 100 %	
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$ 106 pcf			$\gamma_d$ 111 pcf	
PL	--	PI	--			$G_s$ 2.74	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 2 at 40.2'			

**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

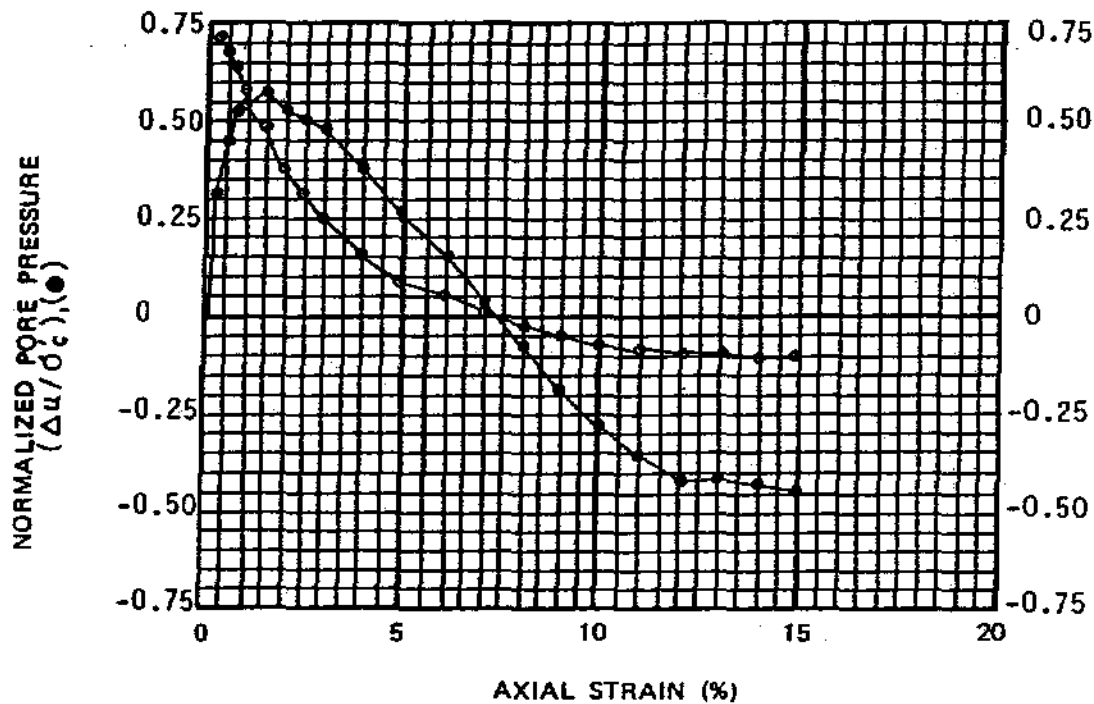
**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-78**



EFFECTIVE PRINCIPLE STRESS RATIO  
 $(\sigma'_1 / \sigma'_3), (○)$



PORE PRESSURE PARAMETER A  
 $(\frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3}), (○)$

TYPE OF SPECIMEN		Undisturbed		BEFORE TEST				AFTER TEST	
DIAMETER(in.)	2.87	HEIGHT(in)	6.44	MOISTURE CONTENT	w <sub>0</sub>	21.1 %	w <sub>f</sub>	19.0 %	
OVERBURDEN PRESS., σ' <sub>vo</sub>	2240 psf	VOID RATIO	e <sub>0</sub>	0.585	e <sub>f</sub>	0.532			
CONSOLIDATION PRESS., σ' <sub>c</sub>	4000 psf	SATURATION	S <sub>0</sub>	98 %	S <sub>f</sub>	100 %			
STRAIN RATE	--	%/min	DRY DENSITY	γ <sub>d</sub>	107 pcf	γ <sub>d</sub>	111 pcf		
LL	--	PL	--	PI	--	G <sub>s</sub>	2.72		

CLASSIFICATION SANDY SILT (ML)

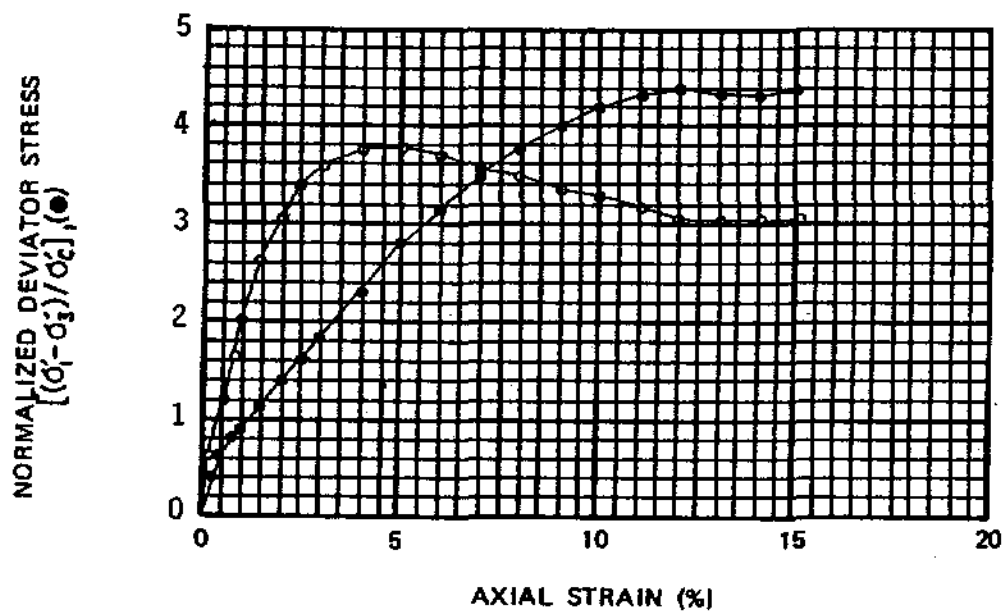
SOURCE Boring 2 at 40.8'



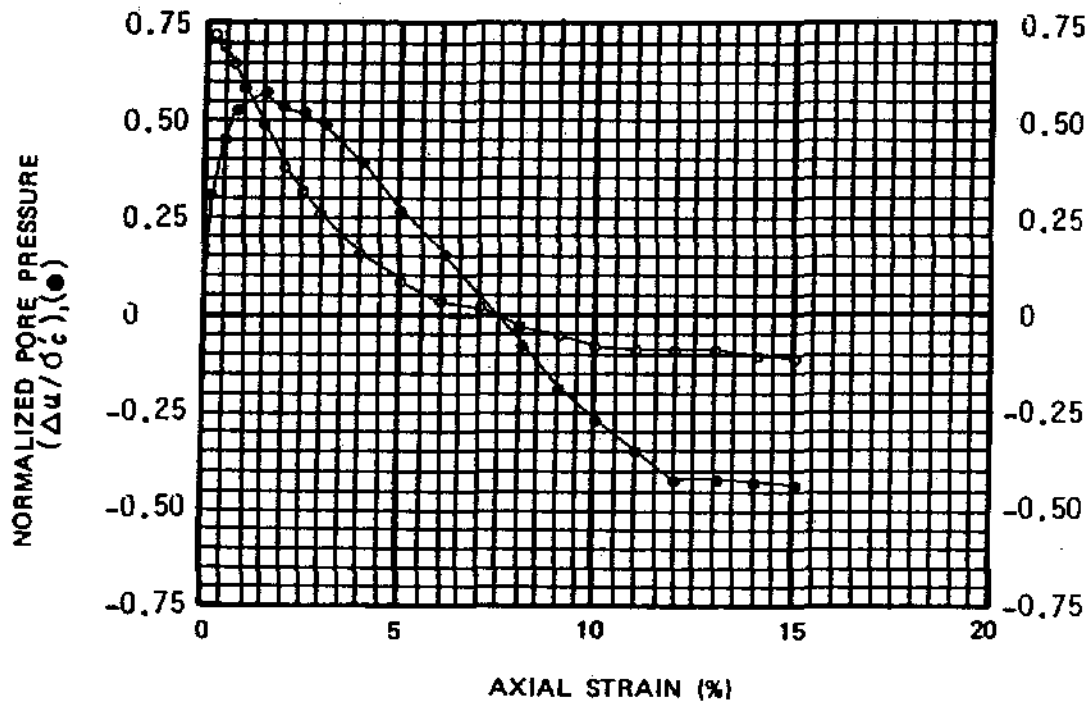
**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Undrained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-79**



EFFECTIVE PRINCIPLE STRESS RATIO  
 $(\sigma_1' / \sigma_3'), (0)$



PORE PRESSURE PARAMETER A  
 $(\frac{\Delta u - \Delta \sigma_3'}{\Delta \sigma_1' - \Delta \sigma_3'}) (0)$

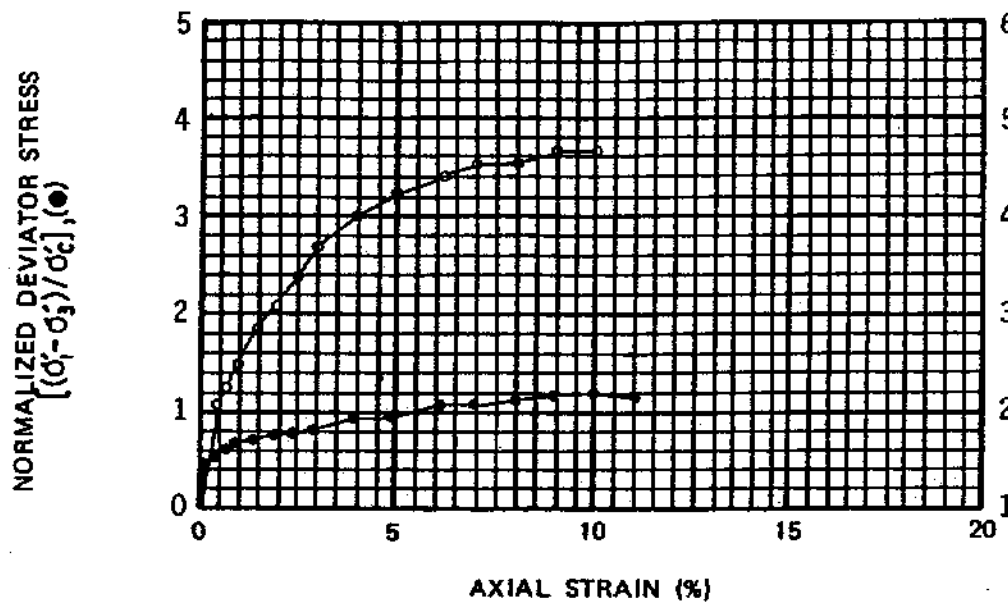
TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
DIAMETER (in.)	2.87	HEIGHT (in.)	6.45	MOISTURE CONTENT	$w_o$ 26.3 %	$w_f$ 19.0 %	
OVERBURDEN PRESS. ( $\sigma_{vo}'$ )	2300 psf	VOID RATIO	$e_o$ 0.585	$e_f$ 0.532			
CONSOLIDATION PRESS. ( $\sigma_c'$ )	4000 psf	SATURATION	$S_o$ 98 %	$S_f$ 100 %			
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$ 107 pcf	$\gamma_d$ 111 pcf			
PL	--	PI	--	$G_s$ 2.72			
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 2 at 41.6'			



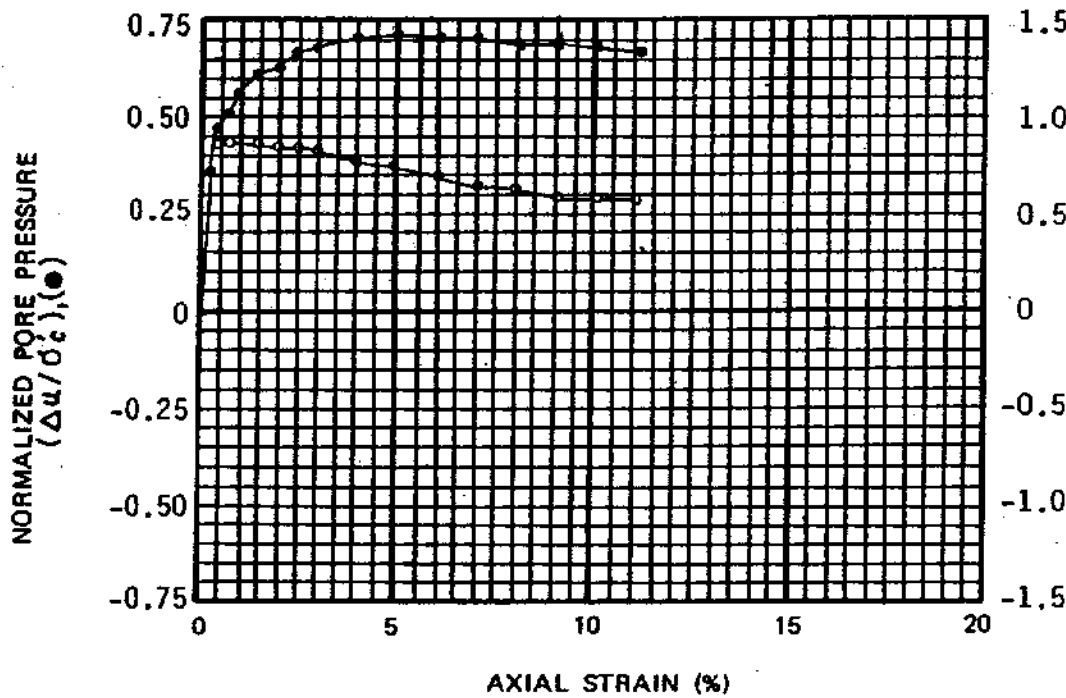
Harding Lawson Associates  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Undrained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-80**



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma'_1 / \sigma'_3), (\phi)$



PORE PRESSURE PARAMETER A  $(\frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3}), (\phi)$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
Undisturbed(trimmed)		MOISTURE CONTENT		$w_0$	43.7 %	$w_f$	37.5 %	
DIAMETER(in.)	2.43	HEIGHT(in)	5.9	VOID RATIO	$e_0$	1.235	$e_f$	1.003
OVERBURDEN PRESS., $\sigma'_{v0}$		730 psf		SATURATION	$S_0$	95 %	$S_f$	100 %
CONSOLIDATION PRESS., $\sigma'_c$		1500 psf		DRY DENSITY	$\gamma_d$	75 pcf	$\gamma_d$	83 pcf
STRAIN RATE		- - %/min						
LL	33	PL	26	PI	6	$G_s$	2.67	
CLASSIFICATION ORGANIC SILT (OL)				SOURCE Boring 4 at 13.3'				



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-81**

DRAWN  
R

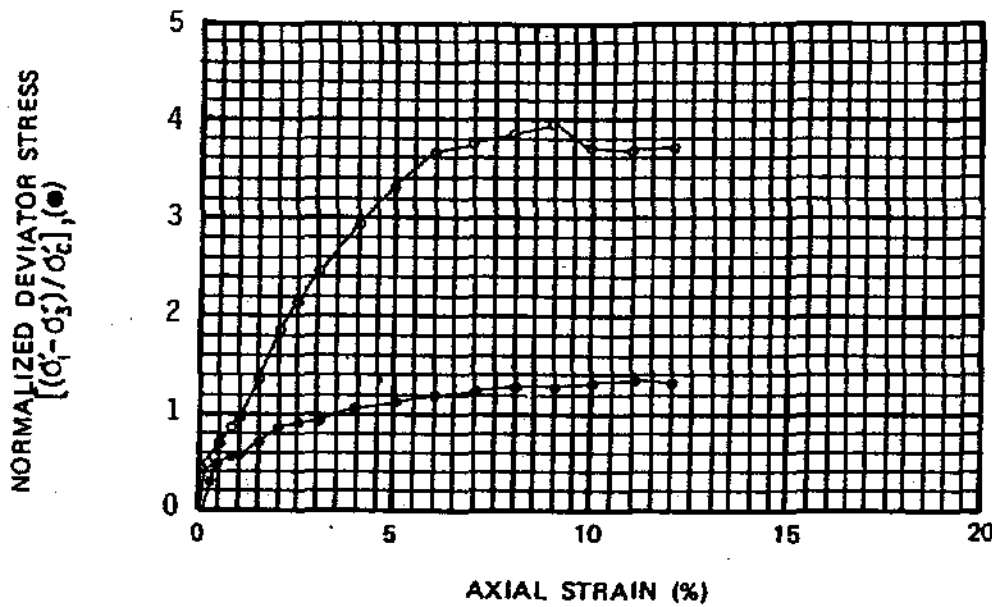
JOB NUMBER  
0612 031 RR

APPROVED  
DEP

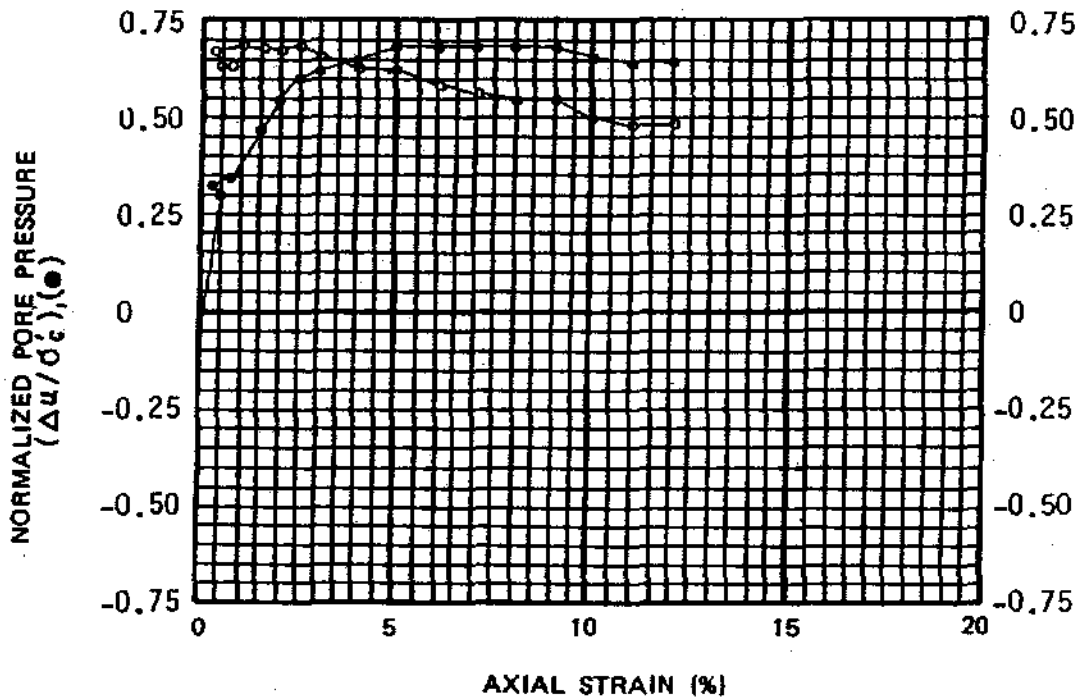
DATE  
1/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $\left( \frac{\sigma_1}{\sigma_3} \right) (0)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right) (0)$

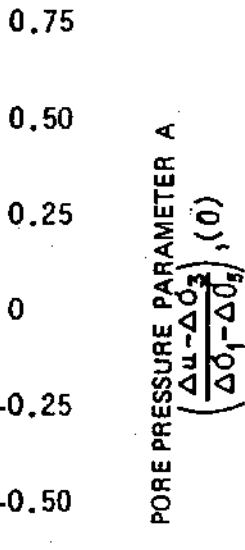
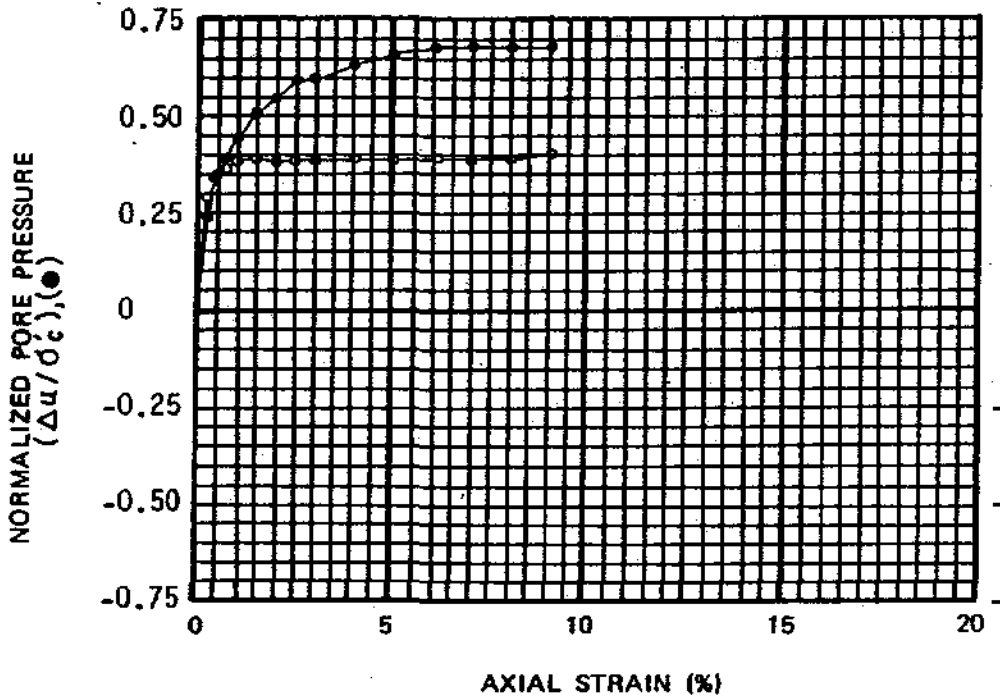
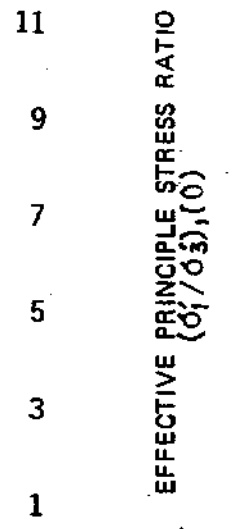
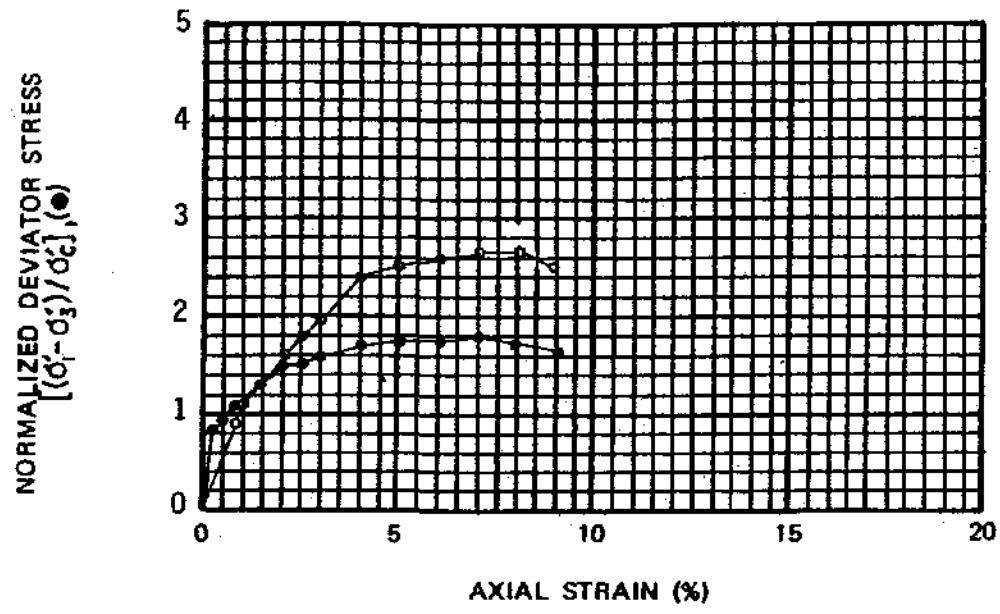
TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
DIAMETER (in.)	2.43	HEIGHT (in.)	5.90	MOISTURE CONTENT	$w_o$	47.5 %	$w_f$ 40.9 %
OVERBURDEN PRESS. $\sigma'_{vo}$	760 psf	VOID RATIO		$e_o$	1.311	$e_f$	1.089
CONSOLIDATION PRESS. $\sigma'_c$	1500 psf	SATURATION		$S_o$	97 %	$S_f$	100 %
TRAIN RATE	-- %/min	DRY DENSITY		$\gamma_d$	72 pcf	$\gamma_d$	80 pcf
L	33	PL	26	PI	6	$G_s$	2.67
CLASSIFICATION SILT (ML)				SOURCE Boring 4 at 13.8'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**0-82**



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed (trimmed)		MOISTURE CONTENT	$w_o$	68.4 %	$w_f$	58.5 %	
DIAMETER (in.)	2.46	HEIGHT (in.)	6.00	VOID RATIO	$e_o$	1.848	
OVERBURDEN PRESS. $\sigma'_{vo}$	1050 psf	SATURATION	$S_o$	98 %	$S_f$	95 %	
CONSOLIDATION PRESS. $\sigma'_c$	1000 psf	DRY DENSITY	$\gamma_d$	58 pcf	$\gamma_d$	63 pcf	
STRAIN RATE	-- %/min						
LL	44	PL	26	PI	18	$G_s$	2.66

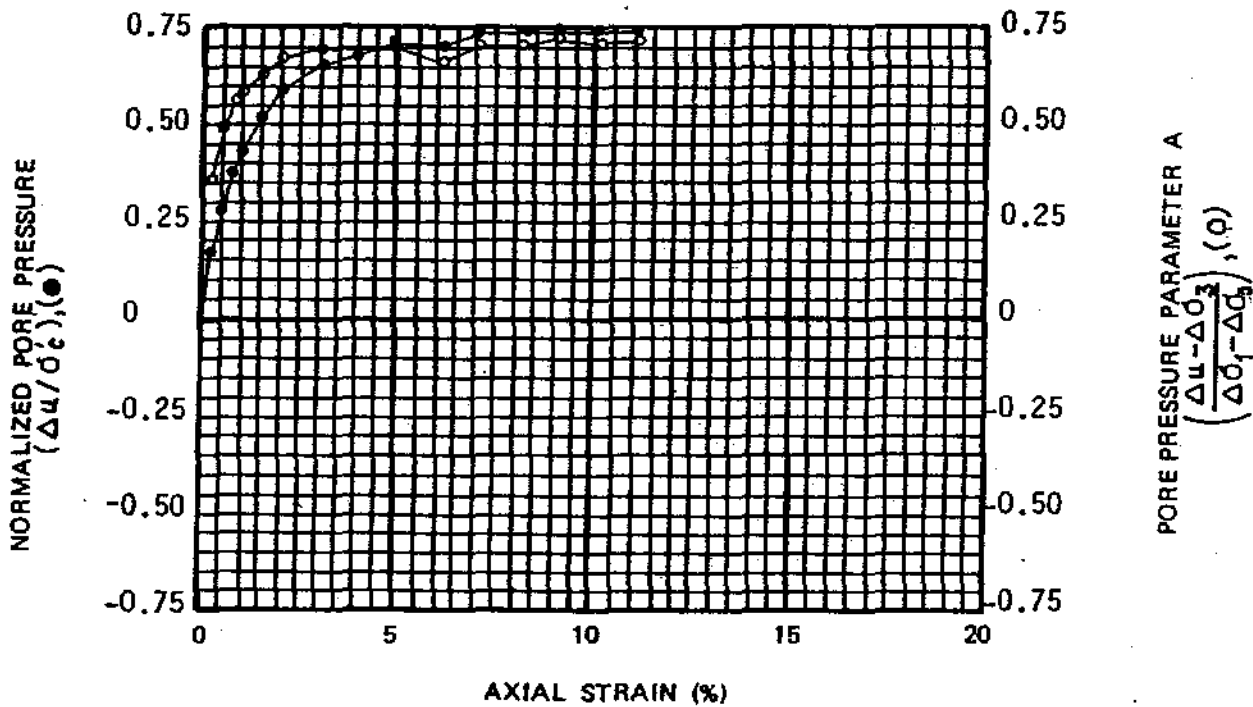
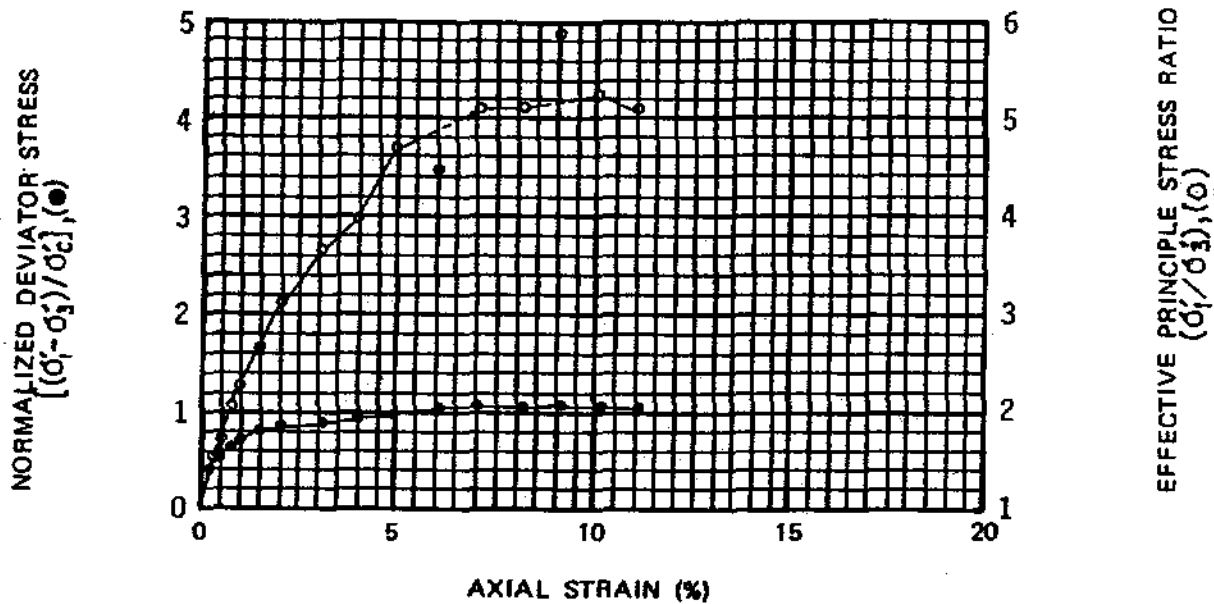
CLASSIFICATION CLAY (CL) SOURCE Boring 4 at 19.0'



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-83**



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
DIAMETER (in.)	2.46	HEIGHT (in.)	6.05	MOISTURE CONTENT	$w_o$	71.1 %	$w_f$	57.1 %
VERBURDEN PRESS., $\sigma_{vo}'$	1080 psf	VOID RATIO			$e_o$	1.933	$e_f$	1.519
CONSOLIDATION PRESS., $\sigma_c'$	2000 psf	SATURATION			$S_o$	98 %	$S_f$	100 %
TRAIN RATE	-- %/min	DRY DENSITY			$\gamma_d$	57 pcf	$\gamma_d$	66 pcf
LL	44	PL	26	PI	18	$G_s$	2.66	
CLASSIFICATION		CLAY (CL)		SOURCE Boring 4 at 19.6'				



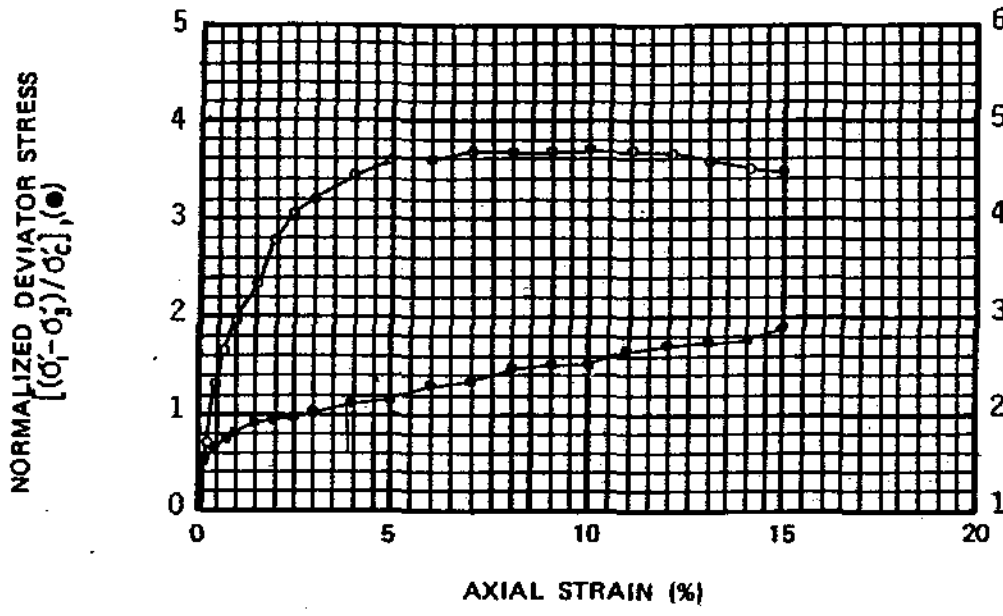
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

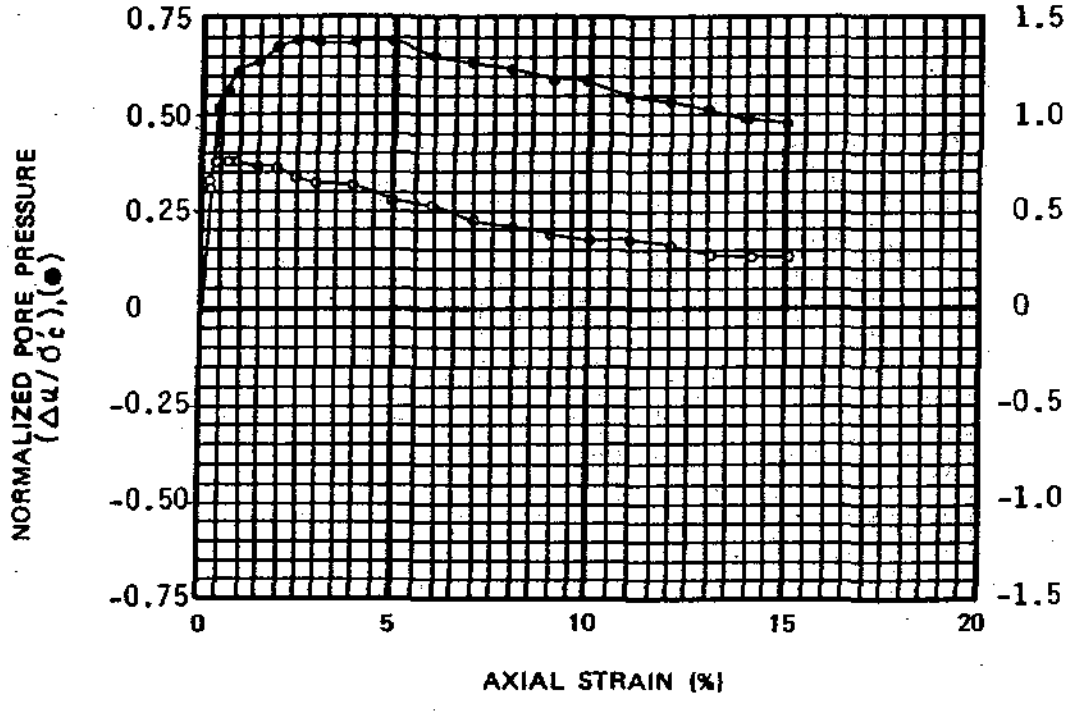
PLATE

**D-84**





EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1' / \sigma_3'), (O)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right), (O)$

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in.) 2.43	HEIGHT(in) 5.95	MOISTURE CONTENT	w <sub>o</sub>	33.4 %	w <sub>f</sub>	30.2 %
OVERBURDEN PRESS., σ <sub>vo</sub>	230 psf	VOID RATIO	e <sub>o</sub>	0.893	e <sub>f</sub>	0.831
CONSOLIDATION PRESS., σ' <sub>c</sub>	3000 psf	SATURATION	S <sub>o</sub>	100 %	S <sub>f</sub>	100 %
STRAIN RATE	--- %/min	DRY DENSITY	γ <sub>d</sub>	88 pcf	γ <sub>d</sub>	92 pcf
LL	PL	PI	G <sub>s</sub> 2.68			

CLASSIFICATION SANDY SILT (ML)

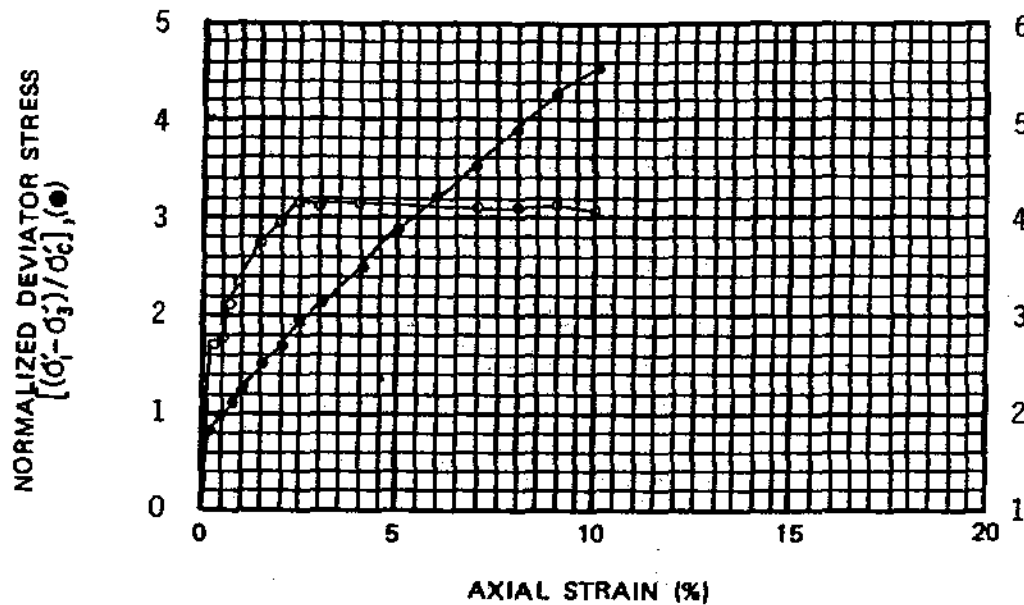
SOURCE Boring 6 at 4.1'



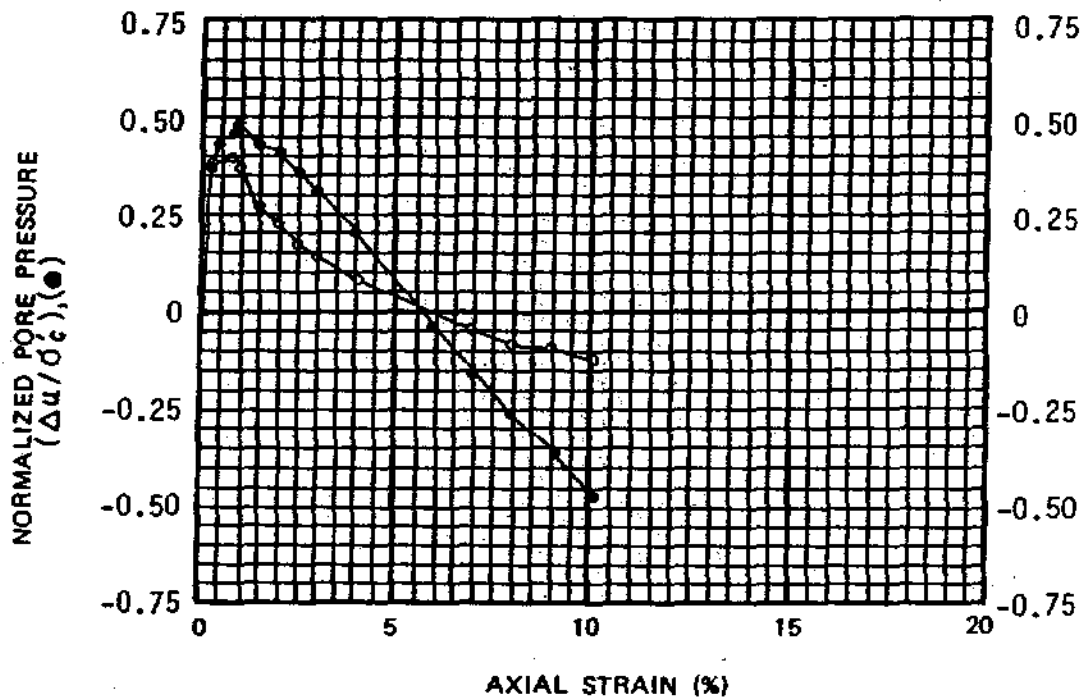
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-85**



EFFECTIVE PRINCIPLE STRESS RATIO  
 $(\sigma_1' / \sigma_3'), (O)$



PORE PRESSURE PARAMETER A  
 $(\frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3}), (O)$

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST			
DIAMETER(in.)	2.43	HEIGHT(in)	5.80	MOISTURE CONTENT	$w_o$	32.3 %	$w_f$	30.6 %
OVERBURDEN PRESS., $\sigma_{vo}'$	250 psf	VOID RATIO		$e_o$	0.873	$e_f$	0.828	
CONSOLIDATION PRESS., $\sigma_c'$	750 psf	SATURATION		$S_o$	100 %	$S_f$	100 %	
STRAIN RATE	-- %/min	DRY DENSITY		$\gamma_d$	90 pcf	$\gamma_d$	92 pcf	
CLASSIFICATION	NP	PL	NP	PI	NP	$G_s$	2.69	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 6 at 4.6'				



Harding Lawson Associates  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Undrained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-86**

DRAWN  
 JP

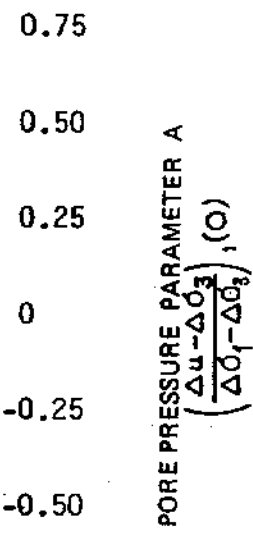
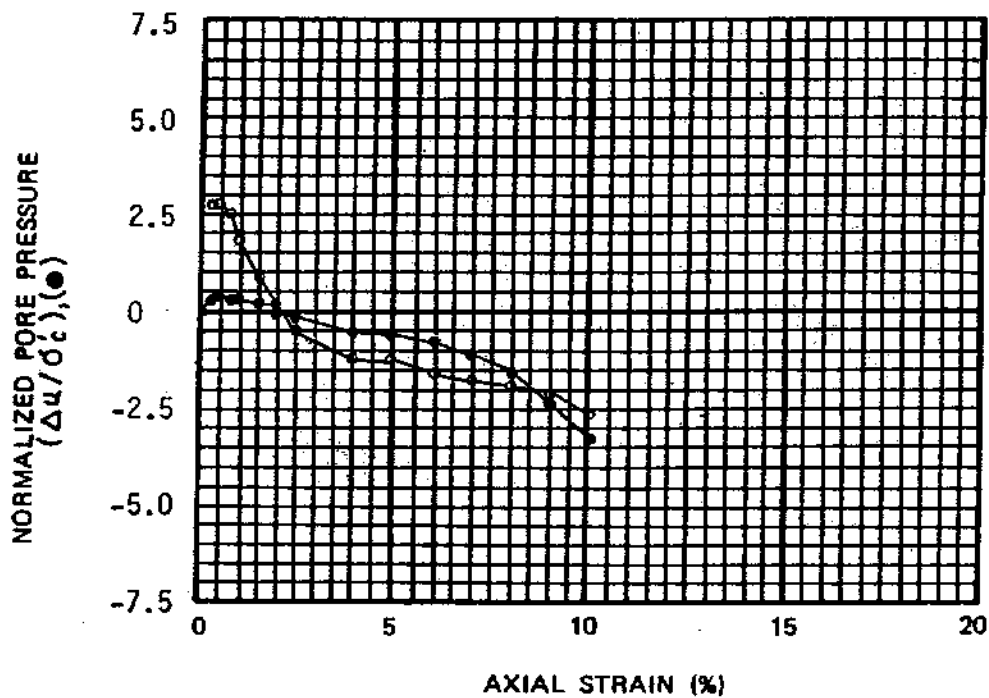
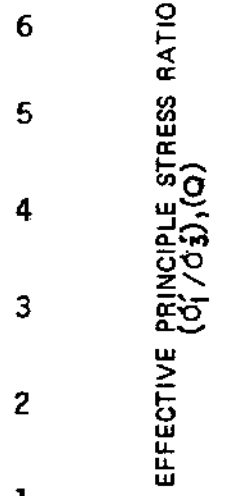
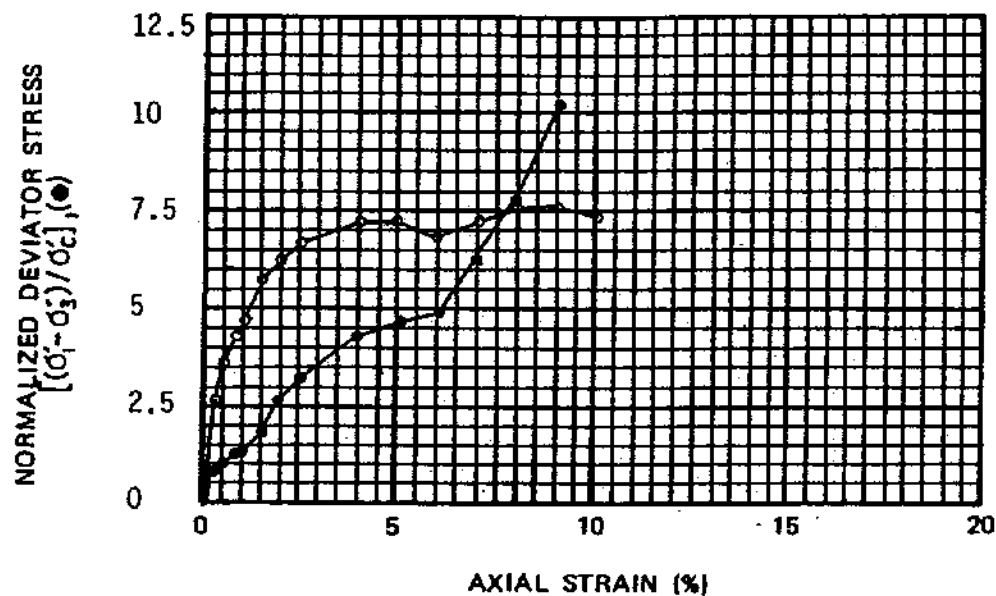
JOB NUMBER  
 9612.031.08

APPROVED  
 JEB

DATE  
 4/82

REVISED

DATE



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed		MOISTURE CONTENT		$w_o$	14.1 %	$w_f$	13.6 %
DIAMETER(in.)	2.87	HEIGHT(in)	5.9	$e_o$	0.382	$e_f$	0.366
OVERBURDEN PRESS., $\sigma_{vo}'$	300 psf	VOID RATIO		$S_o$	99 %	$S_f$	100 %
CONSOLIDATION PRESS., $\sigma'_c$	750 psf	SATURATION		$\gamma_d$	121 pcf	$\gamma_d$	123 pcf
STRAIN RATE	-- %/min	DRY DENSITY					
LL	--	PL	--	PI	--	$G_s$	2.69

CLASSIFICATION GRAVELLY SAND (SP-SM)

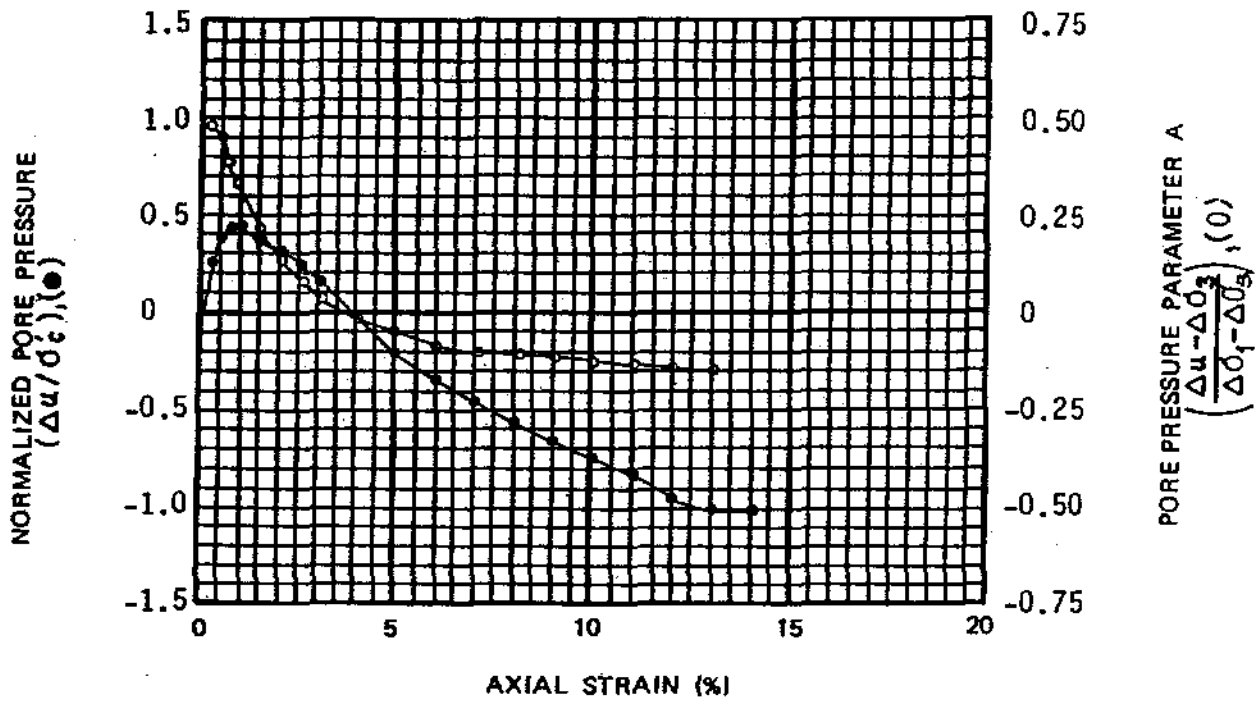
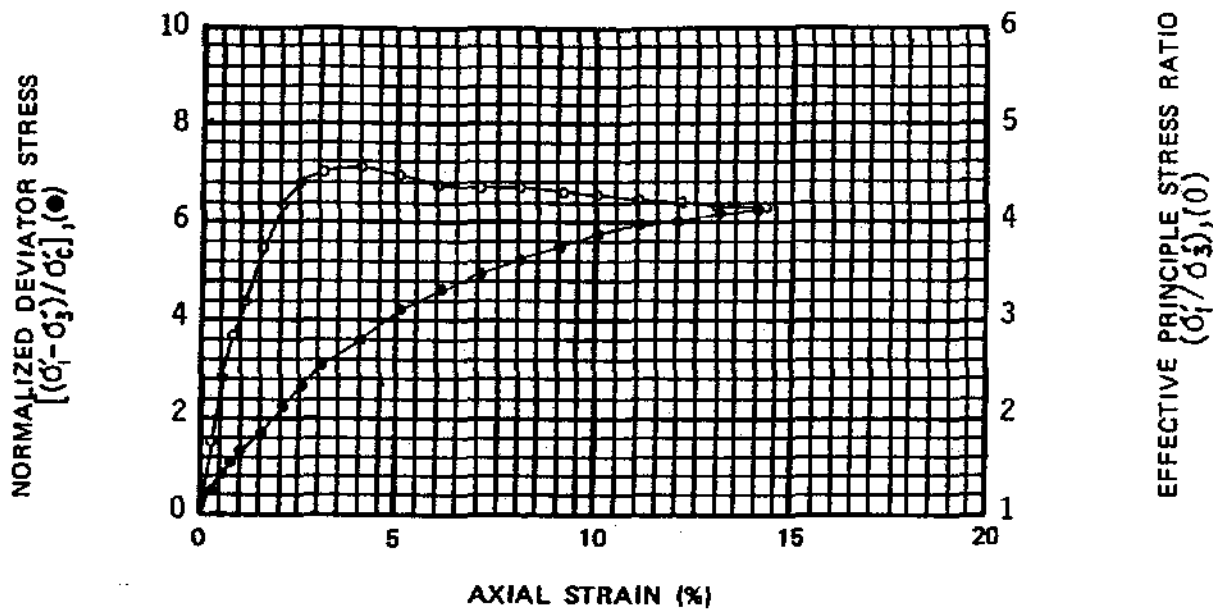
SOURCE Boring 6 at 5.3'



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-87**



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
DIAMETER(in.)	2.87	HEIGHT(in.)	6.44	MOISTURE CONTENT	$w_o$	23.3 %	$w_f$	21.7 %
OVERBURDEN PRESS.	$\sigma_{vo}'$ 810 psf	VOID RATIO	$e_o$	0.714	$e_f$	0.673		
CONSOLIDATION PRESS.	$\sigma_c'$ 1500 psf	SATURATION	$S_o$	99 %	$S_f$	100 %		
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$	99 pcf	$\gamma_d$	101 pcf		
L	--	PL	--	PI	--	$G_s$	2.71	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 6 at 14.7'				



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-88**

DRAWN  
JK

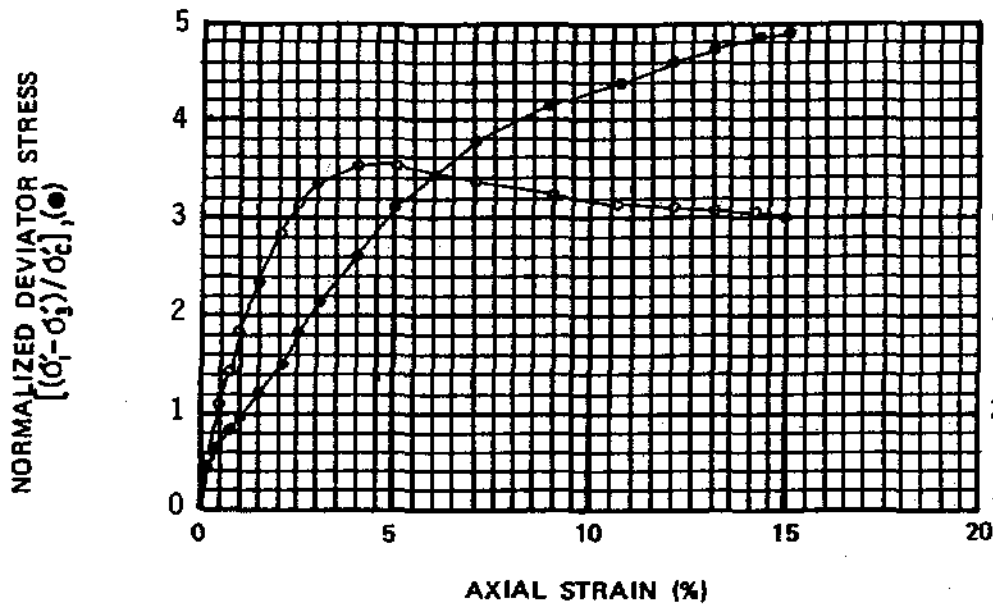
JOB NUMBER  
Q612 031 0R

APPROVED  
DeB

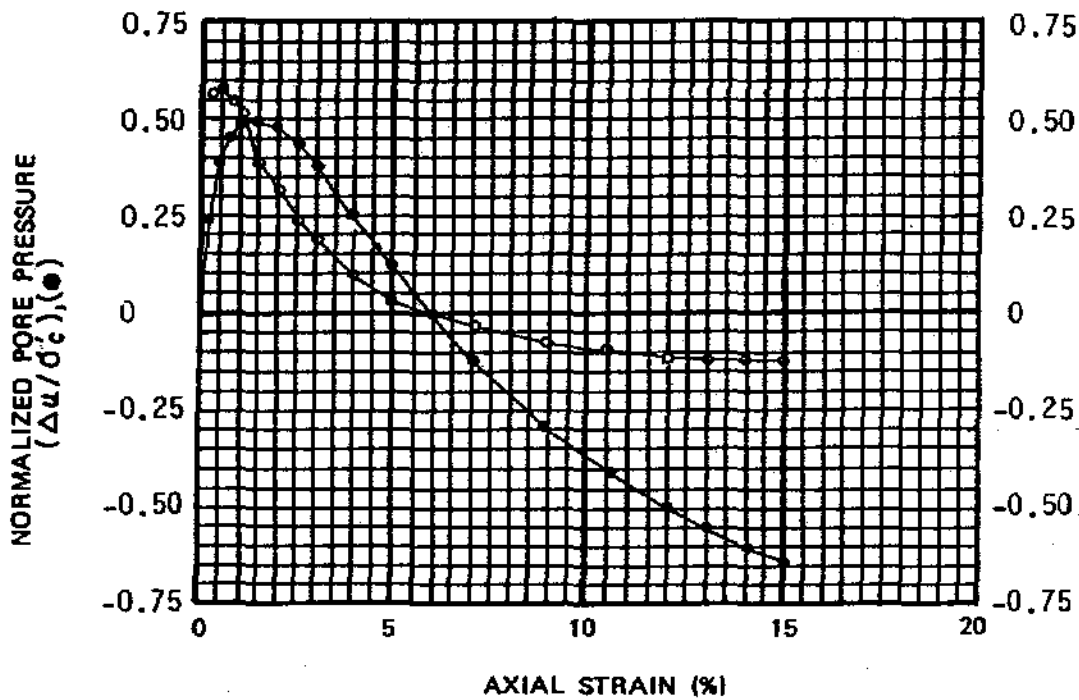
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1' / \sigma_3'), (0)$



PORE PRESSURE PARAMETER A  $(\frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3}), (0)$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed		MOISTURE CONTENT	$w_o$	26.2 %	$w_f$	24.2 %	
DIAMETER (in.) 2.87	HEIGHT (in.) 6.45	VOID RATIO	$e_o$	0.696	$e_f$	0.657	
OVERBURDEN PRESS., $\sigma_{vo}'$	850 psf	SATURATION	$S_o$	97 %	$S_f$	100 %	
CONSOLIDATION PRESS., $\sigma_c'$	3000 psf	DRY DENSITY	$\gamma_d$	100 pcf	$\gamma_d$	102 pcf	
STRAIN RATE	-- %/min						
LL	--	PI	--	$G_s$	2.71		
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 6 at 15.4'			



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-89**

DRAWN

Y

JOB NUMBER

9612 031 08

APPROVED

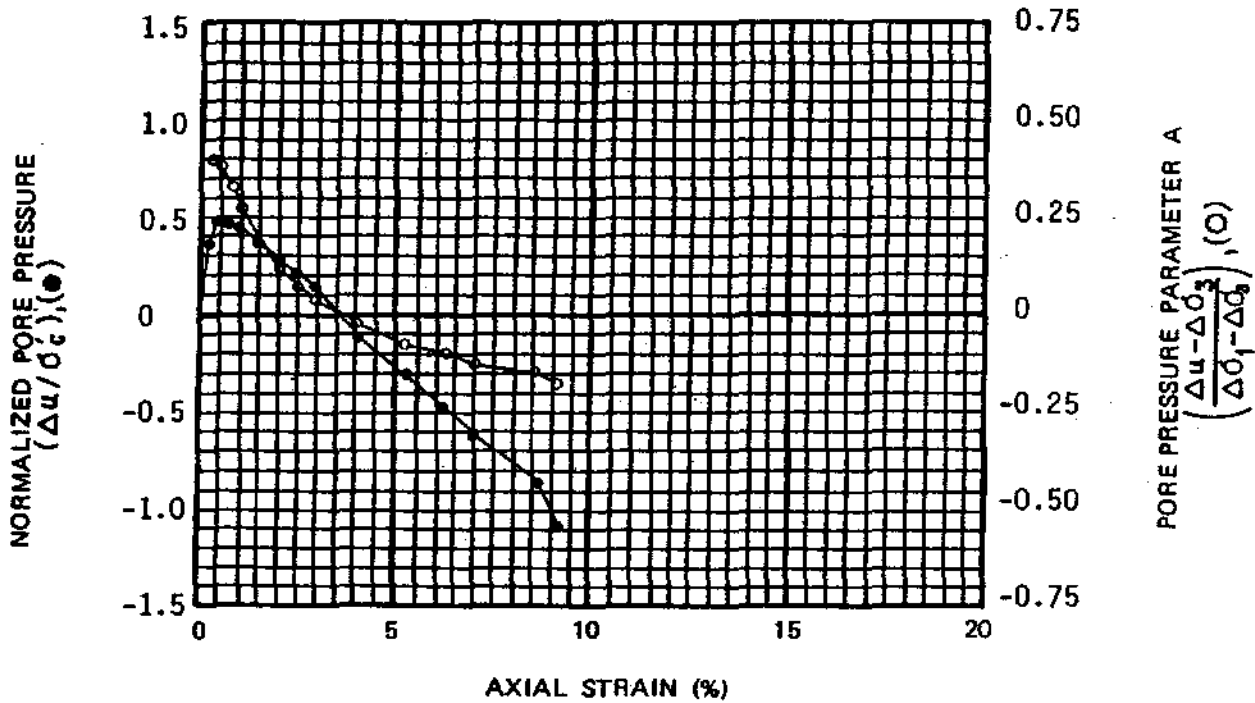
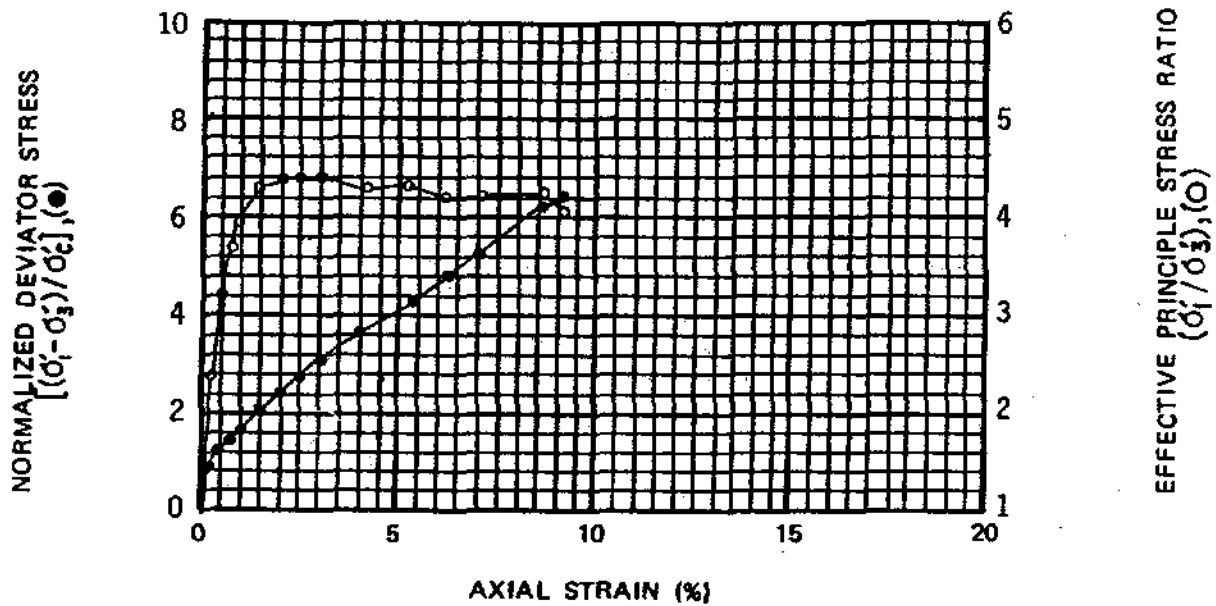
JGB

DATE

4/82

REVISED

DATE



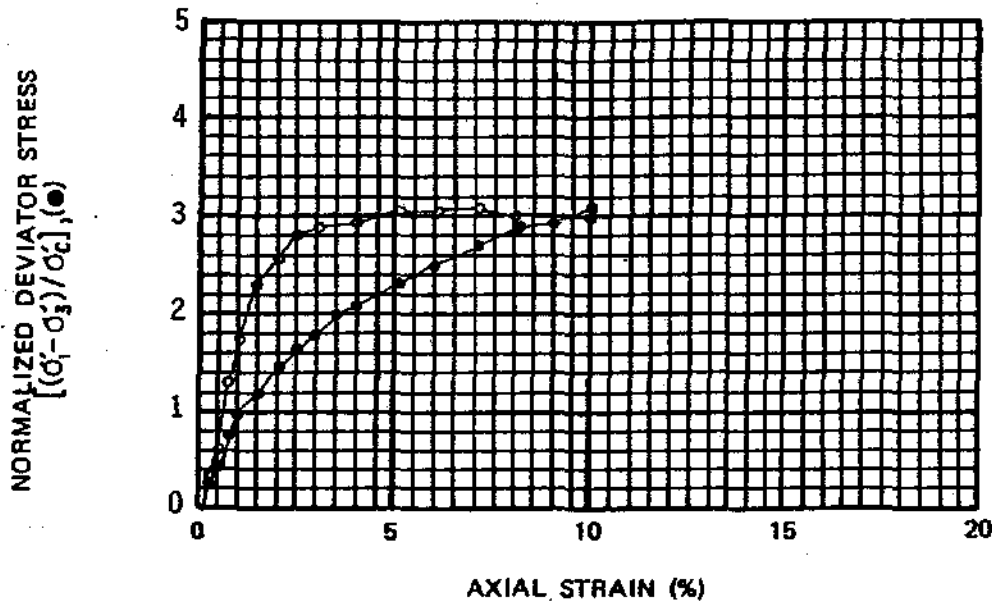
TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed(trimmed)		MOISTURE CONTENT		$w_o$	24.7 %	$w_f$	23.8 %
DIAMETER(in.) 2.43	HEIGHT(in) 5.80	VOID RATIO		$e_o$	0.667	$e_f$	0.647
OVERBURDEN PRESS., $\sigma'_{vo}$ 250 psf		SATURATION		$S_o$	100 %	$S_f$	100 %
CONSOLIDATION PRESS., $\sigma'_c$ 1600 psf		DRY DENSITY		$\gamma_d$	101 pcf	$\gamma_d$	103 pcf
TRAIN RATE --- %/min		G <sub>s</sub>		2.71			
CLASSIFICATION SILTY SAND (SM)		SOURCE Boring 9 at 4.5'					



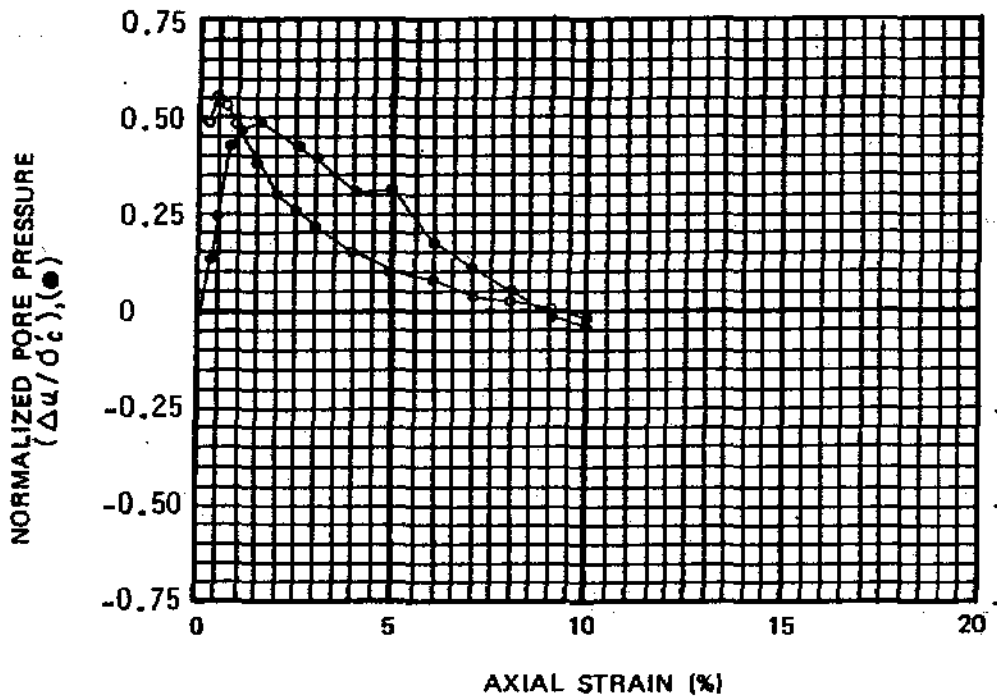
**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Undrained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-90**



EFFECTIVE PRINCIPLE STRESS RATIO  $\frac{(\sigma_1' - \sigma_3')}{\sigma_c'}$ , (0)



PORE PRESSURE PARAMETER A  $\frac{(\Delta u - \Delta \sigma_3')}{(\Delta \sigma_1' - \Delta \sigma_3')}$ , (0)

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in.) 2.46	HEIGHT(in) 6.00	MOISTURE CONTENT	$w_o$	22.7 %	$w_f$	21.2 %
OVERBURDEN PRESS. $\sigma_{vo}'$ 280 psf		VOID RATIO	$e_o$	0.641	$e_f$	0.578
CONSOLIDATION PRESS. $\sigma_c'$ 3200 psf		SATURATION	$S_o$	96 %	$S_f$	100 %
STRAIN RATE -- %/min		DRY DENSITY	$\gamma_d$	103 pcf	$\gamma_d$	107 pcf
LL --	PL --	PI --		$G_s$ 2.70		

CLASSIFICATION SILTY SAND (SM)

SOURCE Boring 9 at 5.1'



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**

Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-91**

DRAWN

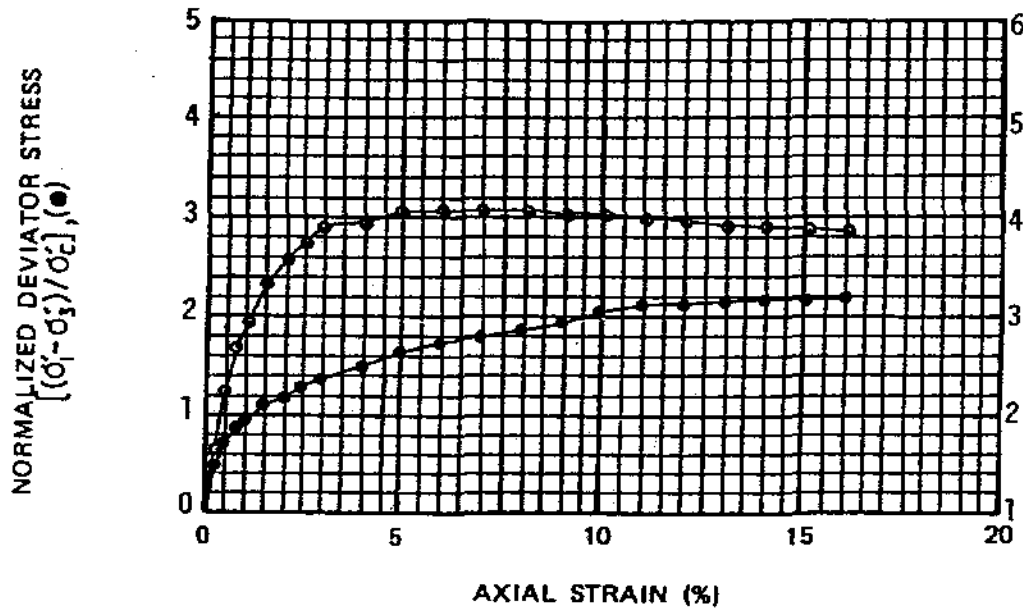
JOB NUMBER  
9612,031.08

APPROVED  
*JLB*

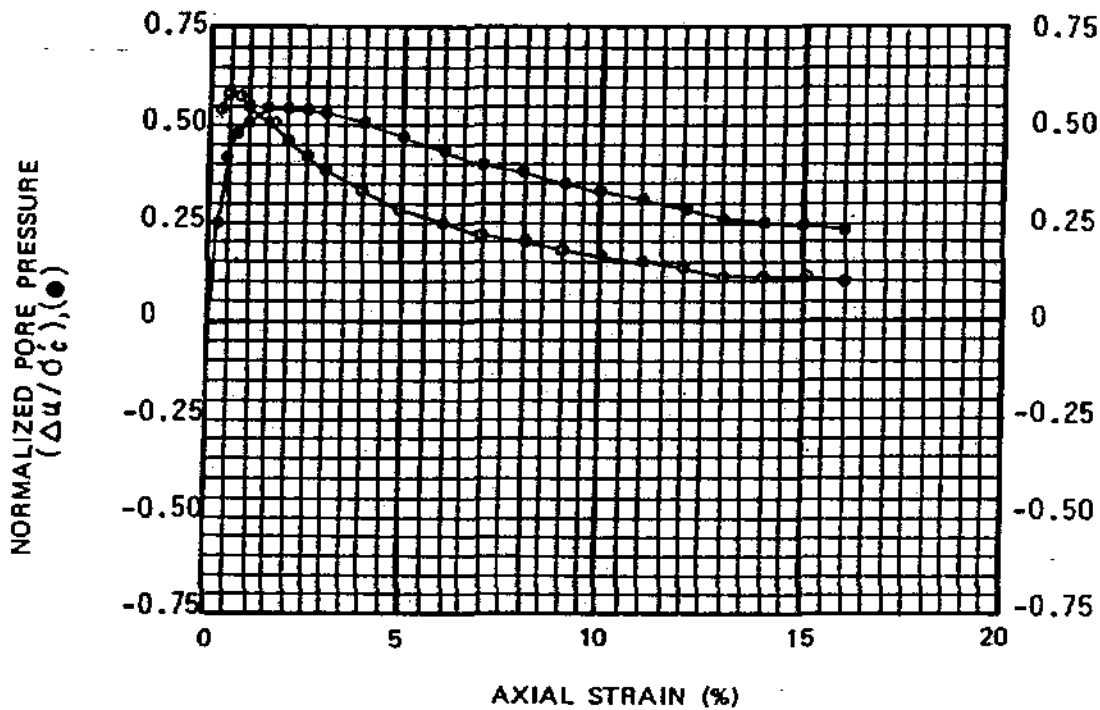
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  
 $(\sigma_1 / \sigma_3), (O)$



PORE PRESSURE PARAMETER A  
 $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right), (O)$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
DIAMETER (in.)	2.87	HEIGHT (in.)	6.45	MOISTURE CONTENT	$w_0$	26.4 %	$w_f$	24.4 %
OVERBURDEN PRESS., $\sigma_{vo}$	410 psf	VOID RATIO	$e_0$	0.749	$e_f$	0.668		
CONSOLIDATION PRESS., $\sigma'_c$	3000 psf	SATURATION	$S_0$	97 %	$S_f$	100 %		
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$	98 pcf	$\gamma_d$	103 pcf		
PL	--	PI	--	$G_s$	2.74			
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 9 at 7.4'				



Harding Lawson Associates  
 Engineers, Geologists  
 & Geophysicists

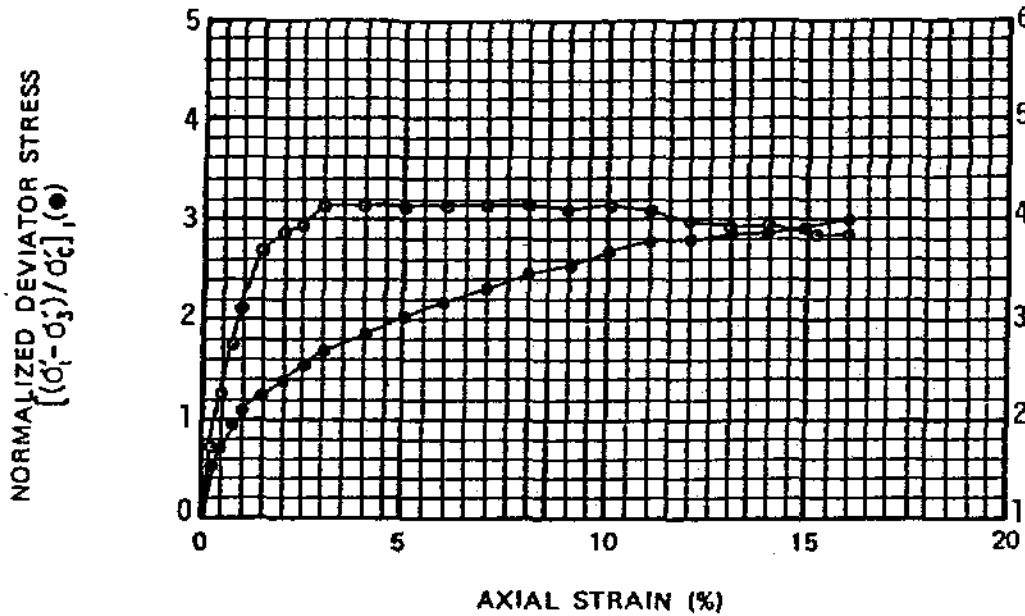
**Consolidated-Undrained  
 Triaxial Compression Test Report**

Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

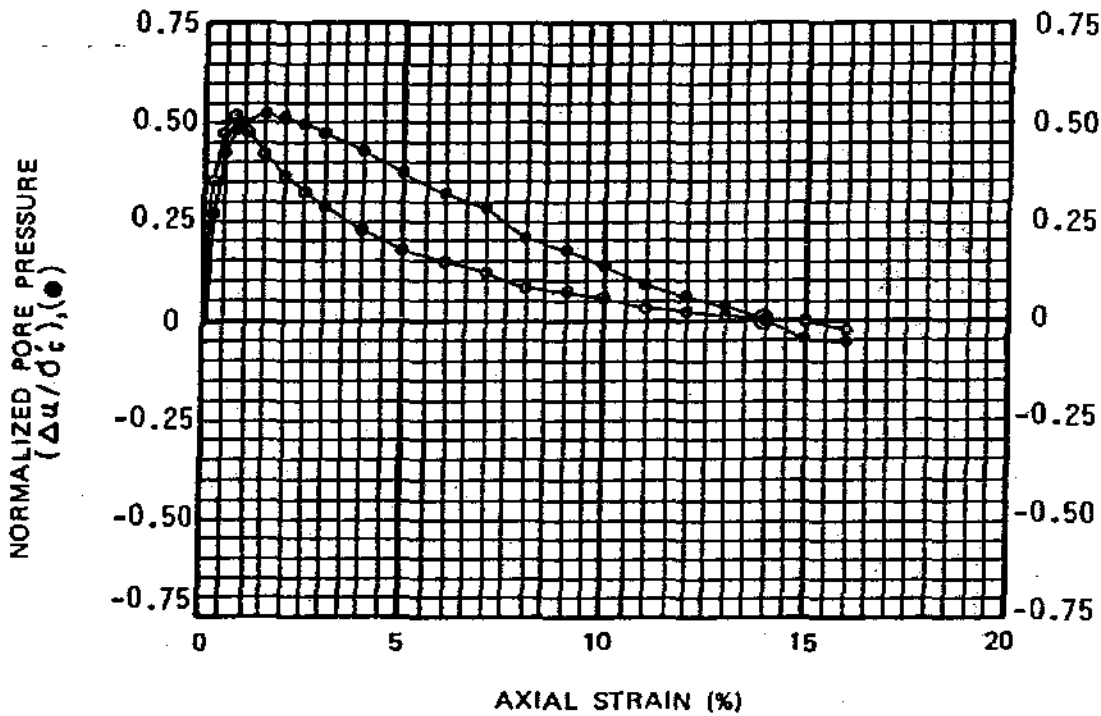
PLATE

**D-92**





EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma'_1 / \sigma'_3) (○)$



PORE PRESSURE PARAMETER A  $(\frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3}) (○)$

TYPE OF SPECIMEN Undisturbed		BEFORE TEST				AFTER TEST	
DIAMETER(in.) 2.87	HEIGHT(in) 6.45	MOISTURE CONTENT	w <sub>o</sub>	28.4%	w <sub>f</sub>	27.4 %	
OVERBURDEN PRESS. σ' <sub>vo</sub>	450 psf	VOID RATIO	e <sub>o</sub>	0.789	e <sub>f</sub>	0.747	
CONSOLIDATION PRESS. σ' <sub>c</sub>	1870 psf	SATURATION	S <sub>o</sub>	99%	S <sub>f</sub>	100 %	
STRAIN RATE --	%/min	DRY DENSITY	γ <sub>d</sub>	96 pcf	γ <sub>d</sub>	98 pcf	
LL --	PL --	PI --	G <sub>s</sub> 2.74				
CLASSIFICATION SANDY SILT (ML)			SOURCE Boring 9 at 8.1'				



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-93**

DRAWN

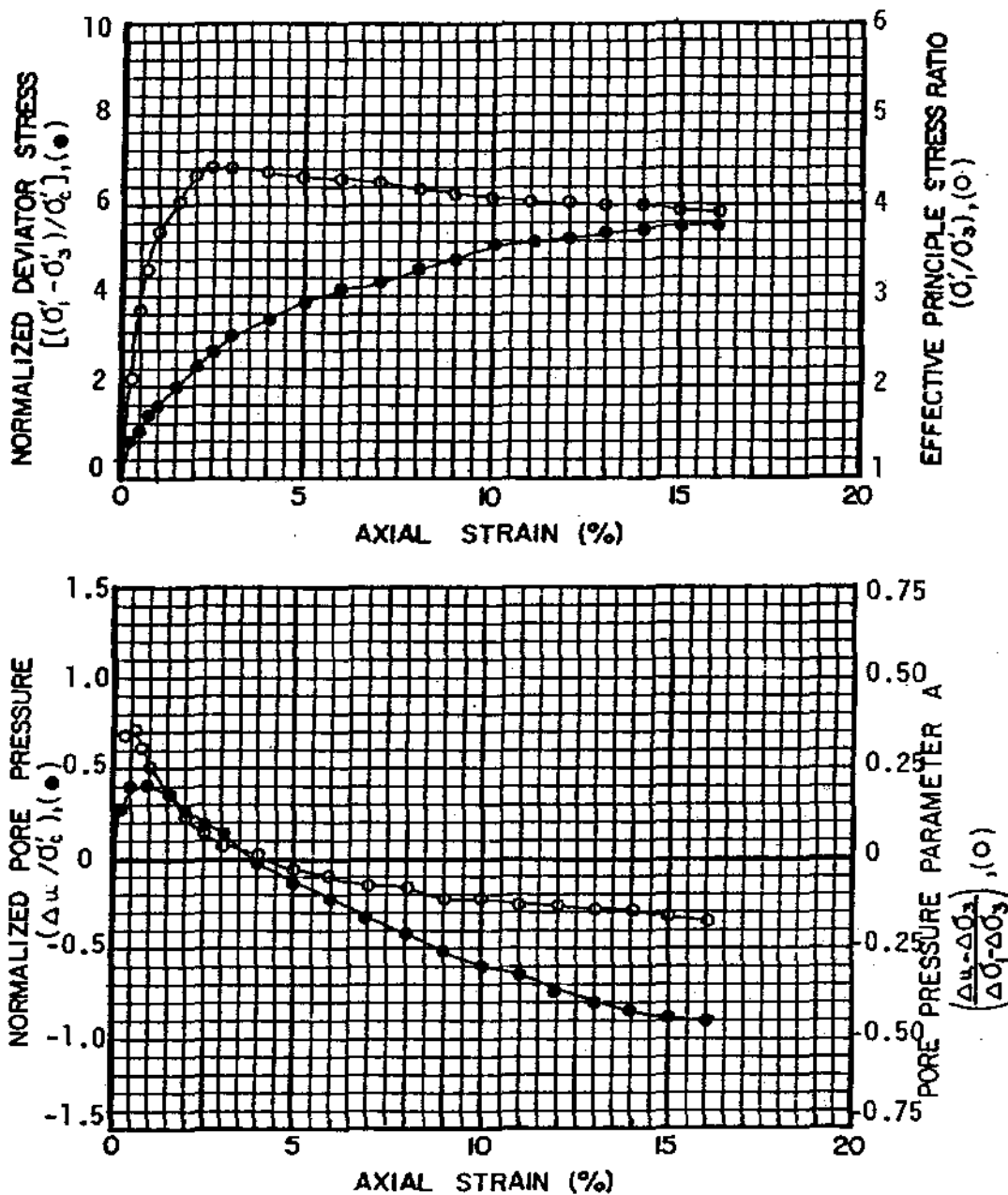
JOB NUMBER

APPROVED

DATE

REVISED

DATE



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$ 27.4 %	$w_f$ 27.2 %	
OVERBURDEN PRESS, $\sigma'_{v0}$	500 psf	VOID RATIO	$e_0$ 0.781	$e_f$ 0.743			
CONSOLIDATION PRESS, $\sigma'_c$	860 psf	SATURATION	$S_0$ 96 %	$S_f$ 100 %			
STRAIN RATE	--	DRY DENSITY	$\gamma_d$ 96 pcf	$\gamma_d$ 98 pcf			
LL	NP	PL	NP	PI	NP	$G_s$ 2.74	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 9 at 9.0'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**

Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-94**

DRAWN

JP

JOB NUMBER

9612,031.08

APPROVED

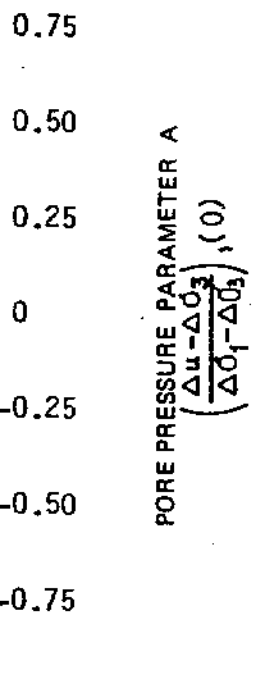
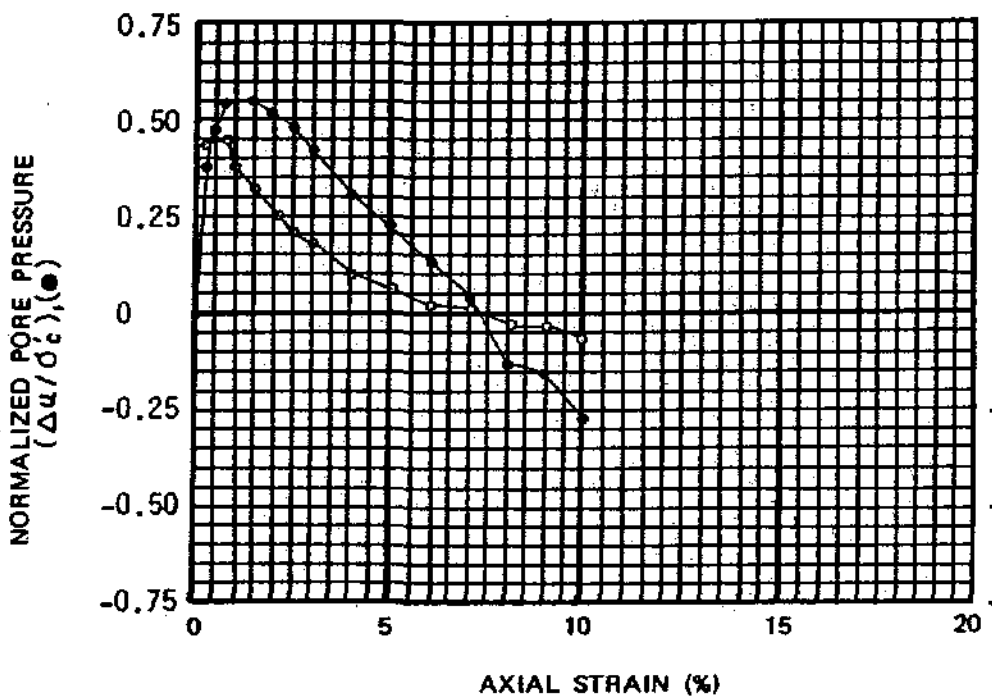
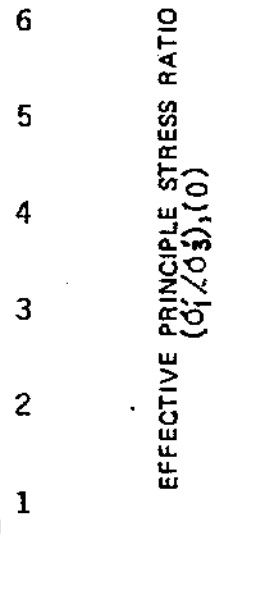
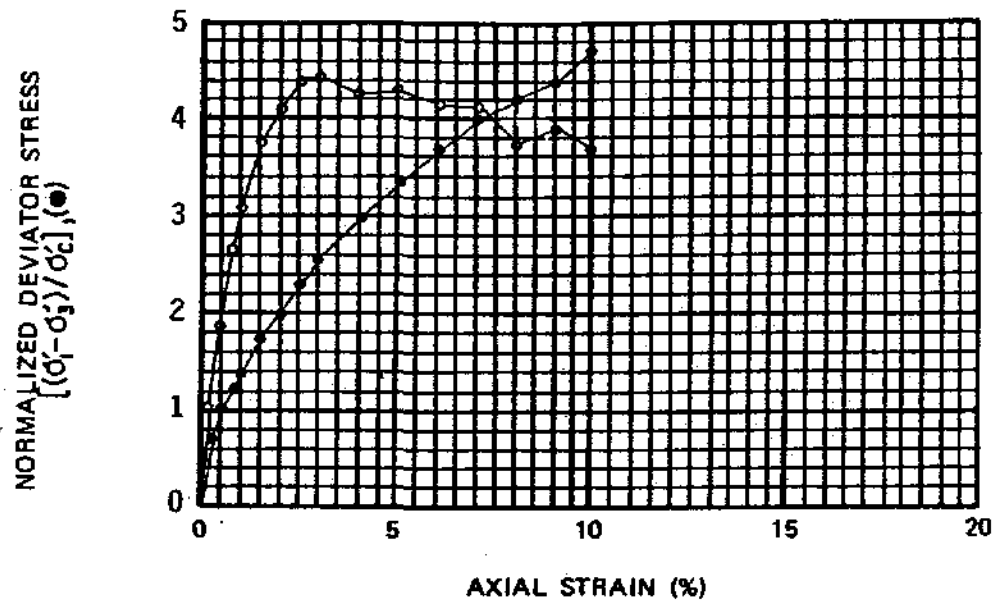
DEB

DATE

4/82

REVISED

DATE



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed (trimmed)							
DIAMETER (in.)	2.46	HEIGHT (in.)	5.95	MOISTURE CONTENT	$w_0$ 27.1 %	$w_f$ 25.4 %	
OVERBURDEN PRESS. ( $\sigma'_{vo}$ )	130 psf	VOID RATIO	$e_0$ 0.782	$e_f$ 0.692			
CONSOLIDATION PRESS. ( $\sigma'_c$ )	1000 psf	SATURATION	$S_0$ 94 %	$S_f$ 100 %			
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$ 95 pcf	$\gamma_d$ 100 pcf			
LL	--	PL	--	PI	--	$G_s$ 2.72	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 14 at 2.4'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-95**

DRAWN

JP

JOB NUMBER

9612,031.08

APPROVED

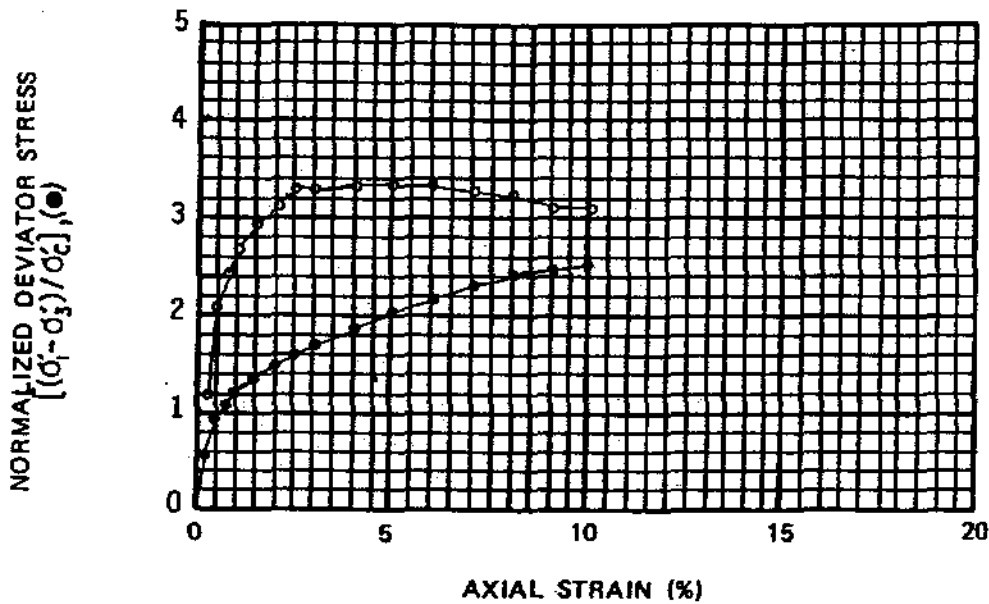
DAB

DATE

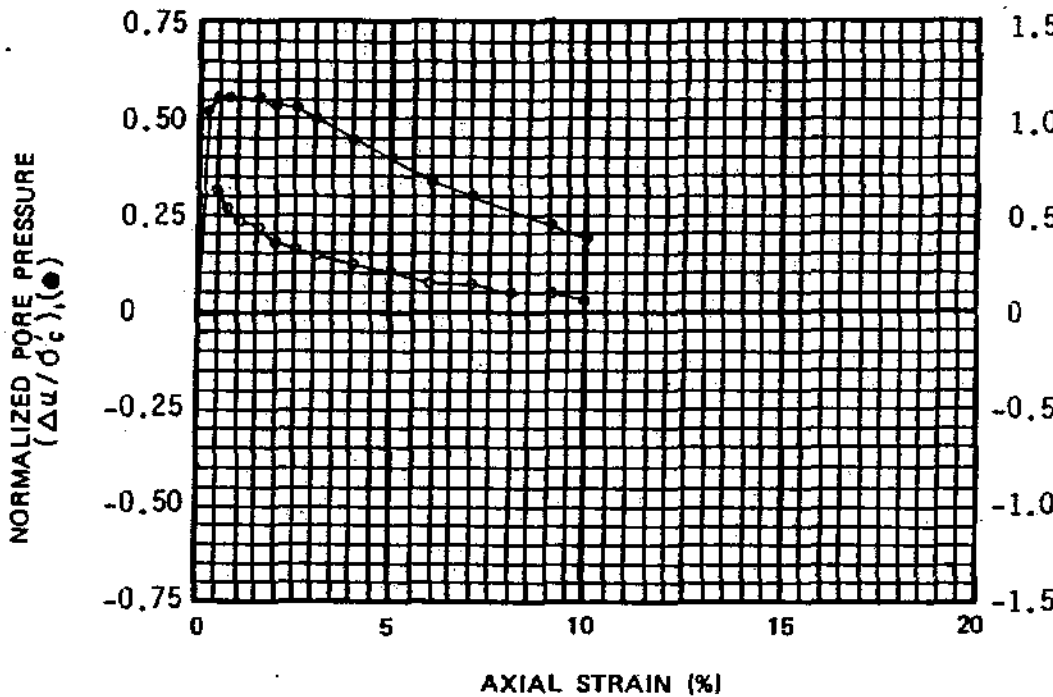
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1'/\sigma_3'), (0)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right), (0)$

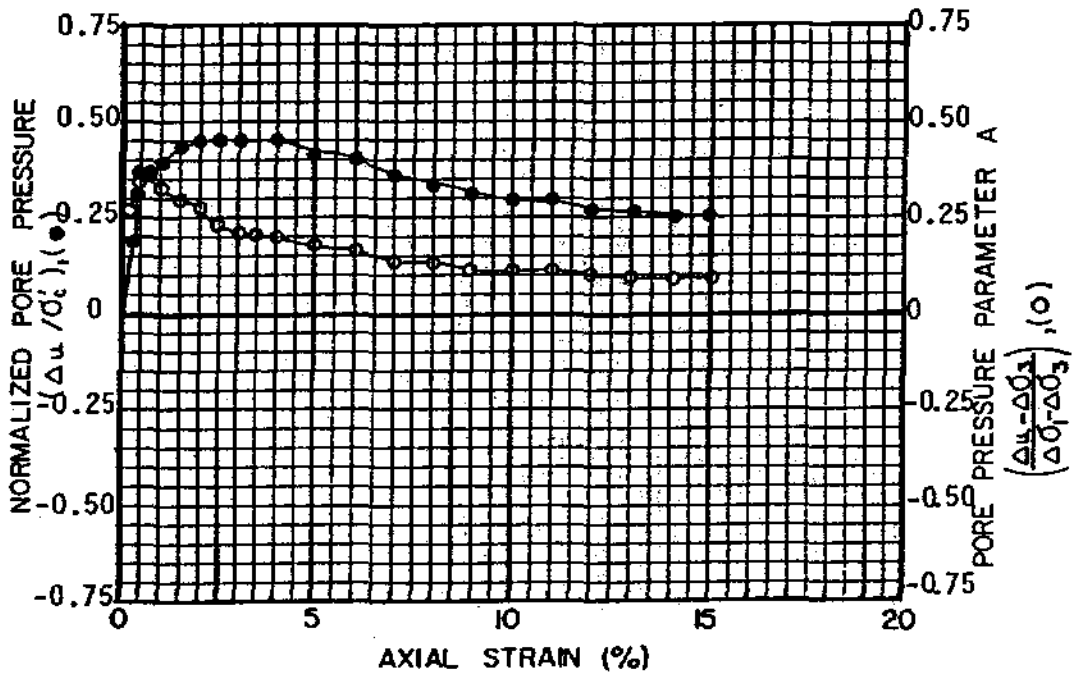
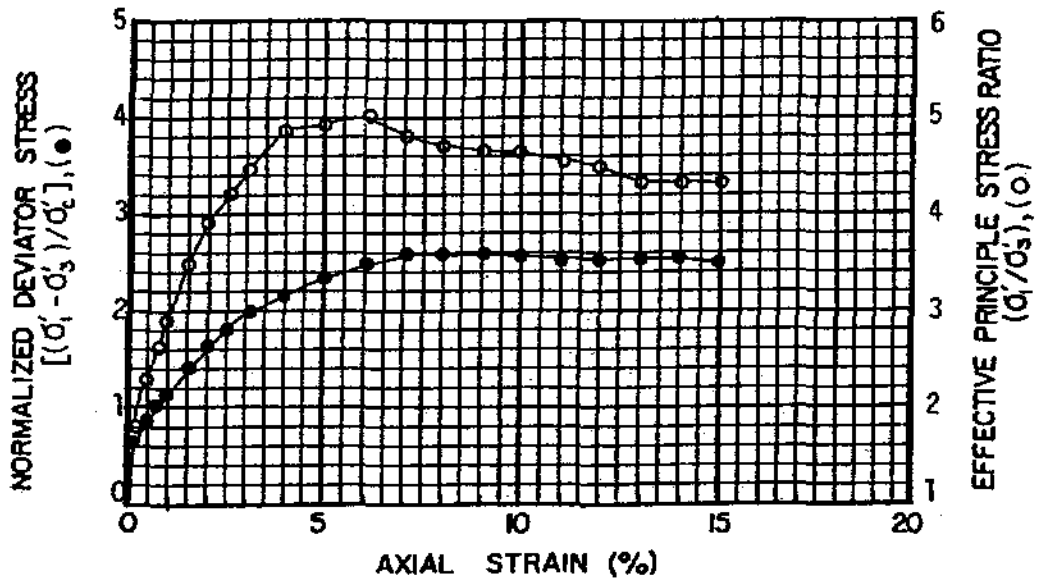
TYPE OF SPECIMEN Undisturbed (trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER (in.) 2.46	HEIGHT (in) 6.00	MOISTURE CONTENT	$w_o$	26.7 %	$w_f$	23.8 %
OVERBURDEN PRESS., $\sigma_{vo}'$ 160 psf		VOID RATIO	$e_o$	0.755	$e_f$	0.683
CONSOLIDATION PRESS., $\sigma_c'$ 2000 psf		SATURATION	$S_o$	96 %	$S_f$	100 %
STRAIN RATE -- %/min		DRY DENSITY	$\gamma_d$	96 pcf	$\gamma_d$	101 pcf
LL --	PL --	PI --		$G_s$ 2.71		
CLASSIFICATION SANDY SILT (ML)			SOURCE Boring 14 at 2.9'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-96**



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$ 70.2%	$w_f$ 66.1%	
OVERBURDEN PRESS, $\sigma'_{v0}$	460 psf	VOID RATIO	$e_0$ 1.875	$e_f$ 1.728			
CONSOLIDATION PRESS, $\sigma'_c$	750 psf	SATURATION	$S_0$ 97%	$S_f$ 100%			
STRAIN RATE	--	%/min	DRY DENSITY	$\gamma_d$ 56 pcf	$\gamma_d$ 60 pcf		
LL	--	PL	--	PI	--	$G_s$ 2.60	
CLASSIFICATION SILT (MH)				SOURCE Boring 15 at 8.4'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-97**

DRAWN

*P*

JOB NUMBER

9612,031.08

APPROVED

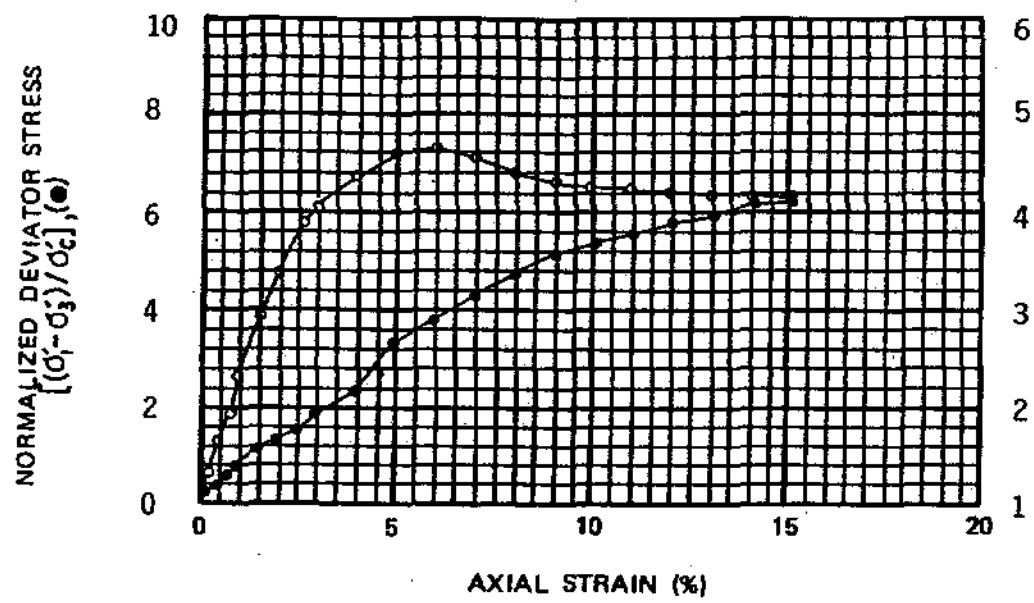
*DLB*

DATE

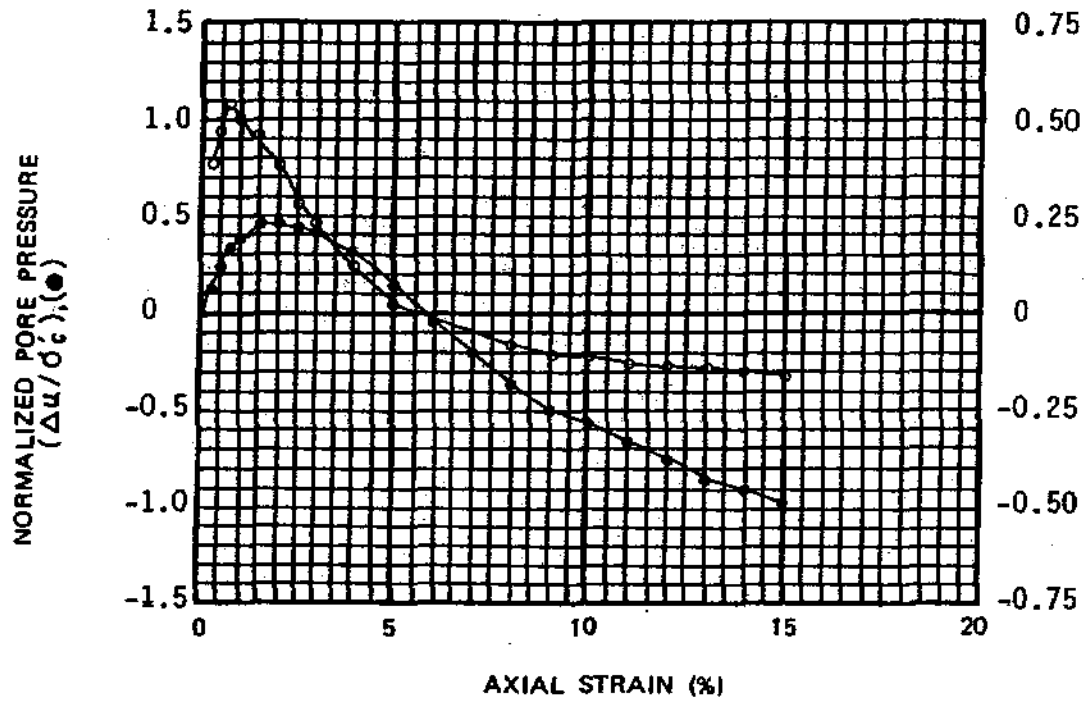
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $\left( \frac{\sigma'_1}{\sigma'_3} \right), (O)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3} \right), (O)$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed(trimmed)		MOISTURE CONTENT		$w_o$	18.2 %	$w_f$	16.6 %
DIAMETER(in.)	2.43	HEIGHT(in)	5.15	$e_o$	0.500	$e_f$	0.443
OVERBURDEN PRESS., $\sigma'_{vo}$	850 psf	VOID RATIO		$S_o$	100 %	$S_f$	100 %
CONSOLIDATION PRESS., $\sigma'_c$	5000 psf	SATURATION		$\gamma_d$	114 pcf	$\gamma_d$	118 pcf
STRAIN RATE	-- %/min	DRY DENSITY					
LL	--	PL	--	PI	--	$G_s$	2.73
CLASSIFICATION SILTY SAND (SM)				SOURCE Boring 15 at 15.5'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-98**

DRAWN  
JP

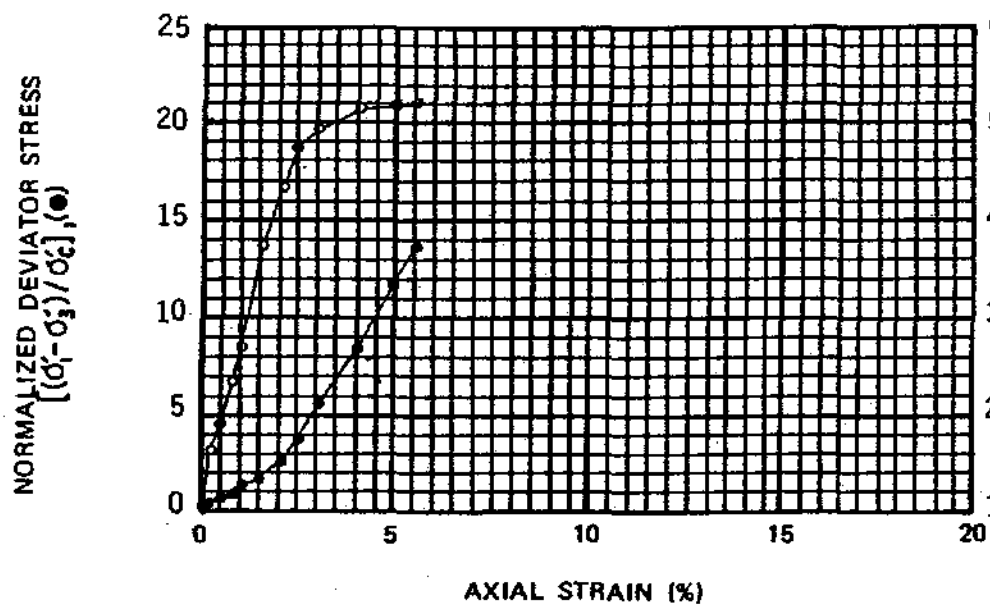
JOB NUMBER  
9612,031.08

APPROVED  
DEB

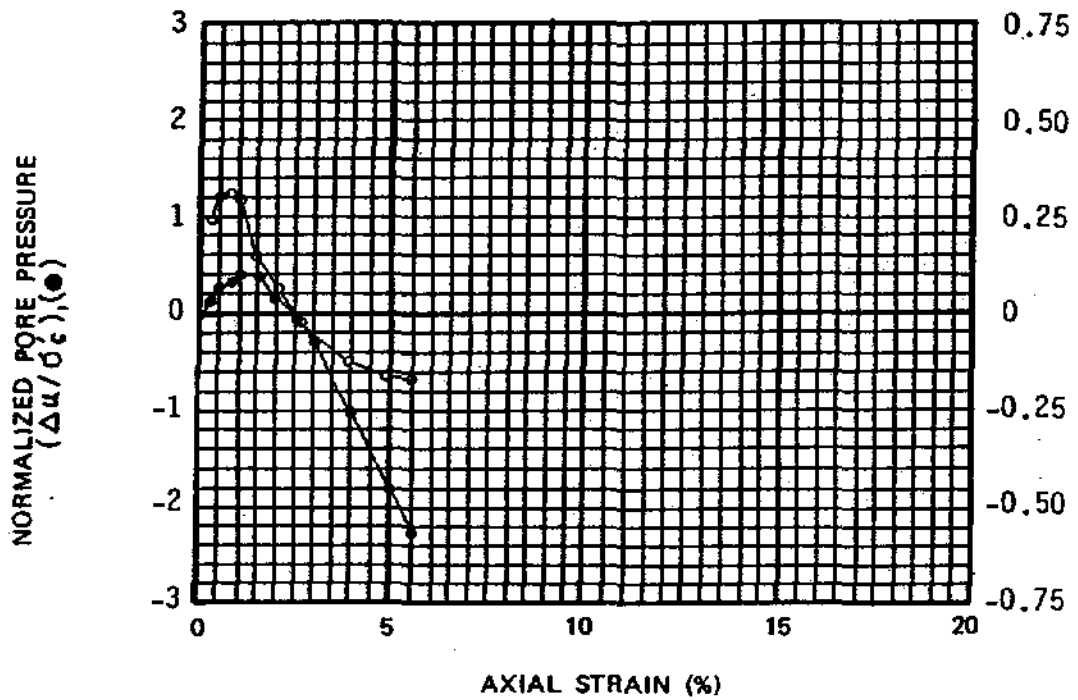
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $\left( \frac{\sigma'_1}{\sigma'_3} \right), (\sigma)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3} \right), (\sigma)$

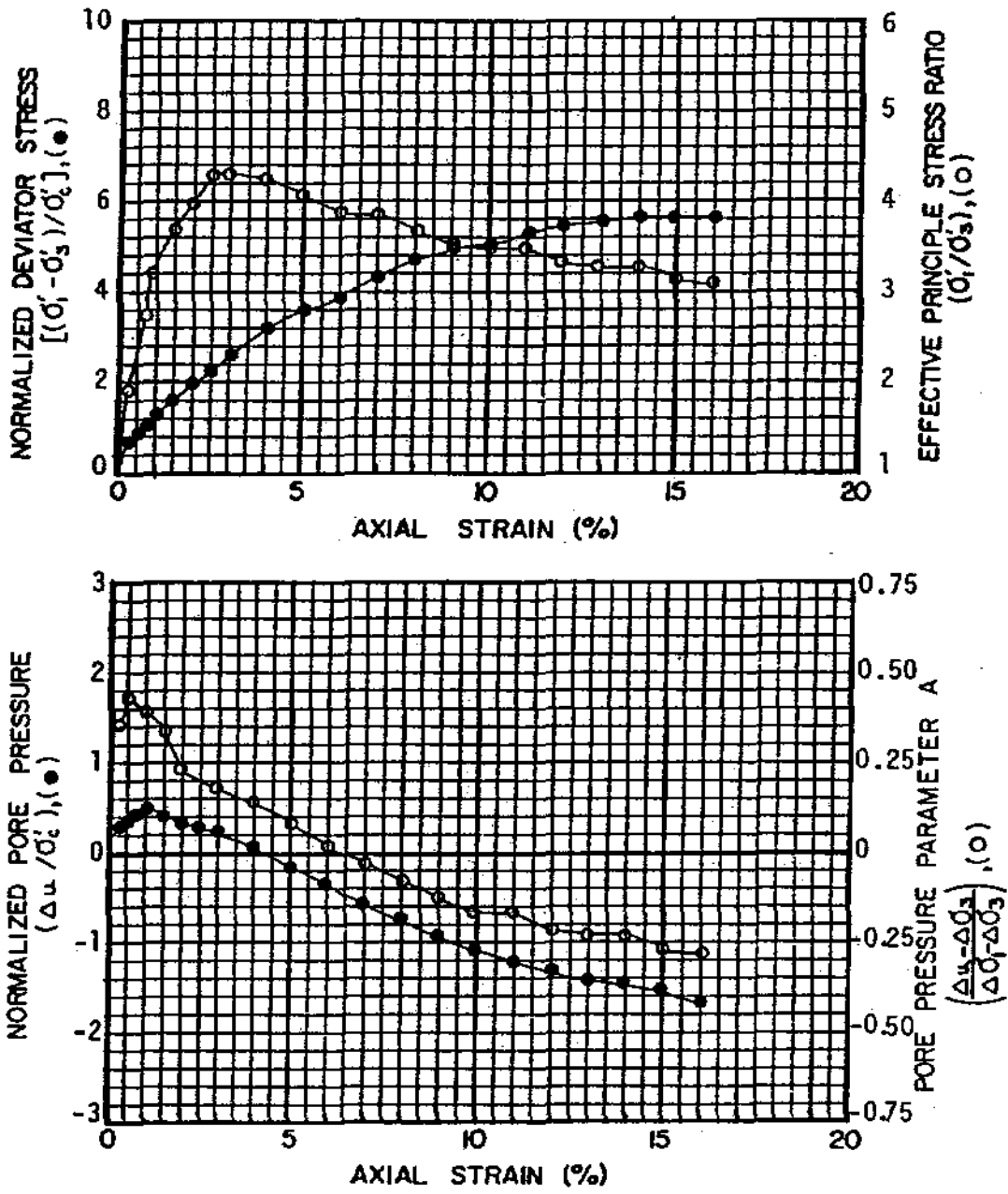
TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed (trimmed)		MOISTURE CONTENT	$w_o$	18.6 %	$w_f$	16.8 %	
DIAMETER(in.) 2.46	HEIGHT(in) 5.10	VOID RATIO	$e_o$	0.514	$e_f$	0.462	
OVERBURDEN PRESS., $\sigma'_{vo}$	880 psf	SATURATION	$S_o$	99 %	$S_f$	100 %	
CONSOLIDATION PRESS., $\sigma'_c$	2250 psf	DRY DENSITY	$\gamma_d$	113 pcf	$\gamma_d$	117 pcf	
STRAIN RATE	-- %/min						
LL	--	PI	--	$G_s$	2.73		
PL	--						
CLASSIFICATION SILTY SAND (SM)				SOURCE Boring 15 at 16.0'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-99**



TYPE OF SPECIMEN	Undisturbed		BEFORE TEST			AFTER TEST		
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$	24.7 %	$w_f$	24.1 %
OVERBURDEN PRESS., $\sigma'_{v0}$	1940 psf		VOID RATIO	$e_0$	0.690	$e_f$	0.670	
CONSOLIDATION PRESS., $\sigma'_c$	2000 psf		SATURATION	$S_0$	99 %	$S_f$	100 %	
STRAIN RATE	--	%/min	DRY DENSITY	$\gamma_d$	103 pcf	$\gamma'_d$	104 pcf	
LL	43	PL	16	PI	17	$G_s$	2.78	
CLASSIFICATION	SILTY CLAY (CL)			SOURCE	Boring 17 at 35.3'			



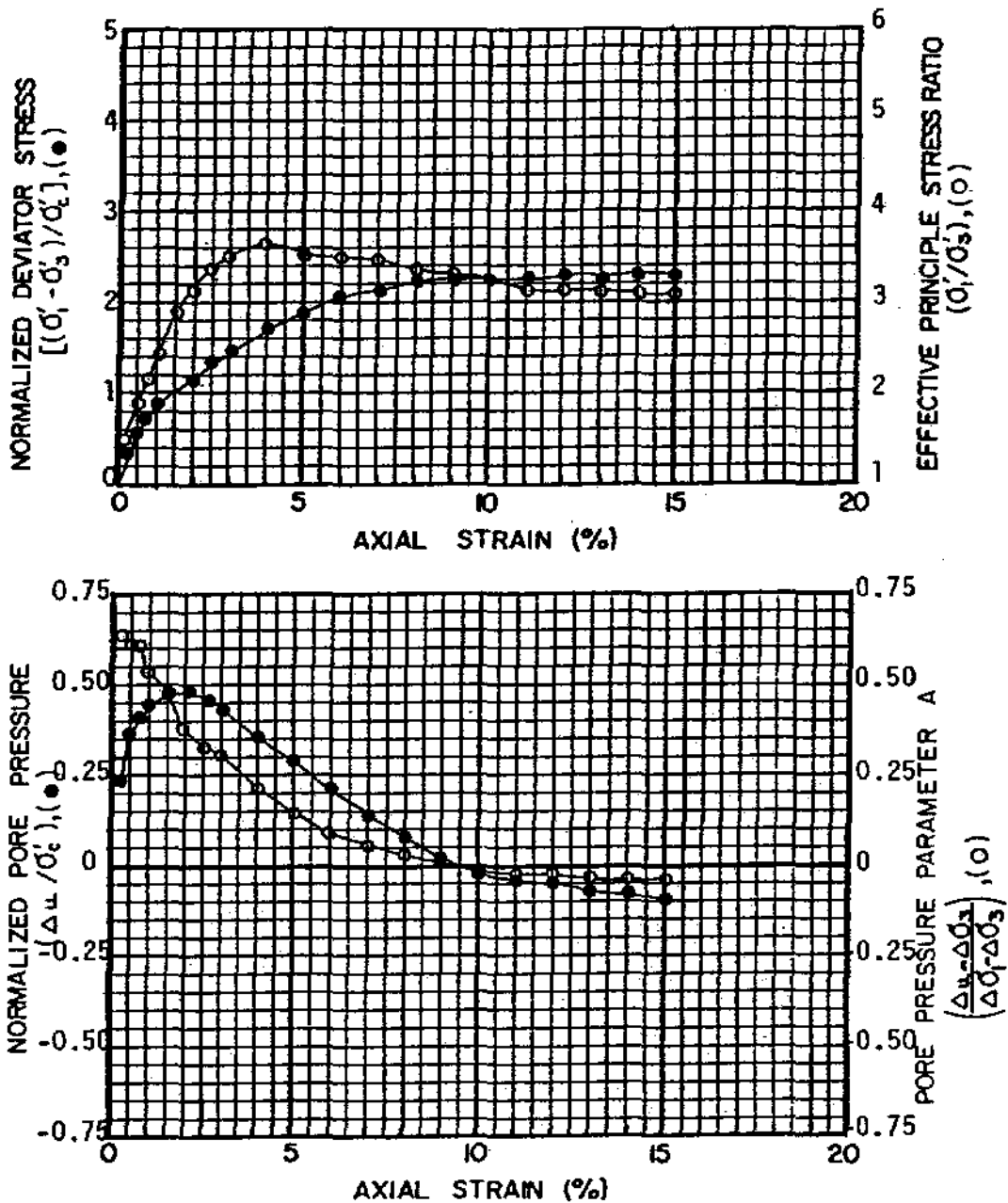
**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Undrained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-100**





TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST		
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$ 24.3 %	$w_f$ 24.1 %		
OVERBURDEN PRESS., $\sigma'_{v0}$	2000 psf	VOID RATIO	$e_0$ 0.677	$e_f$ 0.670				
CONSOLIDATION PRESS., $\sigma'_c$	4000 psf	SATURATION	$S_0$ 99 %	$S_f$ 100 %				
STRAIN RATE	--	%/min	DRY DENSITY	$\gamma_d$ 103 pcf	$\gamma_d$ 104 pcf			
LL	43	PL	26	PI	17	$G_s$ 2.78		
CLASSIFICATION				CLAYEY SILT (ML)		SOURCE		Boring 17 at 36.3'



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-101**

DRAWN  
JP

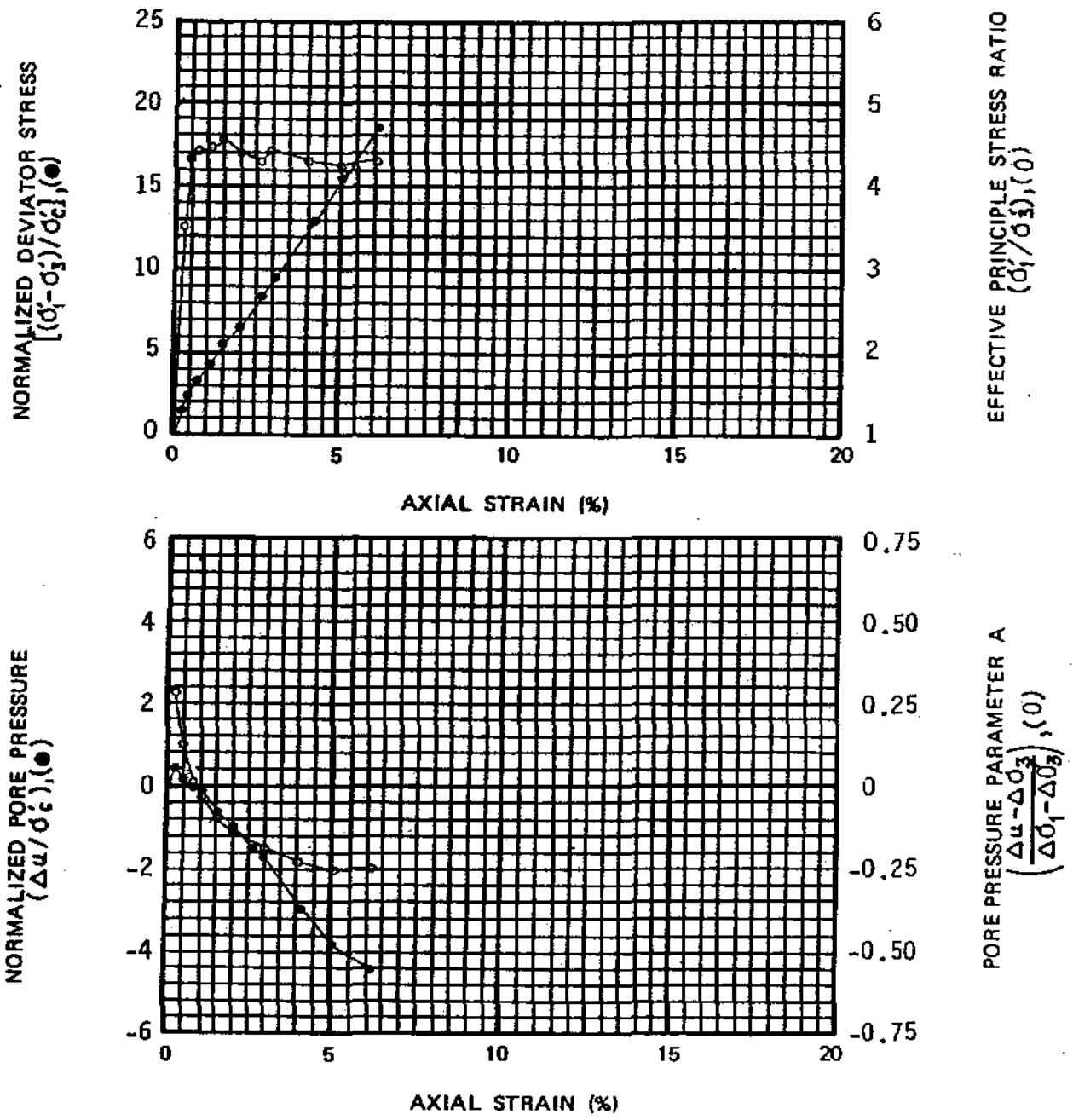
JOB NUMBER  
9612,031.08

APPROVED  
JEB

DATE  
4/82

REVISED

DATE



TYPE OF SPECIMEN Undisturbed (trimmed)		BEFORE TEST				AFTER TEST	
DIAMETER(in.) 2.46	HEIGHT(in) 6.00	MOISTURE CONTENT	$w_o$	19.3 %	$w_f$	18.6 %	
OVERBURDEN PRESS. $\sigma'_{vo}$ 230 psf		VOID RATIO	$e_o$	0.535	$e_f$	0.505	
CONSOLIDATION PRESS. $\sigma'_c$ 750 psf		SATURATION	$S_o$	99 %	$S_f$	100 %	
STRAIN RATE -- %/min		DRY DENSITY	$\gamma_d$	111 pcf	$\gamma_d$	114 pcf	
LL --	PL --	PI --		$G_s$ 2.74			

CLASSIFICATION SANDY SILT (ML) | SOURCE Boring 21 at 4.1'

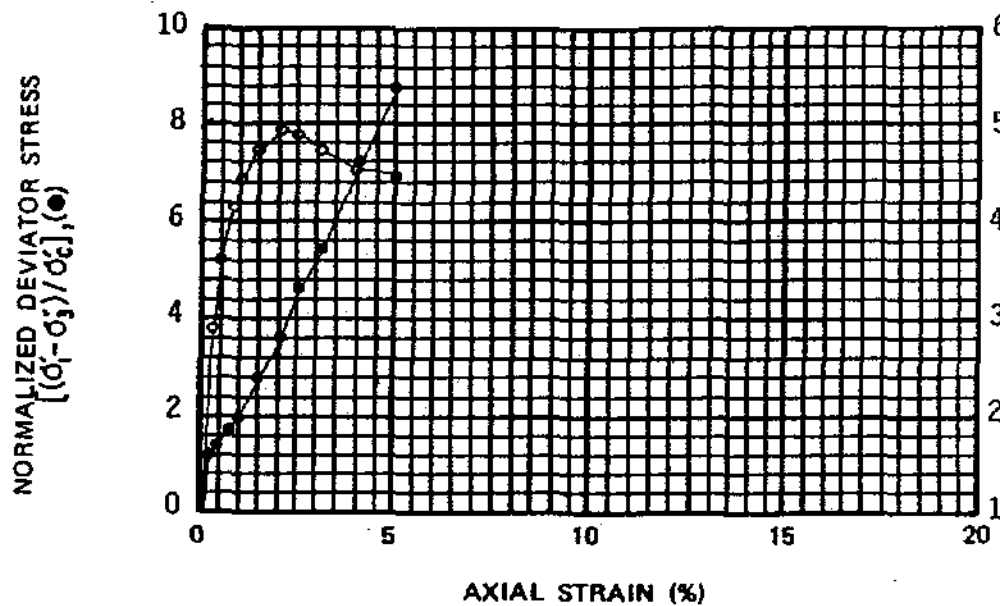


**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

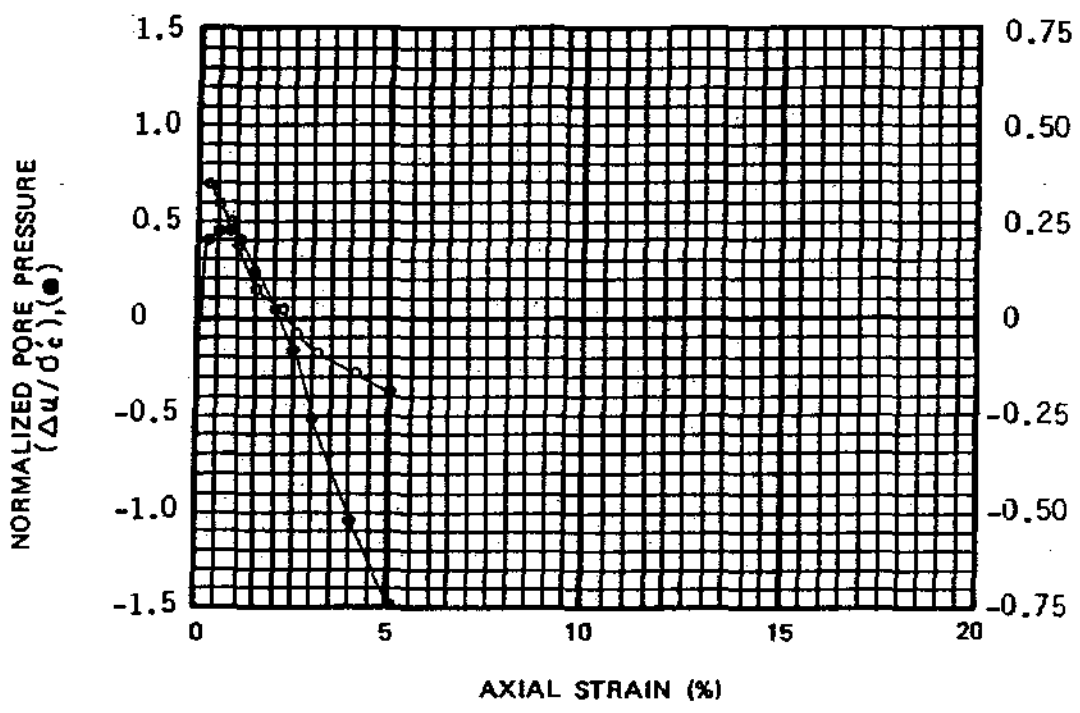
**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-102**



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma'_1 / \sigma'_3)_{(0)}$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right)_{(0)}$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
DIAMETER(in.)	2.46	HEIGHT(in)	5.65	MOISTURE CONTENT	$w_o$	18.9 %	$w_f$ 18.2 %
OVERBURDEN PRESS., $\sigma'_{vo}$	260 psf	VOID RATIO	$e_o$	0.535	$e_f$	0.497	
CONSOLIDATION PRESS., $\sigma'_c$	1500 psf	SATURATION	$S_o$	96 %	$S_f$	100 %	
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$	111 pcf	$\gamma_d$	114 pcf	
LL	--	PL	--	PI	--	$G_s$	2.73

CLASSIFICATION SANDY SILT (ML)

SOURCE Boring 21 at 4.7'



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-103**

DRAWN  
V

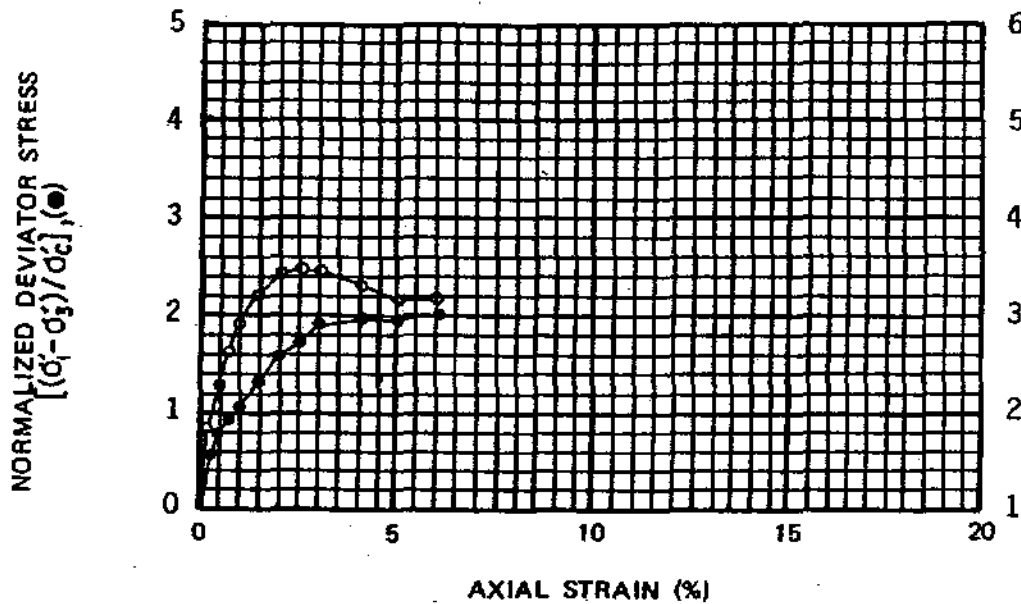
JOB NUMBER  
0612 031 00

APPROVED  
DLA

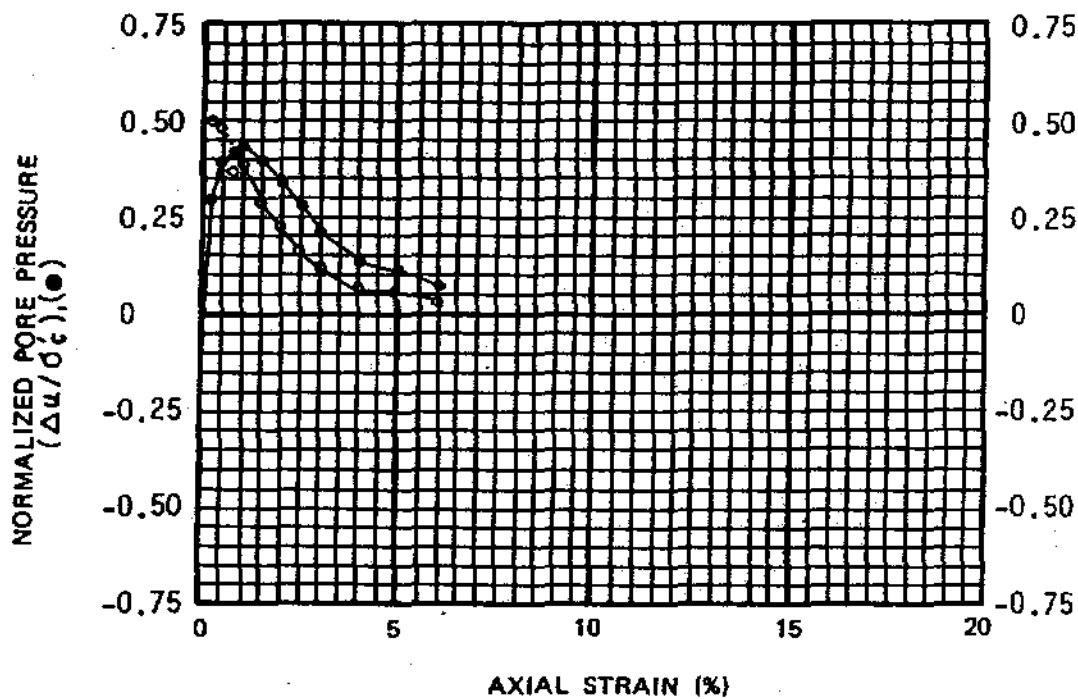
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma_1' / \sigma_3'), (0)$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3} \right), (0)$

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST				AFTER TEST		
DIAMETER(in.)	2.46	HEIGHT(in)	5.75	MOISTURE CONTENT	$w_o$	20.5 %	$w_f$	19.3 %
OVERBURDEN PRESS., $\sigma_{vo}'$	290 psf	VOID RATIO	$e_o$	0.582	$e_f$	0.532		
CONSOLIDATION PRESS., $\sigma_c'$	3000 psf	SATURATION	$S_o$	96 %	$S_f$	100 %		
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$	108 pcf	$\gamma_d$	112 pcf		
LL	--	PL	--	PI	--	$G_s$	2.74	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 21 at 5.2'				



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-104**

DRAWN  
JP

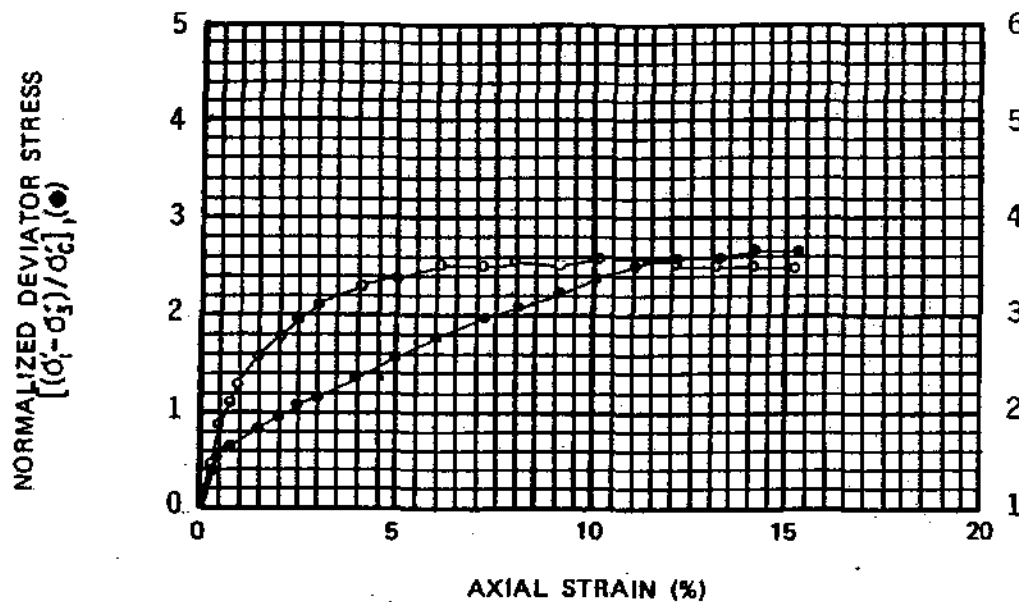
JOB NUMBER  
9612.031.08

APPROVED  
DWS

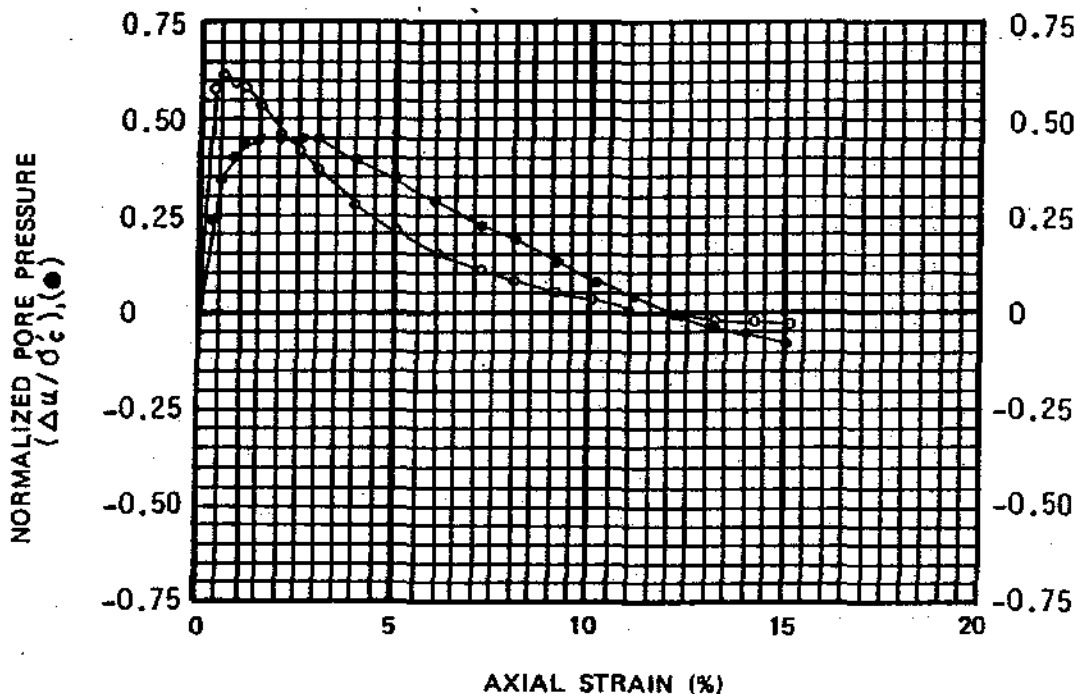
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $\left(\frac{\sigma_1}{\sigma_3}\right), (0)$



PORE PRESSURE PARAMETER A  $\left(\frac{\Delta u - \Delta \sigma_3}{\Delta \sigma_1 - \Delta \sigma_3}\right), (0)$

TYPE OF SPECIMEN Undisturbed		BEFORE TEST			AFTER TEST		
DIAMETER(in.) 2.87	HEIGHT(in) 6.25	MOISTURE CONTENT	$w_o$	24.0 %	$w_f$	22.1 %	
OVERBURDEN PRESS., $\sigma_{vo}'$ 990 psf		VOID RATIO	$e_o$	0.665	$e_f$	0.597	
CONSOLIDATION PRESS., $\sigma_c'$ 4000 psf		SATURATION	$S_o$	98 %	$S_f$	100 %	
STRAIN RATE -- %/min		DRY DENSITY	$\gamma_d$	102 pcf	$\gamma_d$	107 pcf	
LL --	PL --	PI --		$G_s$ 2.73			

CLASSIFICATION SANDY SILT (ML)

SOURCE Boring 21 at 18.0'



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-105**

DRAWN  
JP

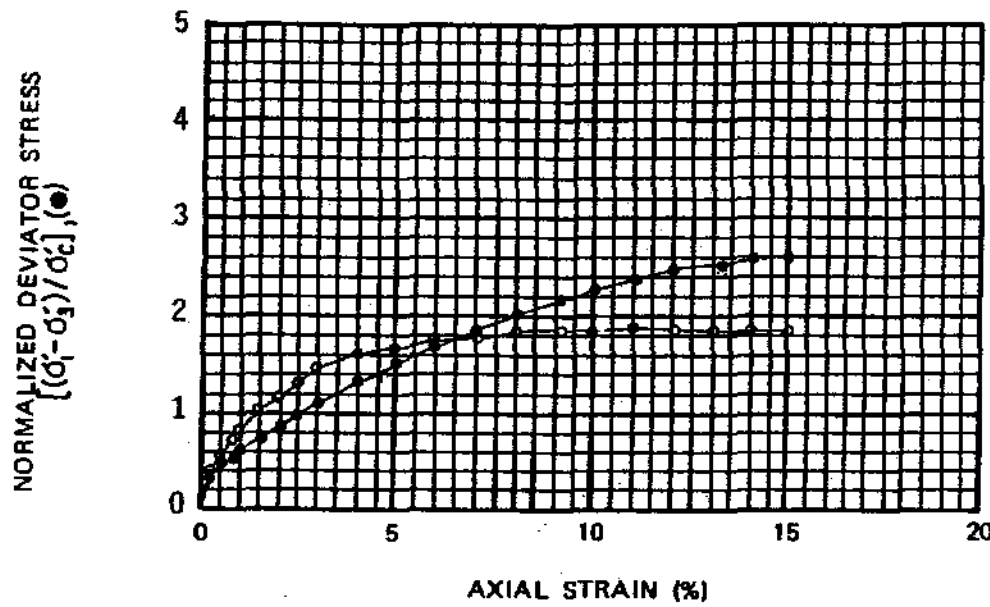
JOB NUMBER  
9612.031.08

APPROVED  
DGB

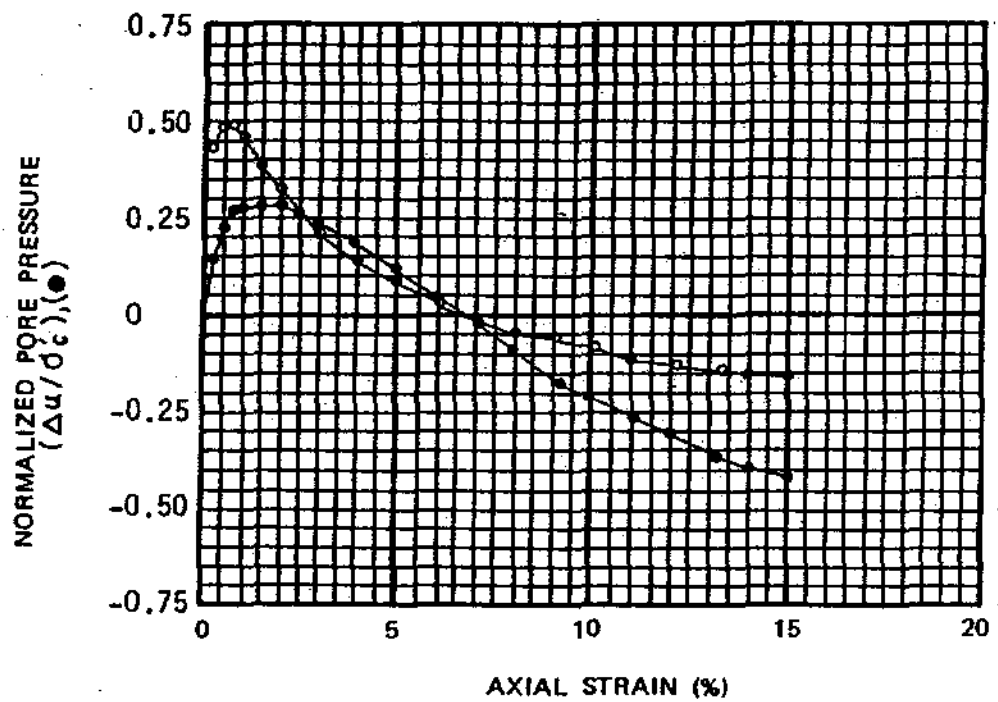
DATE  
4/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $\frac{(\sigma_1' - \sigma_3')}{\sigma_3'}$ , (0)



PORE PRESSURE PARAMETER A  $\frac{(\Delta u - \Delta \sigma_3')}{(\Delta \sigma_1' - \Delta \sigma_3')}$ , (0)

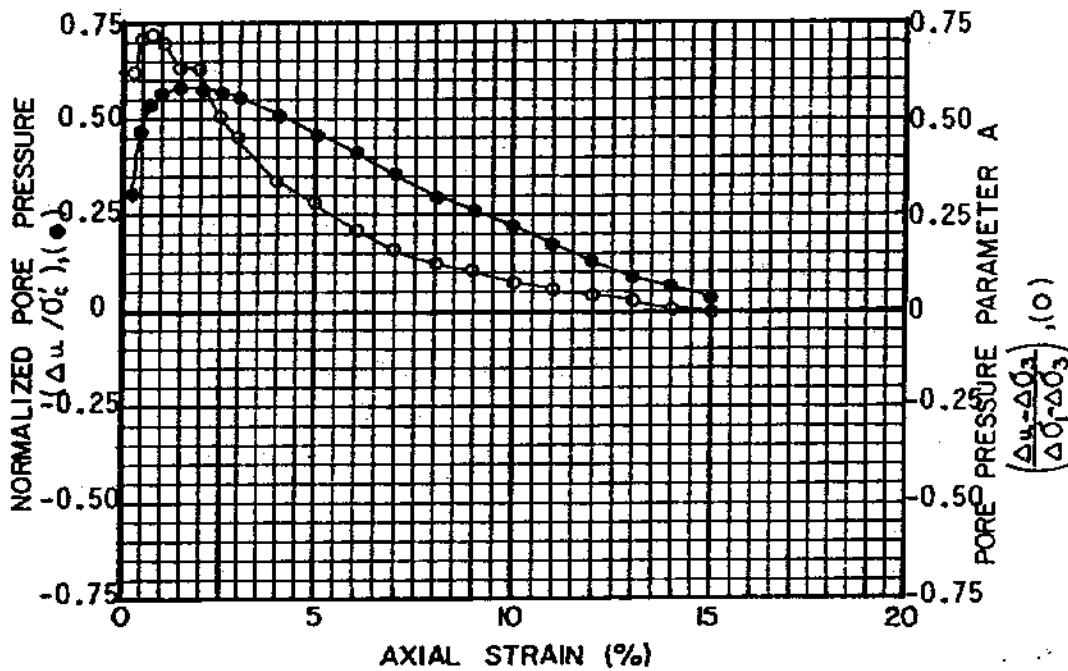
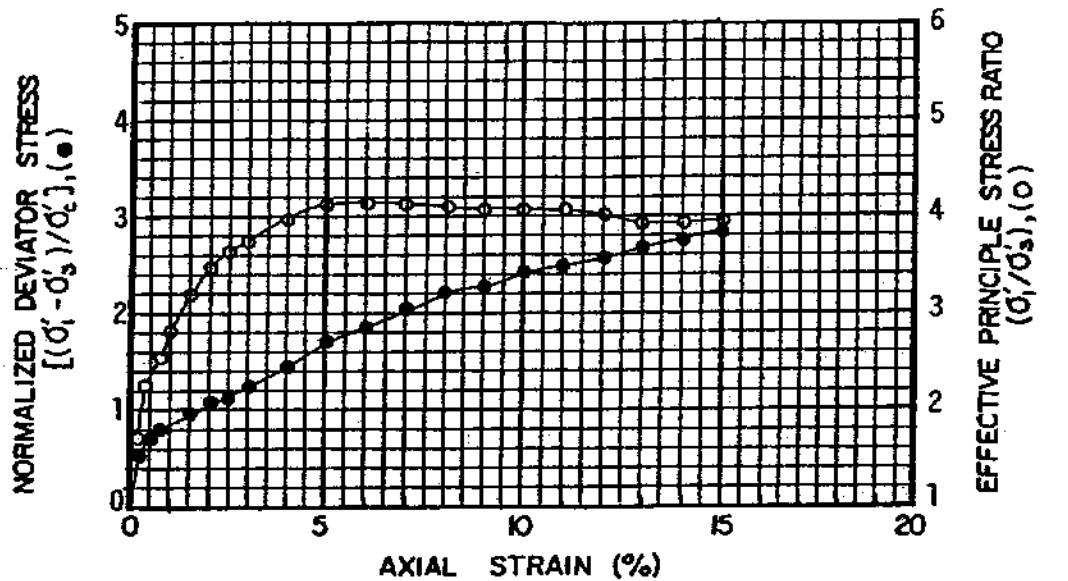
TYPE OF SPECIMEN Undisturbed		BEFORE TEST				AFTER TEST	
DIAMETER(in.) 2.87	HEIGHT(in) 6.45	MOISTURE CONTENT	$w_o$	26.6 %	$w_f$	24.3 %	
OVERBURDEN PRESS., $\sigma_{vo}'$	1020 psf	VOID RATIO	$e_o$	0.763	$e_f$	0.665	
CONSOLIDATION PRESS., $\sigma_c'$	2000 psf	SATURATION	$S_o$	96 %	$S_f$	100 %	
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$	97 pcf	$\gamma_d$	103 pcf	
LL	--	PL	--	PI	--	$G_s$	2.74
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 21 at 18.5'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-106**



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST			AFTER TEST	
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$	25.9 %	$w_f$	22.5 %
OVERBURDEN PRESS., $\sigma'_{v0}$	1440 psf	VOID RATIO	$e_0$	0.749	$e_f$	0.647		
CONSOLIDATION PRESS., $\sigma'_c$	5000 psf	SATURATION	$S_0$	95 %	$S_f$	100 %		
STRAIN RATE	--	%/min	DRY DENSITY	$\gamma_d$	99 pcf	$\gamma_d$	105 pcf	
LL	--	PL	--	PI	--	$G_s$	2.76	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 21 at 26.1'				



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

### Consolidated-Undrained Triaxial Compression Test Report

Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-107**

DRAWN

*Y*

JOB NUMBER

9612,031.08

APPROVED

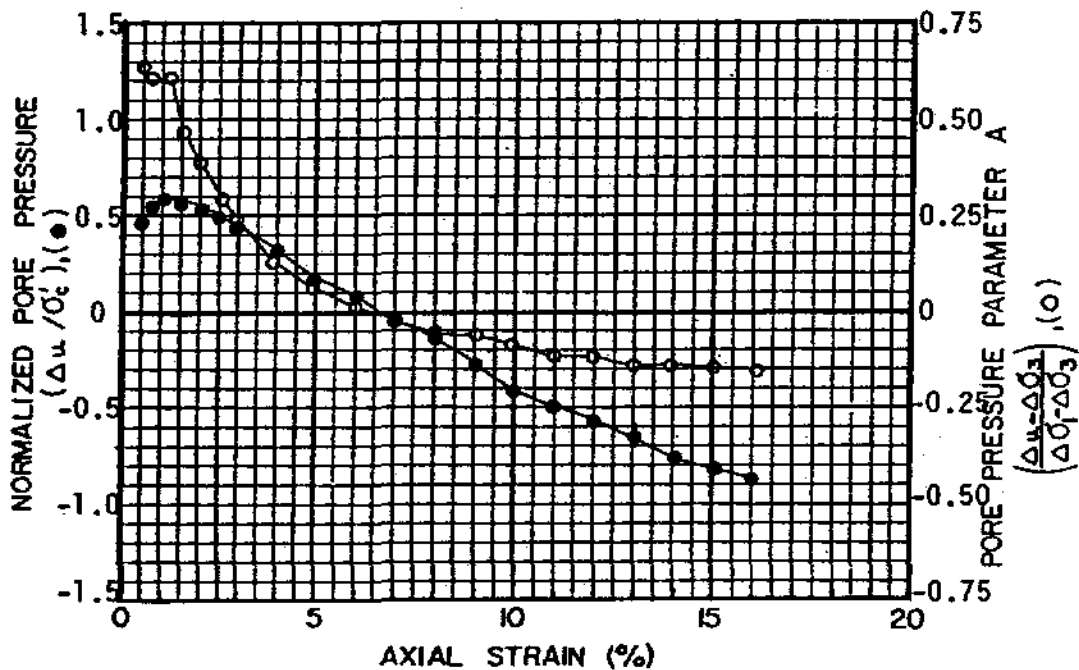
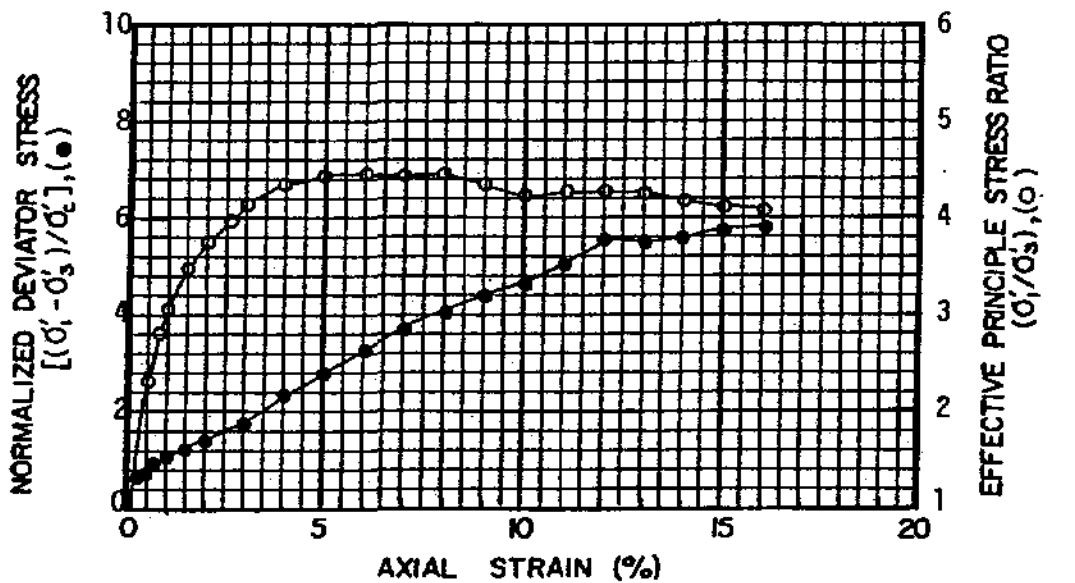
*DeB*

DATE

4/82

REVISED

DATE



TYPE OF SPECIMEN	Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in)	2.87	HEIGHT (in)	6.45	MOISTURE CONTENT	$w_0$ 25.9 %	$w_f$ 23.3 %
OVERBURDEN PRESS, $\sigma'_{v0}$	1470 psf		VOID RATIO	$e_0$ 0.763	$e_f$ 0.660	
CONSOLIDATION PRESS, $\sigma'_c$	2500 psf		SATURATION	$S_0$ 94 %	$S_f$ 100 %	
STRAIN RATE	--	%/min	DRY DENSITY	$\gamma_d$ 98 pcf	$\gamma_d$ 104 pcf	
LL --	PL --	PI --	$G_s$ 2.78			
CLASSIFICATION	SANDY SILT (ML)			SOURCE Boring 21 at 26.8'		



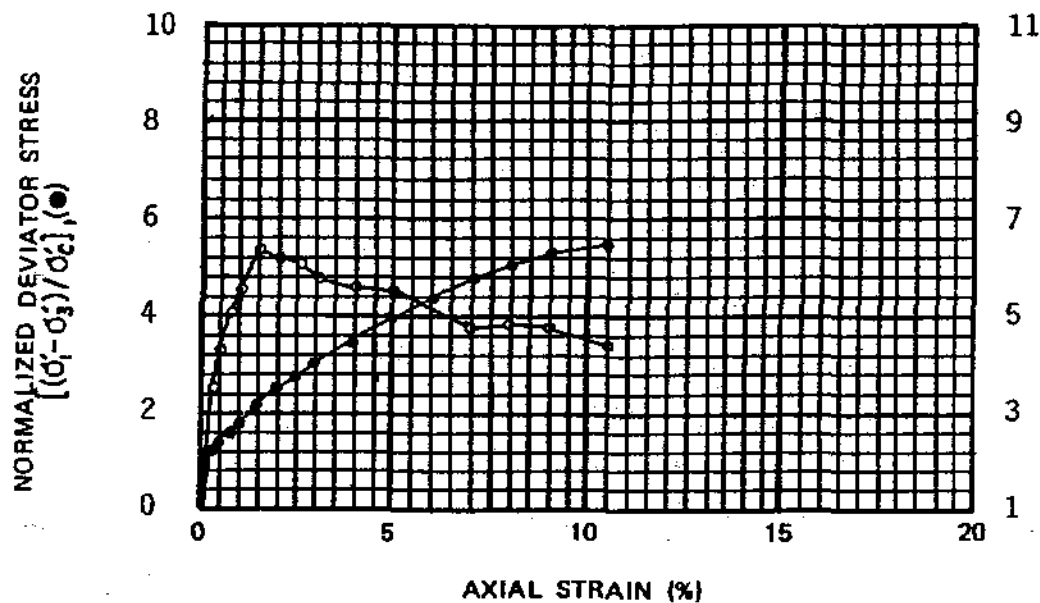
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

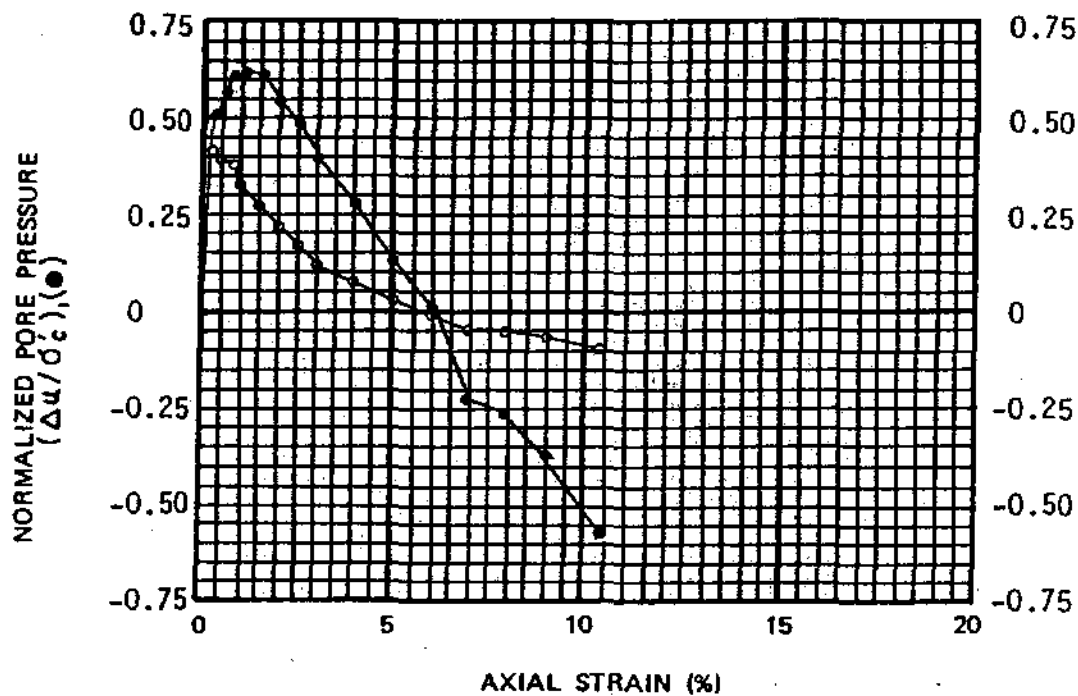
PLATE

**D-108**





EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma'_1 / \sigma'_3) (\circ)$



PORE PRESSURE PARAMETER A  $(\frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3}) (\circ)$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
Undisturbed (trimmed)		MOISTURE CONTENT		$w_a$	25.8 %	$w_f$	24.1 %	
DIAMETER (in.)	2.43	HEIGHT (in.)	5.70	VOID RATIO	$e_o$	0.695	$e_f$	0.660
OVERBURDEN PRESS.	$\sigma'_{vo}$ 150 psf	SATURATION		$S_o$	100 %	$S_f$	99 %	
CONSOLIDATION PRESS.	$\sigma'_c$ 750 psf	DRY DENSITY		$\gamma_d$	99 pcf	$\gamma_d$	101 pcf	
STRAIN RATE	--- %/min	PI		---	$G_s$	2.70		
LL	---	PL	---	CLASSIFICATION SANDY SILT (ML)				
				SOURCE Boring 22 at 2.7'				



Harding Lawson Associates  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-109**

DRAWN  
V

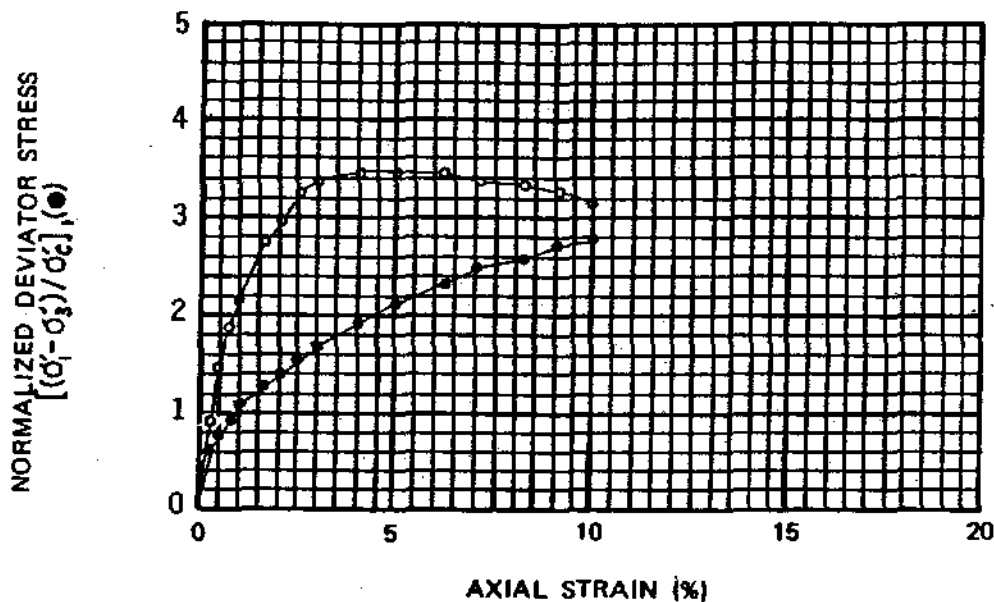
JOB NUMBER  
0512 021 02

APPROVED  
TVA

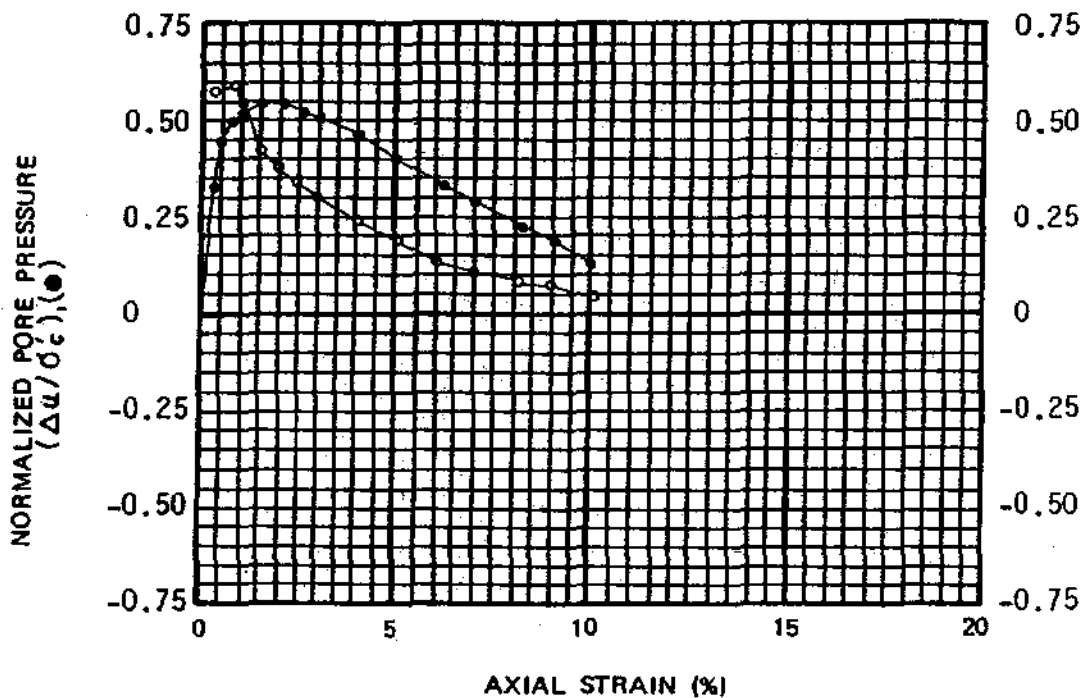
DATE  
1/82

REVISED

DATE



EFFECTIVE PRINCIPLE STRESS RATIO  $(\sigma'_1 / \sigma'_3)_v$



PORE PRESSURE PARAMETER A  $\left( \frac{\Delta u - \Delta \sigma'_3}{\Delta \sigma'_1 - \Delta \sigma'_3} \right)_v$

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed(trimmed)		MOISTURE CONTENT	$w_o$	30.7 %	$w_f$	27.4 %	
DIAMETER(in.) 2.46	HEIGHT(in) 5.70	VOID RATIO	$e_o$	0.859	$e_f$	0.737	
OVERBURDEN PRESS. $\sigma'_{vo}$	210 psf	SATURATION	$S_o$	96 %	$S_f$	100 %	
CONSOLIDATION PRESS. $\sigma'_c$	1500 psf	DRY DENSITY	$\gamma_d$	90 pcf	$\gamma_d$	97 pcf	
STRAIN RATE	-- %/min						
LL	24	PL	21	PI	3	$G_s$	2.69
CLASSIFICATION SILT (ML)				SOURCE Boring 22 at 3.8'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Undrained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-110**

DRAWN

JOB NUMBER  
0610 031 00

APPROVED

DATE

REVISED

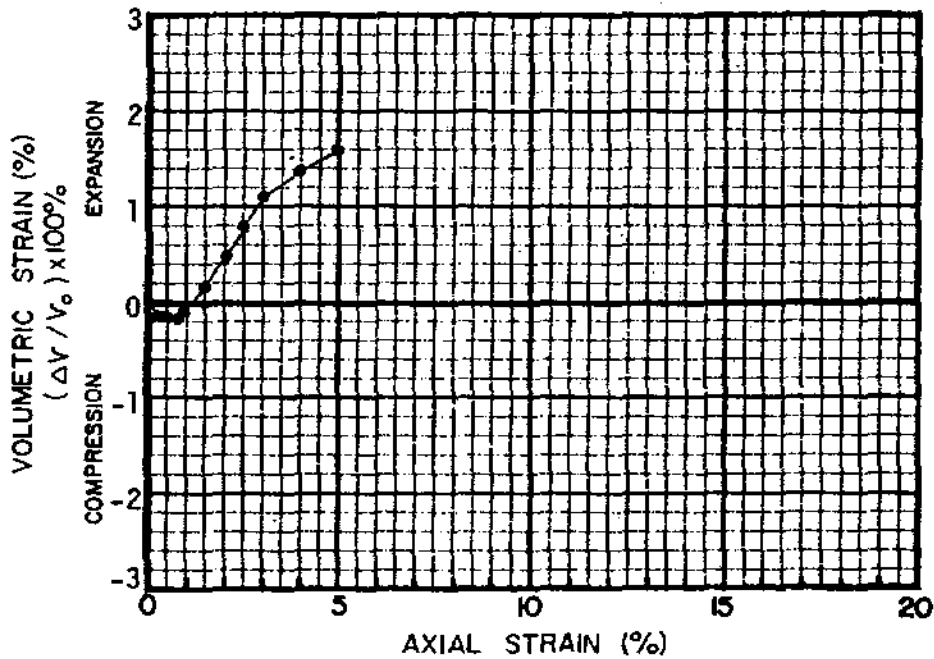
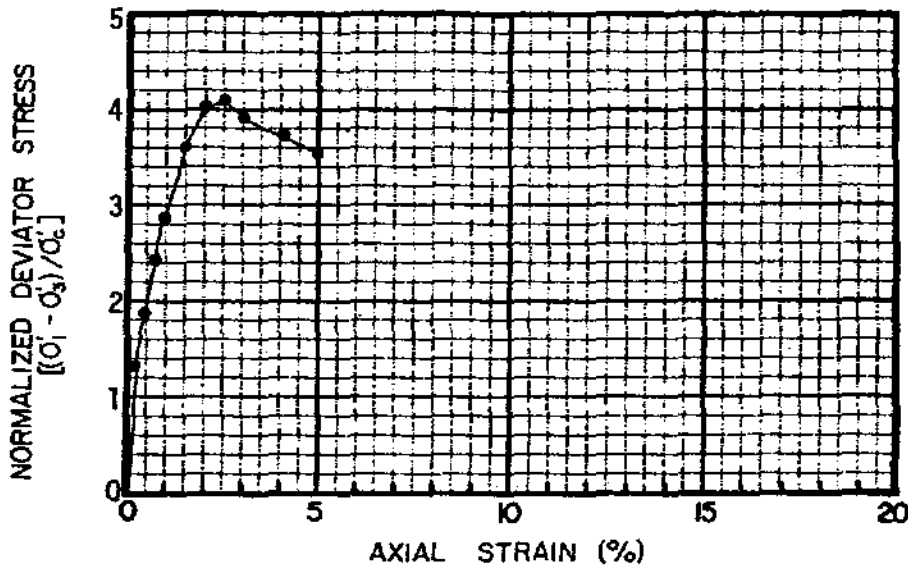
DATE

drain and consolidate. After consolidation, the drain valve was left open and the axial load applied at a constant rate of approximately 0.1 percent per minute, depending upon soil type. The test was conducted at this slow rate to prevent the development of pore pressure. Failure was defined as the point of maximum deviator stress. Results of the tests are summarized on Plate D-75. The effective strengths are plotted on a modified Mohr diameter as shown on Plate IV-16 with the data from TXCU tests. Results of the TXCU and TXCD tests are in agreement and consistently yielded a friction angle of approximately  $40^{\circ}$  with no cohesion intercept. Stress-strain curves of individual tests are presented on Plates D-111 through D-115.

## 2. Direct Shear Tests

Direct shear (DS) tests were performed to measure the consolidated-drained shear strengths of fine-grained granular soils. For these tests, a 2.43-inch diameter by 0.8-inch-high cylindrical soil specimen was first placed in split rigid rings. Next, the specimen was saturated and consolidated under a vertical (normal) stress. By using the time rates of consolidation, the test rate was determined and the shear force was slowly applied so that pore pressures did not develop.

Results of the tests are summarized on Plate D-116. Individual test results are shown on Plates D-117 through D-119. The soil is strongly dilatant at low normal stress which yielded high friction angles as shown on Plate D-114. These high friction angles are not unusual for an angular, medium dense to dense sand or silt tested at very low normal pressures. The friction angle decreases rapidly with increasing normal pressure. At the stress range of interest in this project, the friction angle is approximately  $40^{\circ}$  as measured from the TXCU and TXCD tests.



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in)	2.46	HEIGHT (in)	5.60	MOISTURE CONTENT	$w_0$ 22.8%	$w_f$ 23.5%	
OVERBURDEN PRESS, $p'_0$	20 psf	VOID RATIO	$e_0$ 0.650	$e_f$ 0.630			
CONSOLIDATION PRESS, $σ'_c$	1500 psf	SATURATION	$S_0$ 94%	$S_f$ 100%			
STRAIN RATE	-- %/min	DRY DENSITY	$γ_d$ 102 pcf	$γ_d$ 103 pcf			
LL	--	PL	--	PI	--	$G_s$ 2.69	
CLASSIFICATION SAND (SP)				SOURCE Boring 2 at 0.3'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Drained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-11**

DRAWN  
JP

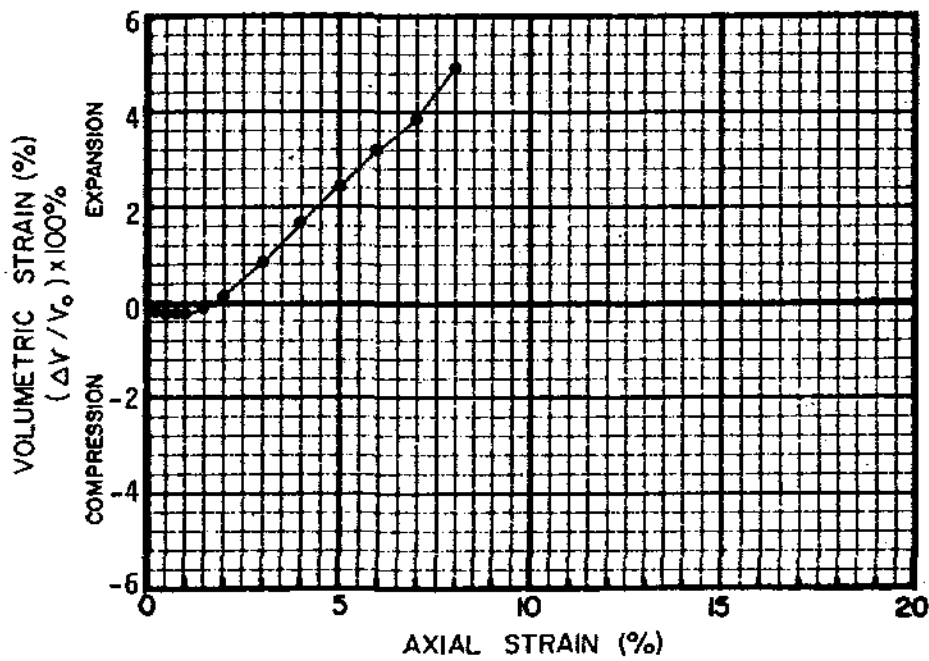
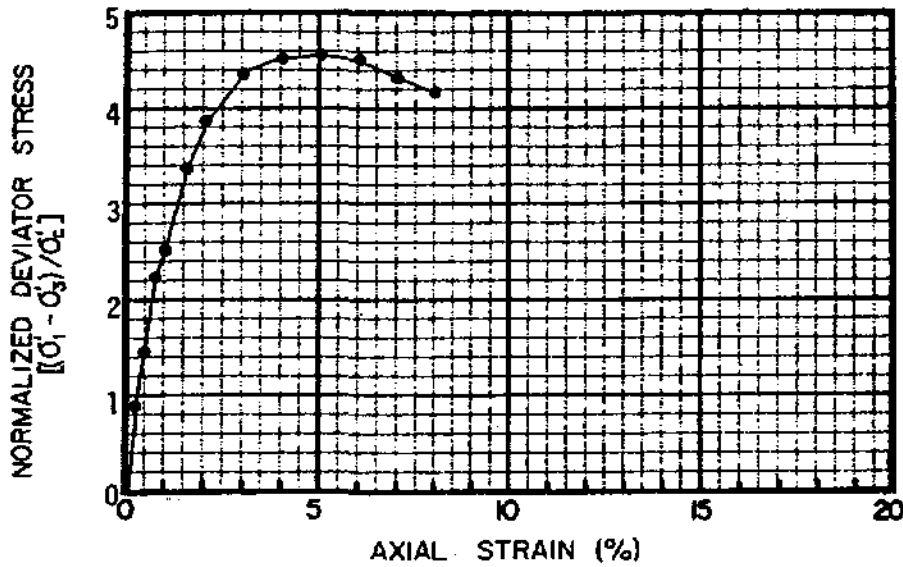
JOB NUMBER  
9612,031.08

APPROVED  
DJB

DATE  
4/82

REVISED

DATE



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in.)	2.46	HEIGHT (in.)	5.70	MOISTURE CONTENT	$w_0$ 22.8 %	$w_f$	24.4 %
OVERBURDEN PRESS., $P_0'$	190 psf	VOID RATIO	$e_0$ 0.682	$e_f$	0.644		
CONSOLIDATION PRESS., $\sigma_c'$	3000 psf	SATURATION	$S_0$ 89 %	$S_f$	100 %		
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$ 98 pcf	$\gamma_d$	101 pcf		
LL	--	PL	--	PI	--	$G_s$	2.65
CLASSIFICATION SAND (SP)				SOURCE Boring 2 at 3.4'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Drained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-112**

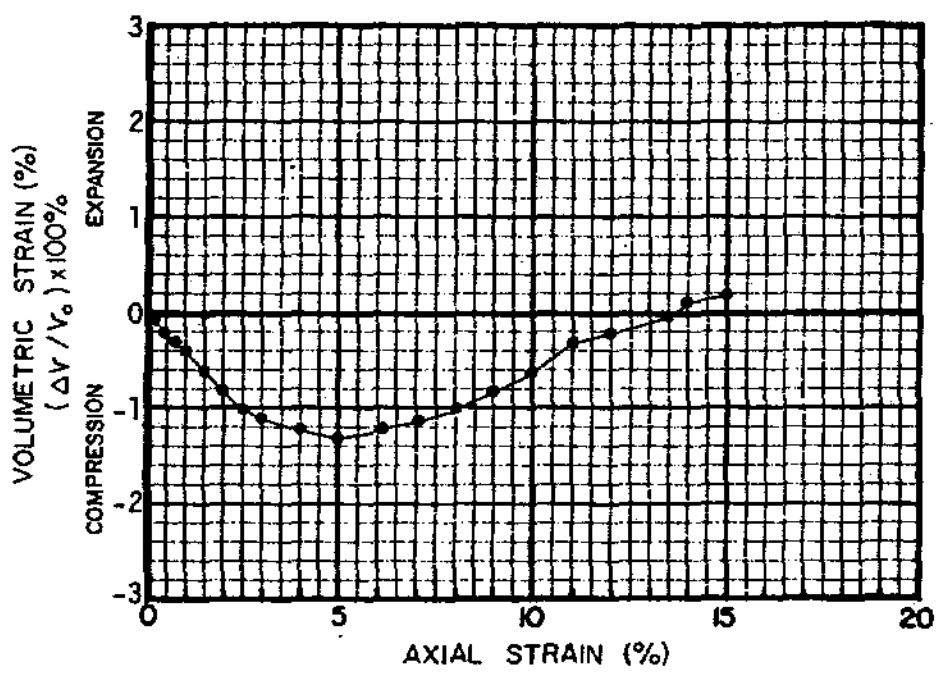
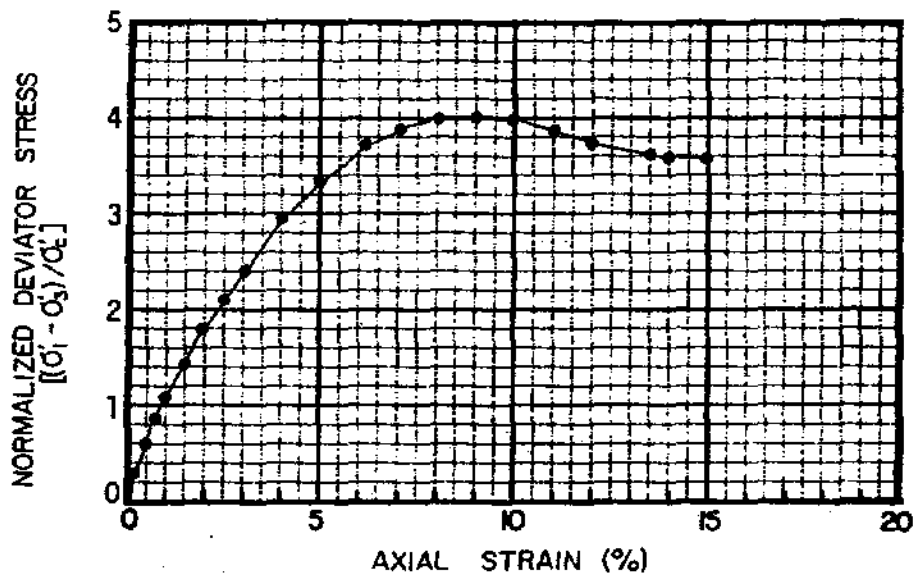
DRAWN  
SP

JOB NUMBER  
9612,031.08

APPROVED  
DLB

DATE  
4/82

REVISED DATE



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in.)	2.87	HEIGHT (in.)	6.45	MOISTURE CONTENT	$w_0$ 31.2 %	$w_f$ 28.7 %	
OVERBURDEN PRESS, $P_0'$	540 psf	VOID RATIO	$e_0$ 0.886	$e_f$ 0.799			
CONSOLIDATION PRESS, $\sigma_c'$	1000 psf	SATURATION	$S_0$ 96 %	$S_f$ 100 %			
STRAIN RATE	-- %/min	DRY DENSITY	$\gamma_d$ 90 pcf	$\gamma_d$ 94 pcf			
LL	--	PL	--	PI	--	$G_s$ 2.72	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 2 at 9.9'			

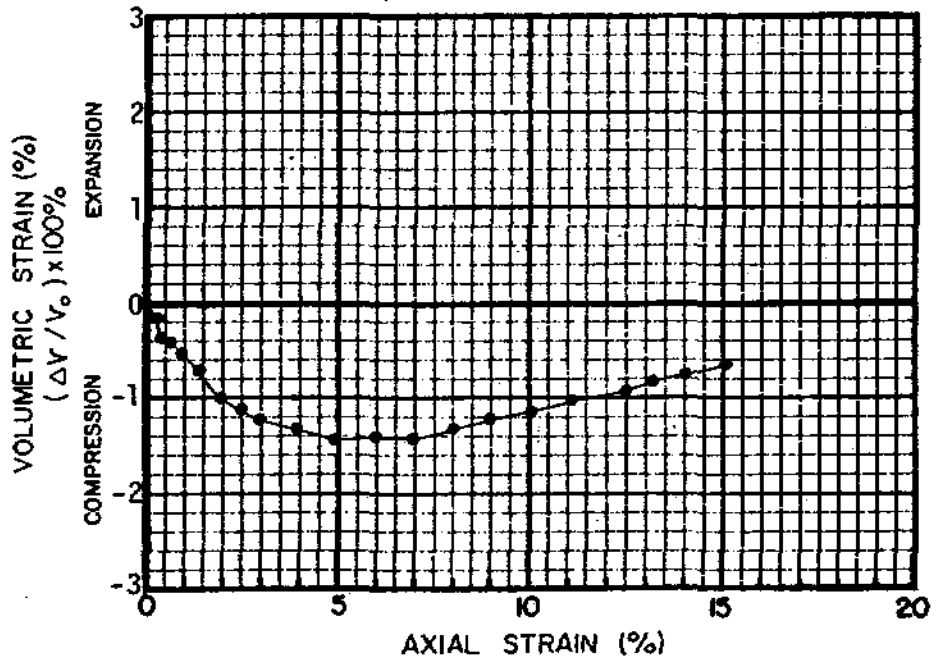
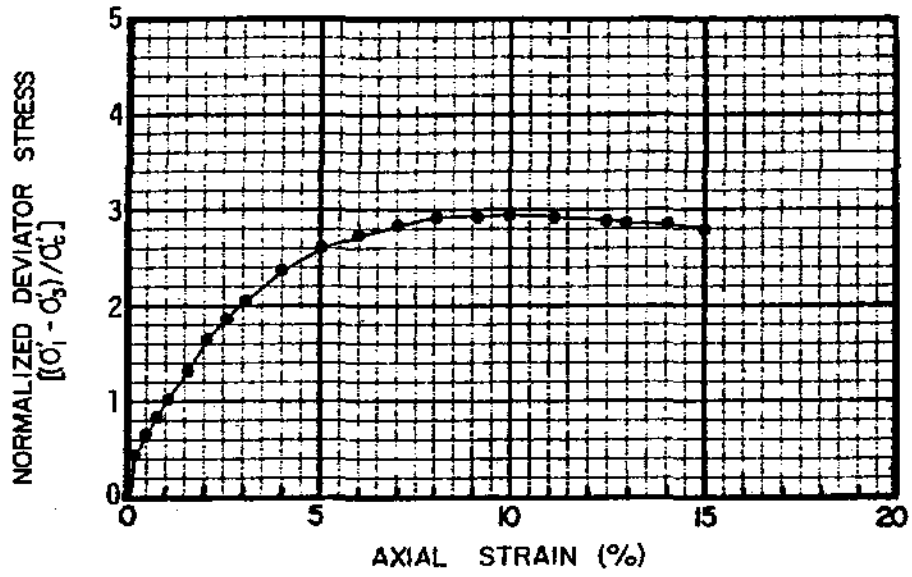


**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Drained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE  
**D-11**

RF.



TYPE OF SPECIMEN Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in) 2.87	HEIGHT (in) 6.45	MOISTURE CONTENT $w_0$	29.0%	$w_f$	26.4 %
OVERBURDEN PRESS, $P_0'$	590 psf	VOID RATIO $e_0$	0.806	$e_f$	0.718
CONSOLIDATION PRESS, $\sigma_c'$	2000 psf	SATURATION $S_0$	98 %	$S_f$	100 %
STRAIN RATE --	%/min	DRY DENSITY $\gamma_d$	94 pcf	$\gamma_d$	99 pcf
LL --	PL --	PI --	$G_s$ 2.73		
CLASSIFICATION SANDY SILT (ML)			SOURCE Boring 2 at 10.7'		



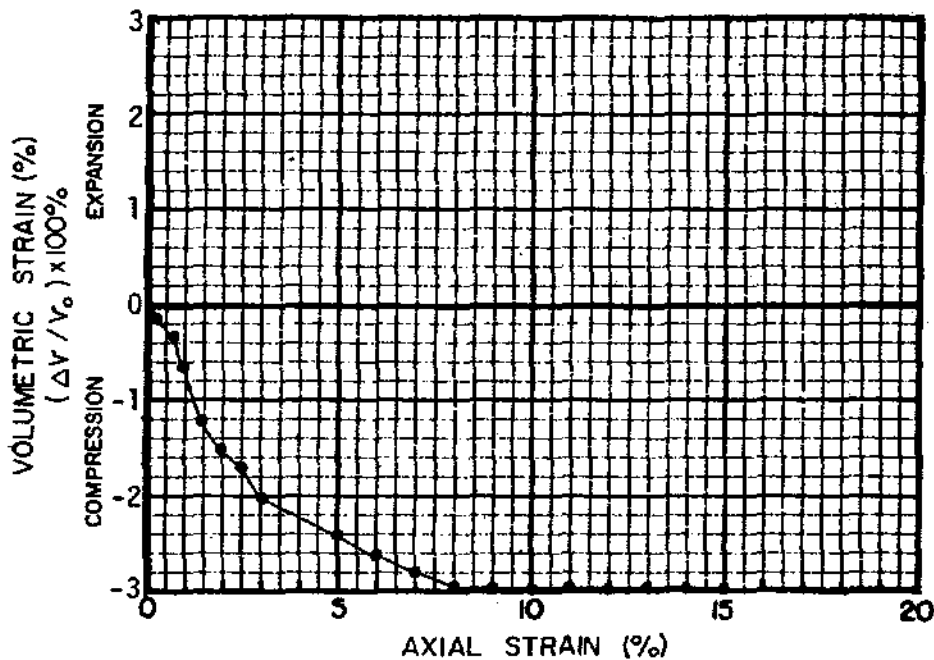
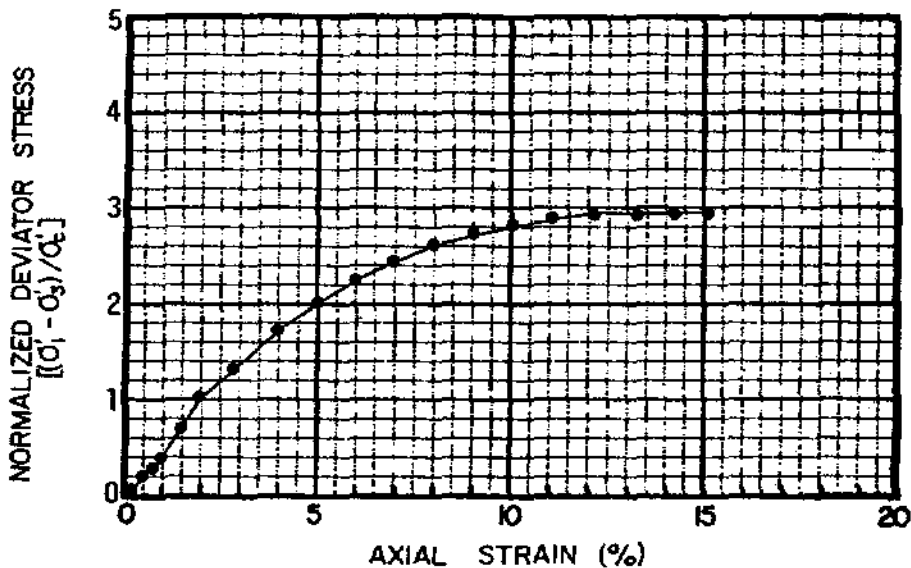
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidated-Drained  
Triaxial Compression Test Report**  
Pt. Thomson Development Project, Winter 1982  
Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-11**

114



TYPE OF SPECIMEN		Undisturbed		BEFORE TEST		AFTER TEST	
DIAMETER (in.)	2.87	HEIGHT (in.)	6.45	MOISTURE CONTENT	$w_0$ 32.5%	$w_f$ 27.8 %	
OVERBURDEN PRESS, $P_0'$			620 psf	VOID RATIO	$e_0$ 0.885	$e_f$ 0.745	
CONSOLIDATION PRESS, $\sigma_c'$			4000 psf	SATURATION	$S_0$ 99%	$S_f$ 100 %	
STRAIN RATE	--		%/min	DRY DENSITY	$\gamma_d$ 89 pcf	$\gamma_d$ 96 pcf	
LL	--	PL	--	PI	--	$G_s$ 2.69	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring #2 at 11.3'			



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidated-Drained  
 Triaxial Compression Test Report**  
 Pt. Thomson Development Project, Winter 1982  
 Geotechnical Study, EXXON Company, U.S.A.

PLATE

**D-11**

DRAWN  
JP

JOB NUMBER  
9612,031.08

APPROVED  
D&B

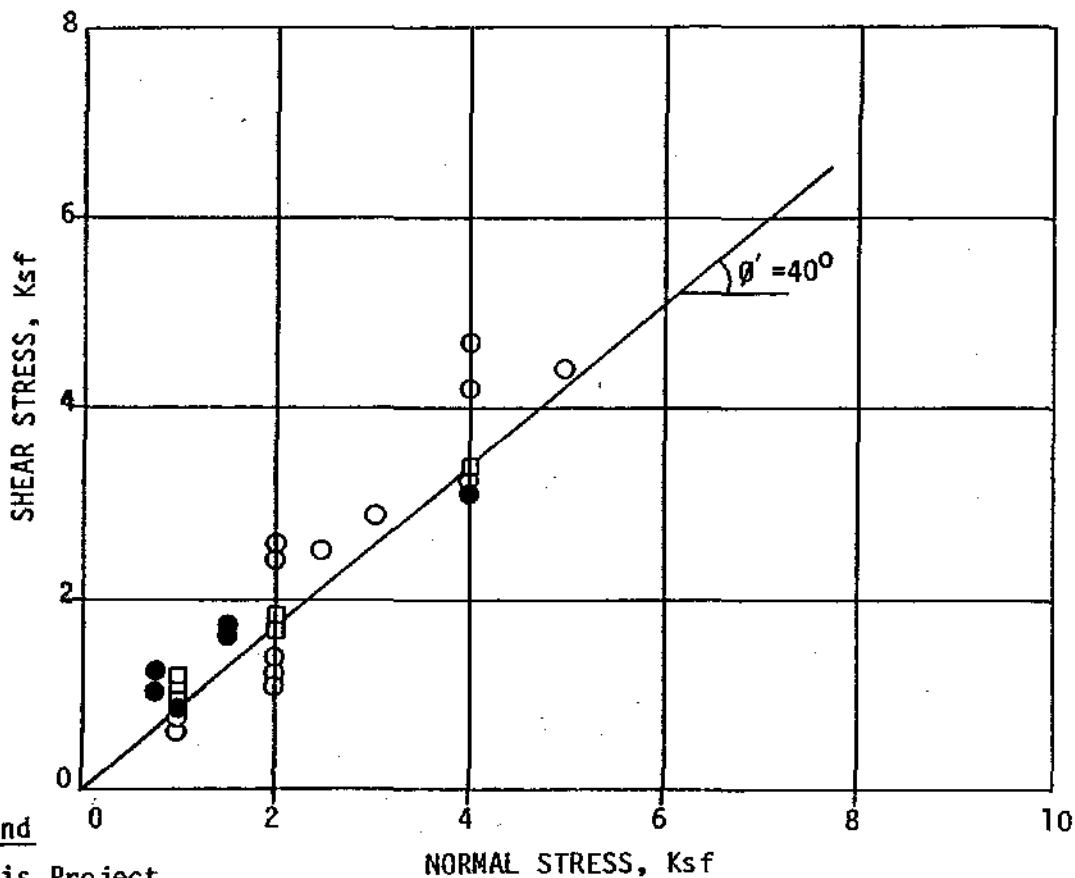
DATE  
4/82

REVISED

DATE



Boring	Depth (Ft)	Test Number	USCS	Moisture Content (%)	Dry Density (pcf)	Normal Stress (pcf)	Maximum Shear (psf)	$\phi_{d}^*$ (degrees)
4	1.8	A	SP	23.3	101	1000	880	39
		B	SP	22.0	102	4000	3320	39
21	0.5	A	SP-SM	20.3	102	750	1040	54
		B	SP-SM	22.2	102	1500	1680	48
21	2.0	A	SP-SM	20.7	104	750	1260	58
		B	SP-SM	20.9	106	1500	1730	49



**Legend**

- This Project
- Duck Island Development Project
- ARCO Waterflood Project



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Direct Shear Test Report Summary**

PLATE

Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

**D-116**

DRAWN  
JP

JOB NUMBER  
9612,031.08

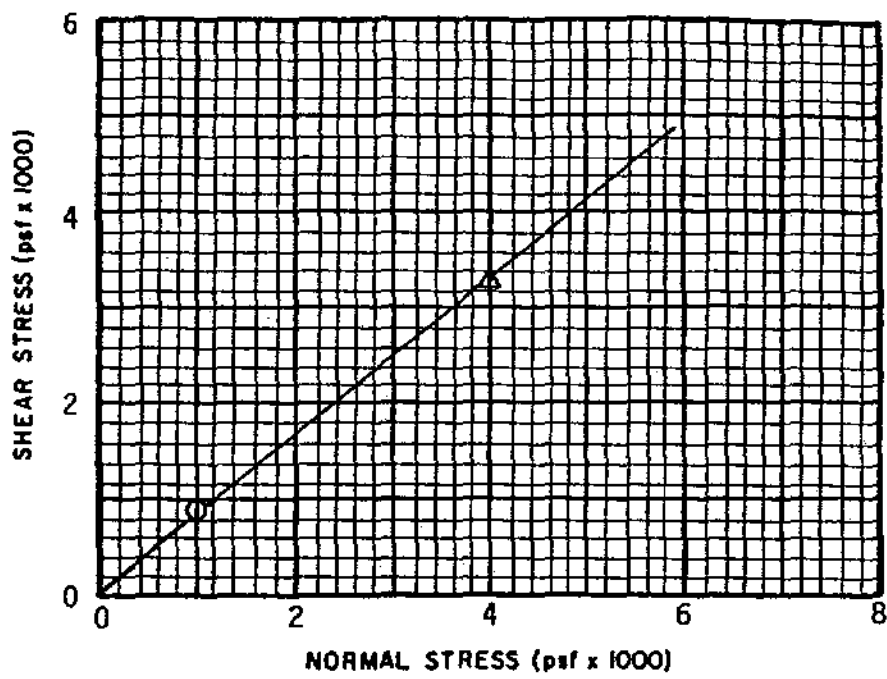
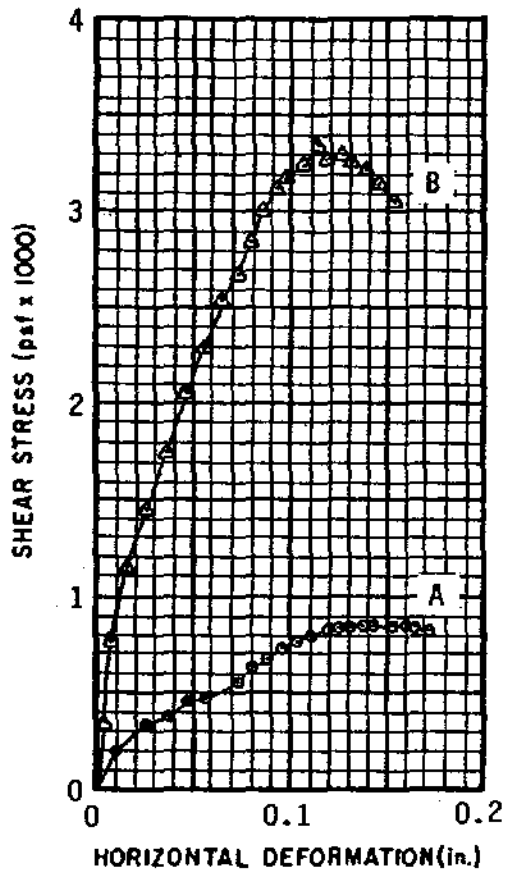
APPROVED  
JEB

DATE  
4/82

REVISED

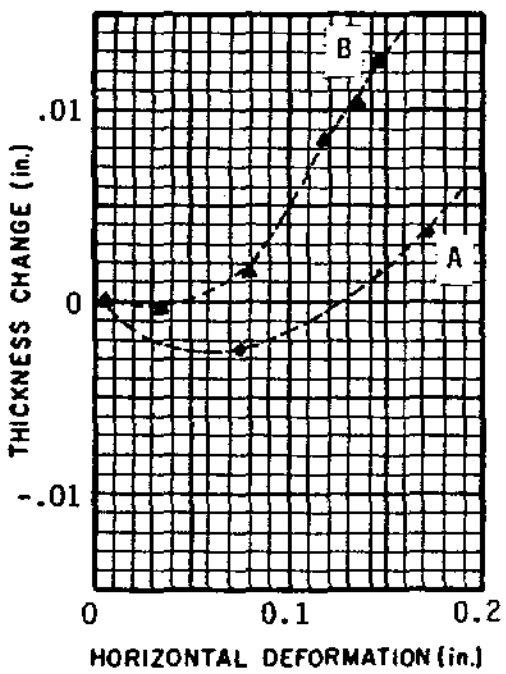
DATE

11 24



Test Type: Consolidated Drained      Controlled Deflection  
 $G_s = 2.70$

Test No.	A	B	C	
Initial	Height (in.)	1.00	1.00	
	Moisture Content	23.3 %	22.0 %	%
	Void Ratio	0.674	0.649	
	Saturation	93 %	91 %	%
	Dry Density (pcf)	101	102	
Before Test	Time for 50% Consolidation (min.)	<1	<1	
	Time for 100% Consolidation (min.)	---	---	
	Void Ratio after Consolidation	0.599	0.612	
Final	Moisture Content	24.6 %	24.6 %	%
	Void Ratio	0.606	0.631	
	Saturation	100 %	94 %	%
Normal Stress (psf)	1000	4000		
Maximum Shear (psf)	880	3320		
Time to Failure (min.)	50	49		
Sample Source	Boring 4 at 1.8'			
Classification	SAND (SP)			



$\phi' = 40^\circ$   
 $c' = 0 \text{ psf}$



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Direct Shear Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-117**

DRAWN  
 JP

JOB NUMBER  
 9612,031.08

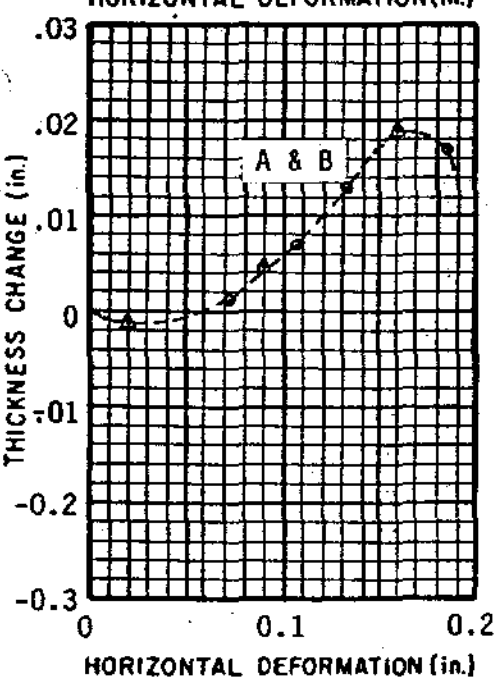
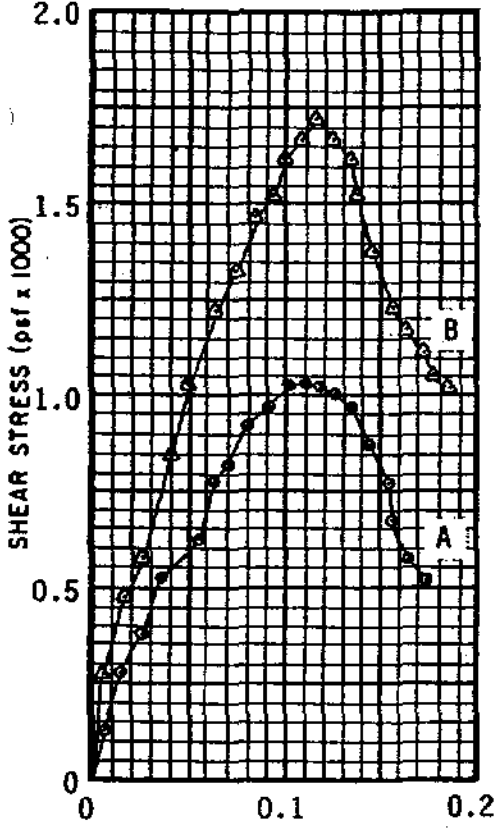
APPROVED  
 DEB

DATE  
 4/82

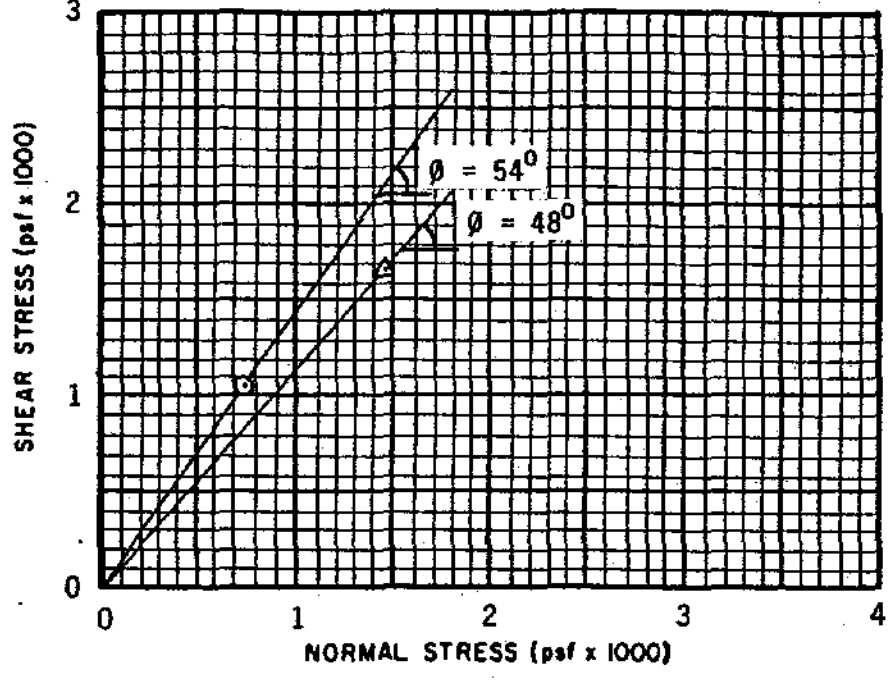
REVISED

DATE

RF



$\phi' =$  See Figure  
 $c' =$  See Figure



Test Type: Consolidated Drained      Controlled Deflection  
Gs 2.70

Test No.	A	B	C	
Initial	Height (in.)	1.00	1.00	
	Moisture Content	20.3 %	22.2 %	%
	Void Ratio	0.587	0.656	
	Saturation	94 %	91 %	%
	Dry Density (pcf)	102	102	
Before Test	Time for 50% Consolidation (min.)	<1	<1	
	Time for 100% Consolidation (min.)	---	---	
	Void Ratio after Consolidation	0.555	0.623	
Final	Moisture Content	22.1 %	24.4 %	%
	Void Ratio	0.587	0.654	
	Saturation	94 %	92 %	%
Normal Stress (psf)	750	1500		
Maximum Shear (psf)	1040	1680		
Time to Failure (min.)	32	39		
Sample Source Boring 21 at 0.5'				
Classification SAND (SP-SM)				



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Direct Shear Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-118**

DRAWN  
X

JOB NUMBER  
9612,031.08

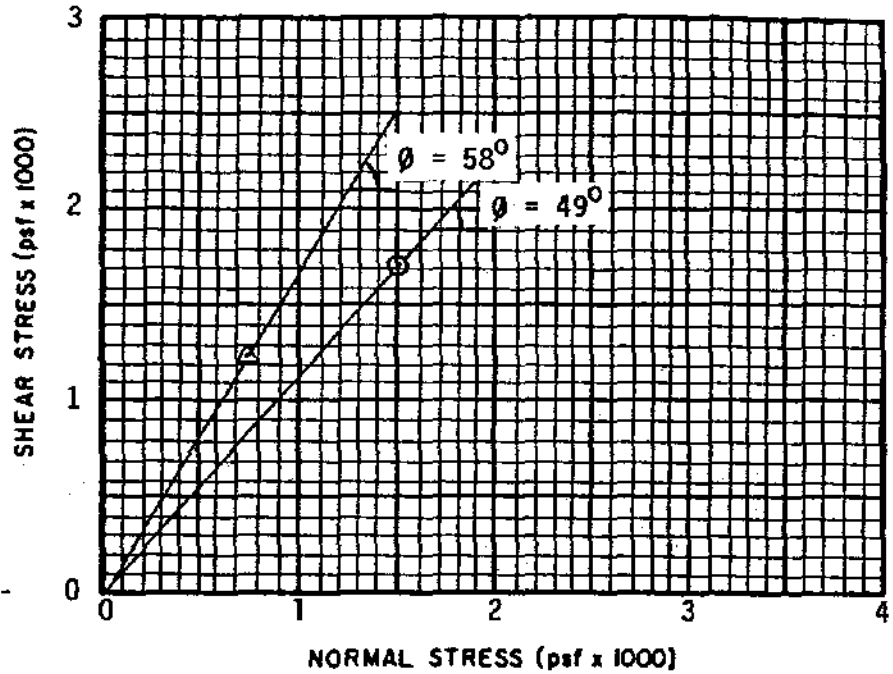
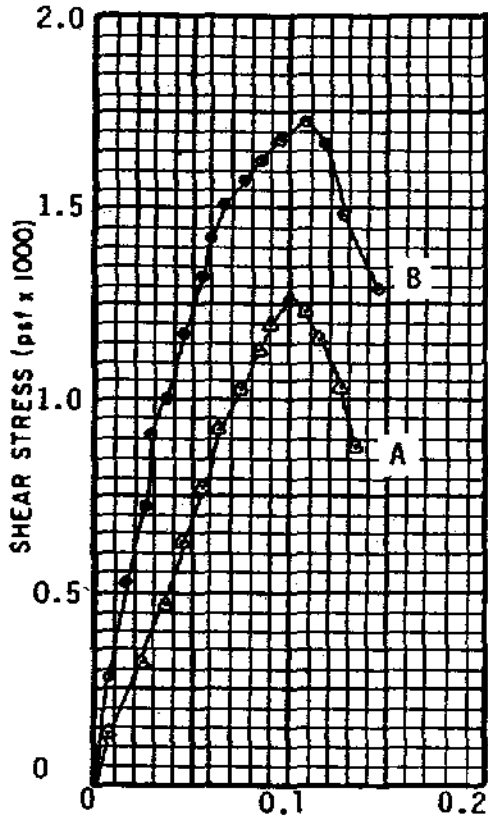
APPROVED  
DEB

DATE  
4/82

REVISED

DATE

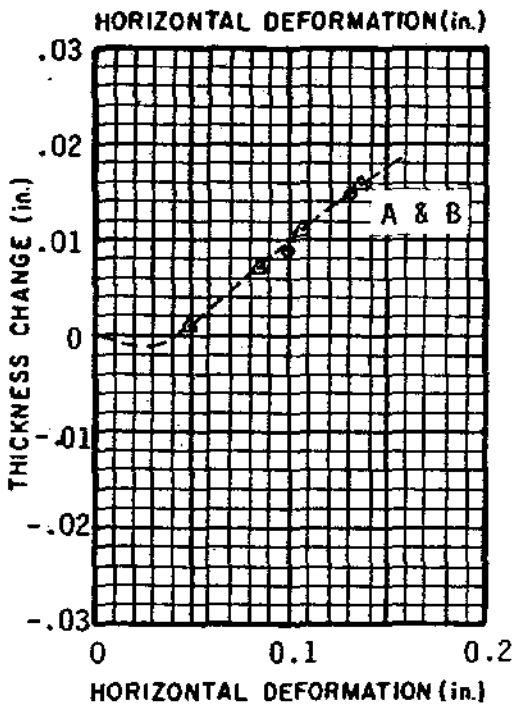
NY 36



Test Type: Consolidated Drained

Controlled Deflection  
G<sub>s</sub> 2.72

Test No.	A	B	C	
Initial	Height (in.)	1.00	1.00	
	Moisture Content	20.7 %	20.9 %	%
	Void Ratio	0.620	0.627	
	Saturation	90 %	90 %	%
	Dry Density (pcf)	104	106	
Before Test	Time for 50% Consolidation (min.)	<1	<1	
	Time for 100% Consolidation (min.)	---	---	
Final	Void Ratio after Consolidation	0.586	0.589	
	Moisture Content	22.7 %	23.1 %	%
	Void Ratio	0.610	0.617	
	Saturation	92 %	92%	%
	Normal Stress (psf)	750	1500	
	Maximum Shear (psf)	1260	1730	
	Time to Failure (min.)	30	39	
Sample Source Boring 21 at 2.0'				
Classification SAND (SP-SM)				



$\sigma'_c =$  See Figure  
 $c =$



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Direct Shear Test Report**

Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-119**

DRAWN

φ

JOB NUMBER

9612,031.08

APPROVED

DEB

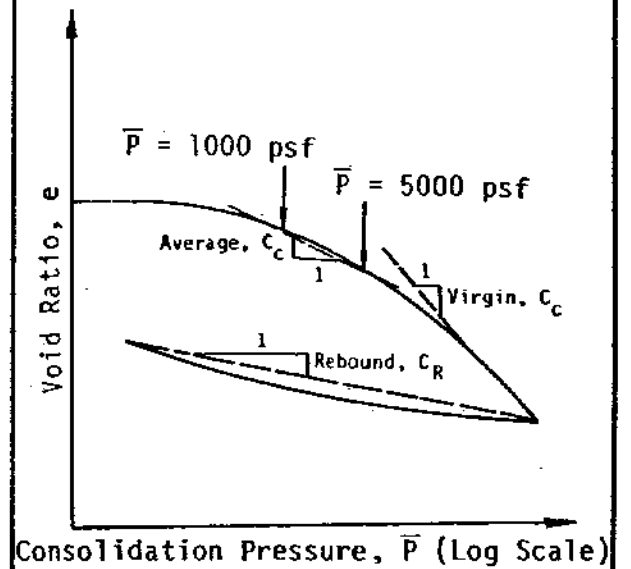
DATE

4/82

REVISED

DATE

Boring No.	Depth (ft)	USGS	Specific Gravity $G_s$	Initial Conditions			Compression Ratios			Time Rate		Permeability
				w (%)	$\gamma_d$ (pcf)	$e_0$	$C_{\epsilon C}$ average	$C_{\epsilon C}$ virgin	$C_{\epsilon R}$	Load (psf)	$C_v \times 10^{-3}$ (cm <sup>2</sup> /sec)	$k \times 10^{-7}$ (cm/sec)
2	0.1	SP	2.68	23.4	100	0.668	0.017	0.017	---	---	---	---
2	8.5	ML	2.68	26.3	100	0.680	0.022	0.055	0.007	4230 8470	56.6 83.1	2.5 2.6
2	14.1	ML	2.70	38.8	81	1.070	0.066	0.134	0.022	1060 2120	29.0 25.1	6.0 5.7
4	3.0	SM	2.69	27.1	97	0.734	0.036	0.084	0.009	4230 8470	153 112	11.8 5.7
4	13.0	OL	2.67	36.3	80	1.081	0.075	0.102	0.024	3200 6400	51.4 61.4	12.5 8.6
4	14.4	ML	2.70	48.7	72	1.335	0.099	0.150	0.024	3200 6400	15.4 23.6	7.5 6.8
4	18.8	CL	2.66	74.7	56	1.967	0.236	0.260	0.076	2120 4230	1.06 1.02	1.7 1.0
5	19.5	CL	2.72	36.6	87	0.964	0.057	0.094	0.014	2120 4230	37.5 26.8	8.0 3.9
6	3.6	ML	2.69	30.4	92	0.819	0.041	0.114	0.012	4230 8470	28.2 27.0	2.8 1.7
6	21.7	ML	2.73	23.1	107	0.599	0.018	0.041	0.008	4230 8470	39.0 38.6	1.4 0.9
8	12.8	ML	2.73	26.0	99	0.722	0.033	0.047	0.016	2120 4230	28.8 38.7	2.7 3.0
9	5.7	SM	2.72	32.1	90	0.894	0.044	0.109	0.017	3200 6400	69.6 68.0	6.5 5.8
9	9.7	ML	2.71	35.0	86	0.971	0.047	0.109	0.017	3200 6400	25.1 24.4	3.6 2.2
9	19.3	MH	2.66	80.4	53	2.134	0.212	0.212	0.029	800 1600	0.397 0.724	1.1 1.4
9	41.2	ML	2.73	32.8	91	0.869	0.029	0.116	0.020	3200 6400	39.2 19.2	2.6 1.2



Note:  
 Compression Ratio,  $C_{\epsilon C} = \frac{C_c}{1+e_0}$   
 Recompression Ratio,  $C_{\epsilon R} = \frac{C_R}{1+e_0}$

### E. Consolidation Testing of Unfrozen Offshore Materials

One-dimensional consolidation tests were performed on representative samples of fine-grained soil to evaluate the stress history, compressibility, and permeability of the soil. Information from the consolidation tests can be used to evaluate immediate and long-term settlements and to determine the response of the soil due to loading.

The consolidation tests were performed on 2.43-inch diameter by 0.8-inch-high samples. However, in both sequences each load increment was double the previous load. Different loading sequences were used for mechanical and pneumatic consolidometers. For mechanical consolidometers, the initial applied load was 130 psf and the maximum load was 33,870 psf. For pneumatic consolidometers, the initial load was 100 psf and the maximum load was 51,200 psf. A short loading period of 100 minutes was used in both cases because of the high permeability of the soils tested (Hsuan-Loh Su, 1958). In general, the end of primary consolidation occurred at approximately 5 minutes, and the soil samples experienced more than 200 minutes of secondary compression. Two time rate of compression readings were taken for each test to approximate the existing and anticipated overburden pressures. These data were then used to analyze the coefficient of consolidation.

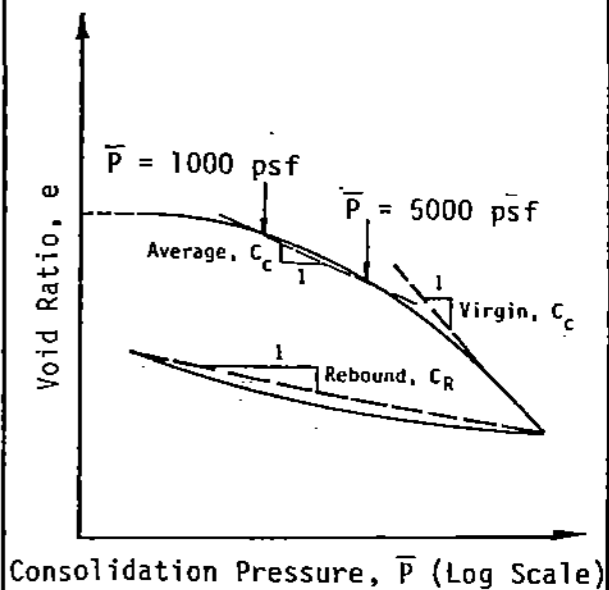
The consolidation data show that the transition from the recompression to the virgin portions of the consolidation curves is not well defined. Therefore, preconsolidation pressures are very difficult to determine from these curves. However, these non-linear plots of void ratio versus the log of pressure are a characteristic of the silty soils found in the Beaufort Sea (HLA/USGS, 1979).

Although the fine-grained sediments within the project area appear to be overconsolidated, the amount of overconsolidation varies considerably. Overconsolidated fine-grained soils are commonly encountered in the Prudhoe Bay region; the overconsolidation was probably caused by freezing and thawing (Selmann, 1979). Physico-chemical effects resulting from the interaction of organic and inorganic compounds in a marine environment could also be partially responsible for the high over-consolidation ratios (More, 1977).

Three compression indexes have been determined for this project: 1) average compression ratio, 2) virgin compression ratio, and 3) recompression index. These indexes are defined on Plate D-120. Only the average compression ratio was used in the settlement analyses. It was calculated for the range of pressures between 1000 psf and 5000 psf, and reflects the current average effective overburden pressure and the estimated effective pressure that may result from construction and development.

In predicting the rate of settlement, it is necessary to know the coefficient of consolidation,  $C_v$ . This parameter relates the decrease in volume of the soil with pressure and time. The coefficients of consolidation were determined by the square root of time curve fitting technique (Taylor, 1948). Because the first three points on the square root versus deformation plots were generally nonlinear, interpretation was required to determine  $C_v$ ; this generally yields smaller values of  $C_v$ . Some of the samples tested were still in the rebound portion of the curve at the design stresses; hence, the settlement is not completely time dependent, and larger values of  $C_v$  result. We believe these factors tend to offset each other.

Boring No.	Depth (ft)	USGS	Specific Gravity $G_s$	Initial Conditions			Compression Ratios			Time Rate		Permeability
				w (%)	$\gamma_d$ (pcf)	$e_o$	$C_{eC}$ average	$C_{eC}$ virgin	$C_{eR}$	Load (psf)	$C_v \times 10^{-3}$ (cm <sup>2</sup> /sec)	$k \times 10^{-7}$ (cm/sec)
14	6.3	ML	2.71	33.1	89	0.911	0.057	0.220	0.047	1600	29.0	3.8
										3200	28.7	1.9
14	16.8	CL	2.75	19.5	112	0.532	0.020	0.051	0.023	8470	5.2	0.2
										16940	7.6	0.2
15	5.2	ML	2.65	40.5	81	1.034	0.080	0.102	0.024	2120	7.0	2.0
										4230	5.5	1.3
15	26.8	ML	2.69	21.5	106	0.586	0.026	0.044	0.007	4230	21.5	1.3
										8470	24.1	0.8
17	3.5	CL-ML	2.71	32.6	90	0.877	0.038	0.111	0.033	4230	33.4	2.8
										8470	38.2	3.2
17	35.7	CL	2.78	23.9	103	0.678	0.013	0.050	0.045	6400	14.2	0.4
										12800	7.1	0.2
21	3.3	CL	2.76	20.1	111	0.552	0.021	0.039	0.012	4230	8.2	0.3
										8470	13.4	0.4
21	27.8	ML	2.81	27.0	100	0.758	0.034	0.063	0.011	1600	15.3	2.1
										3200	18.9	1.7
										6400	18.4	1.1
										12800	23.0	0.9



Note:  
 Compression Ratio,  $C_{eC} = \frac{C_c}{1+e_o}$   
 Recompression Ratio,  $C_{eR} = \frac{C_R}{1+e_o}$



Harding Lawson Associates  
 Engineers, Geologists  
 & Geophysicists

Consolidation Test Report Summary  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE

D-121

DRAWN  
 JP

JOB NUMBER  
 9612,031.08

APPROVED  
 JEB

DATE  
 4/82

REVISED

DATE



A summary of the test results is presented on Plates D-120 and D-121. A reasonable correlation between the compression and recompression ratios with the dry density is established as shown on Plate IV-20. A similar correlation between the coefficient of consolidation and dry density is presented on Plate IV-21. Results of the individual tests are presented on Plates D-122 through D-144.

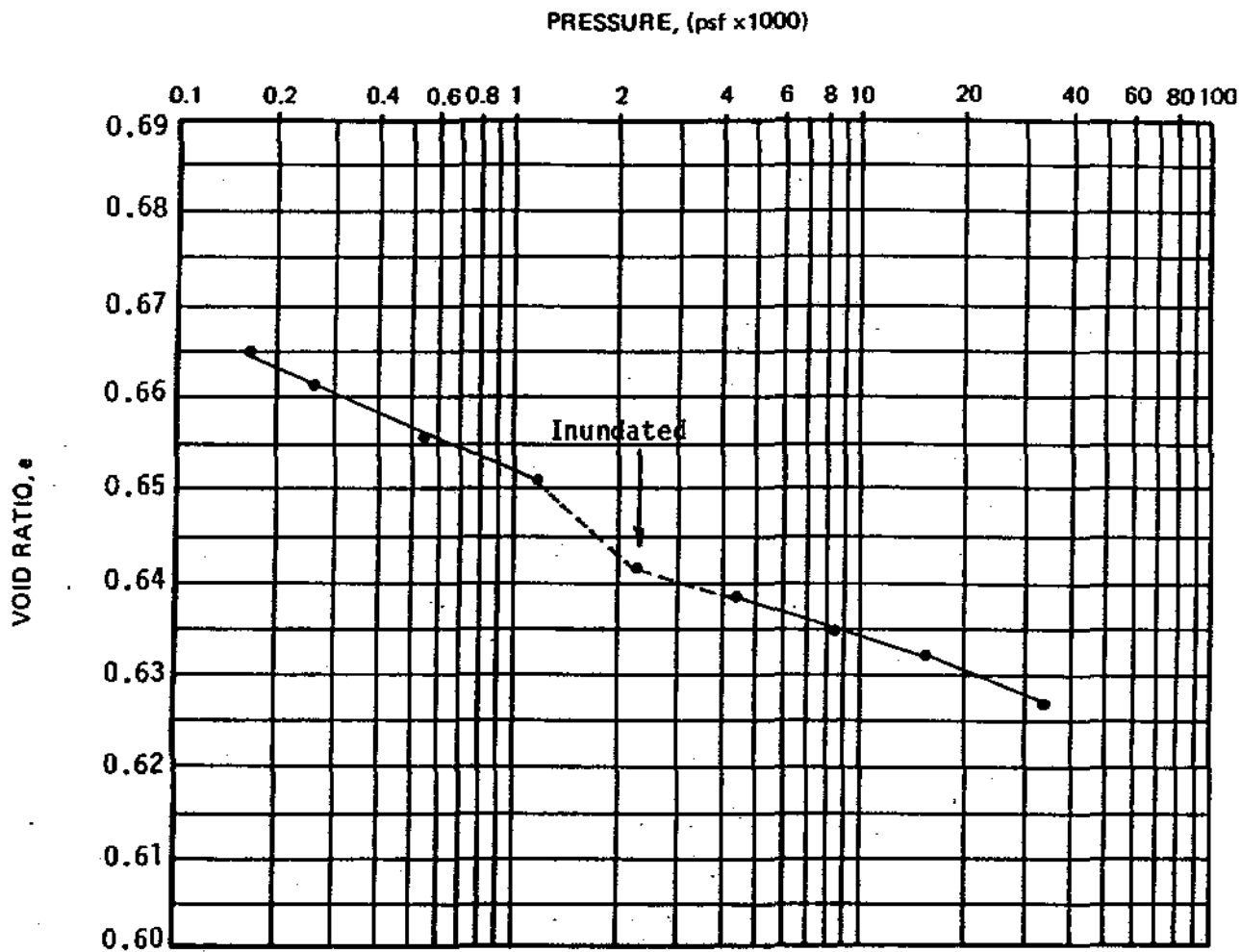
Coefficients of secondary compression were also determined from the consolidation tests. Typical plots of deformation versus log of time are presented on Plate D-145. The values shown on these graphs are representative of those obtained throughout the testing program.

#### F. Dredged Fill Properties of Offshore Materials

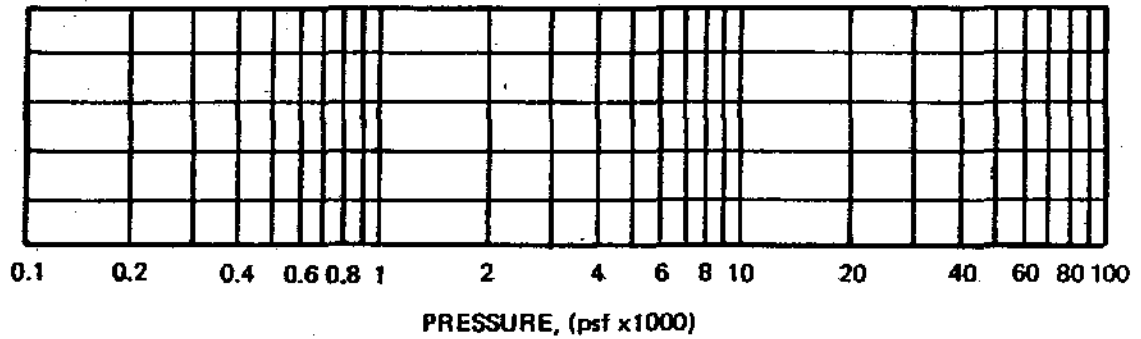
The settling rate of gravel specimen was conducted to determine the settling rate of potential gravel fill material that is dumped into sea water.

Salt water was prepared by mixing distilled water and salt to a salinity of 35 parts per thousand (Weast, 1977). The soil was then mixed with the salt water at a ratio of four parts salt water to one part soil. After mixing, the slurry was poured into a glass cylinder that was partially filled with salt water and the cylinder was agitated for one minute to mix the solution.

The sand/gravel particles settled within 30 seconds of the beginning of the test. The silt continued to settle for about 120 minutes; at the end of the test, less than 0.1 inch of sediments had accumulated.



Coefficient of Consolidation,  $C_v$   
(cm<sup>2</sup>/sec) x 10<sup>-3</sup>



TYPE OF SPECIMEN	Undisturbed		BEFORE TEST				AFTER TEST	
DIAMETER(in.)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	$w_o$	23.4 %	$w_f$	21.0 %
OVERBURDEN PRESS., $\sigma'_{vo}$	0	psf		VOID RATIO	$e_o$	0.668	$e_f$	0.624
PRECONSOL PRESS., ( $\sigma'_{vo}$ ) max	--	psf		SATURATION	$S_o$	94 %	$S_f$	100 %
COMPRESSION INDEX, $C_c$	0.017			DRY DENSITY	$\gamma_d$	100 pcf	$\gamma'_d$	103 pcf
LL	--	PL	--	PI	--	$G_s$	2.68	
CLASSIFICATION	SAND (SP)			SOURCE Boring 2 at 0.1'				

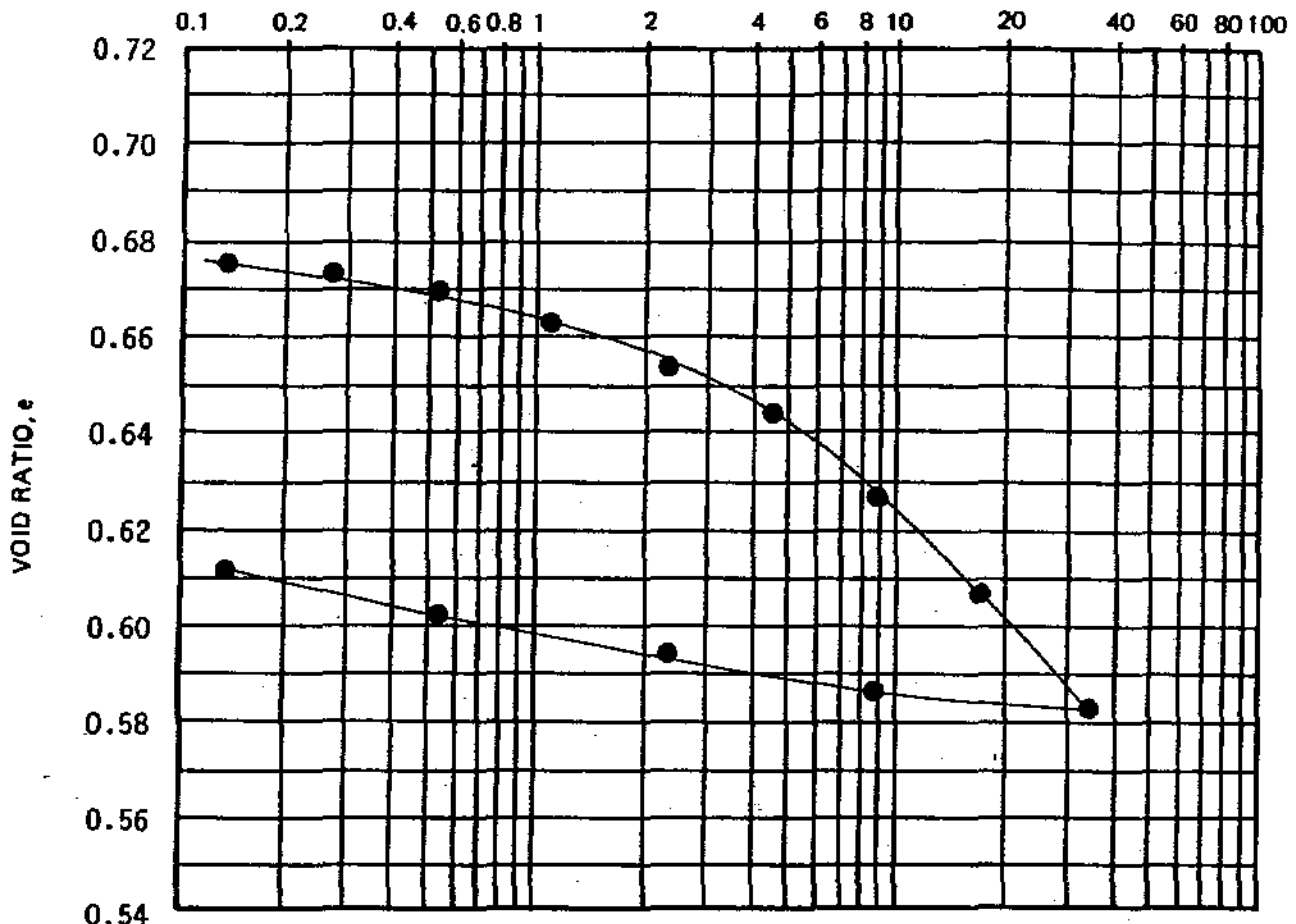


**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

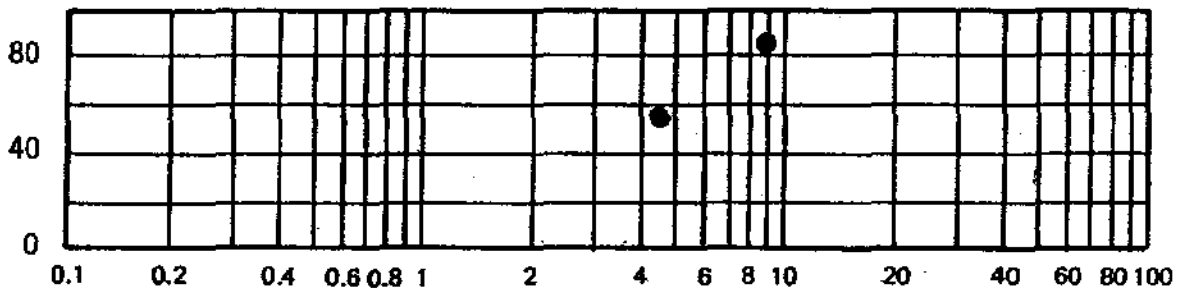
**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE  
**D-122**

PRESSURE, (psf x1000)



Coefficient of Consolidation,  $C_v$   
(cm<sup>2</sup>/sec) x 10<sup>-3</sup>



PRESSURE, (psf x1000)

TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST			
Undisturbed (trimmed)		MOISTURE CONTENT		$w_o$	26.3 %	$w_f$	22.6 %		
DIAMETER(in)	2.43	HEIGHT(in.)	0.80	VOID RATIO	$e_o$	0.680	$e_f$	0.611	
OVERBURDEN PRESS., $\sigma_{vo}$	470 psf	PRECONSOL PRESS., $(\sigma_{vo})_{max}$	---	SATURATION	$S_o$	104 %	$S_f$	99 %	
COMPRESSION INDEX, $C_c$	0.092	DRY DENSITY	$\gamma_d$	100 pcf	$\gamma_d$	104 pcf			
LL	---	PL	---	PI	---	$G_s$	2.68		
CLASSIFICATION				SANDY SILT (ML)				SOURCE	Boring 2 at 8.5'



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-123**

DRAWN  
JR

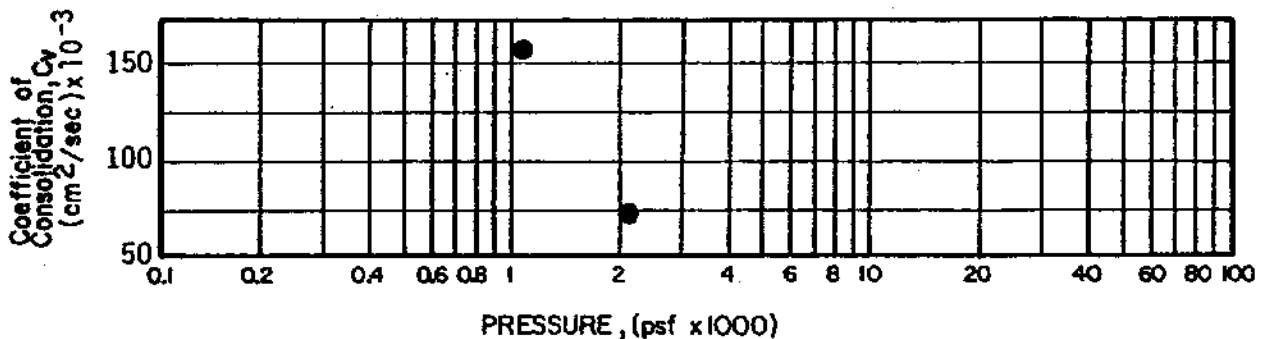
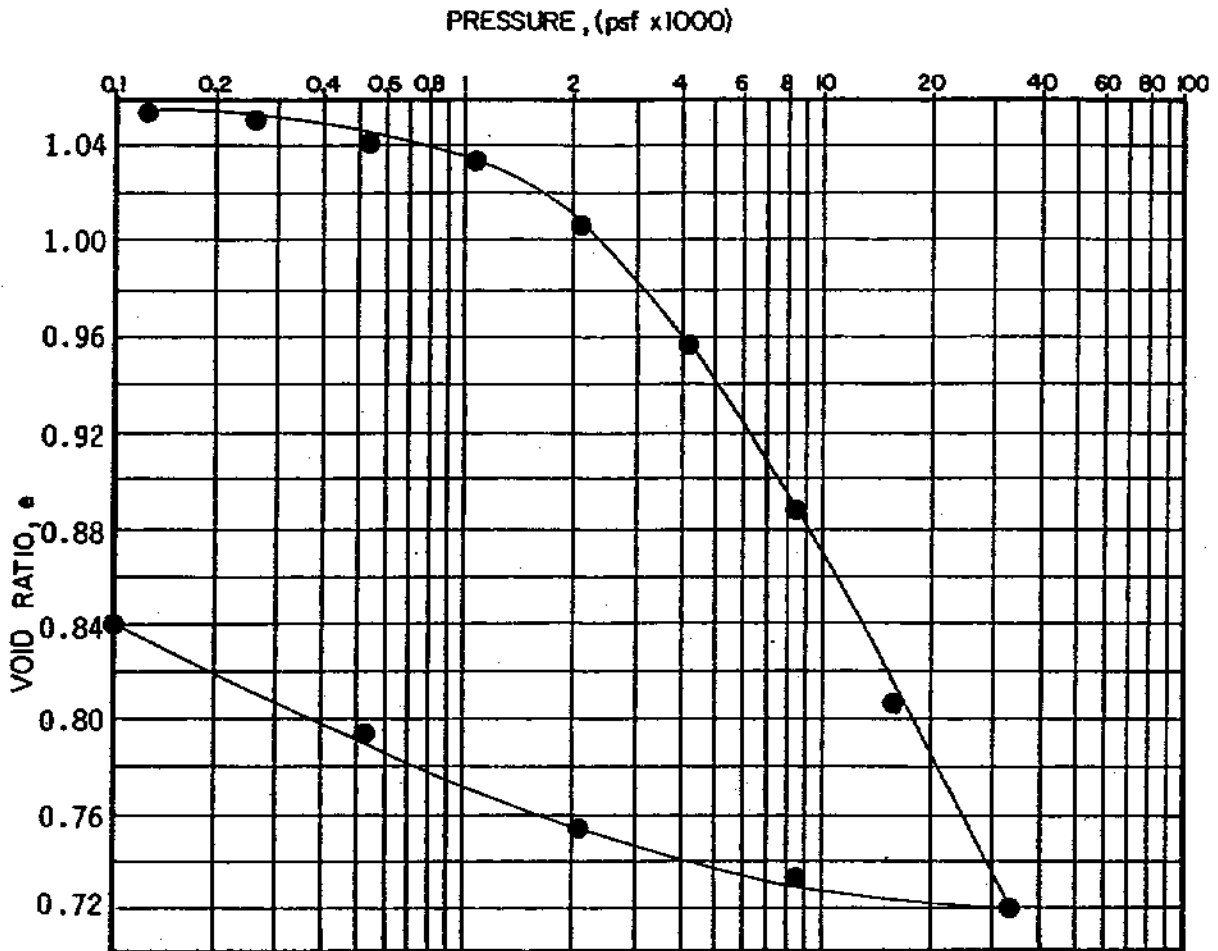
JOB NUMBER  
9612.031.08

APPROVED  
SAB

DATE  
4/82

REVISED

DATE



TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST		AFTER TEST		
DIAMETER(in)	2.43	HEIGHT(in)	0.80	MOISTURE CONTENT	$w_0$ 38.8 %	$w_f$ 31.2 %
OVERBURDEN PRESS., $\sigma'_{vo}$	780 psf	VOID RATIO	$e_0$ 1.070	$e_f$ 0.840		
PRECONSOL PRESS., $(\sigma'_{vo})_{max}$	-- psf	SATURATION	$S_0$ 98 %	$S_f$ 100 %		
COMPRESSION INDEX, $C_c$	0.277	DRY DENSITY	$\gamma_d$ 81 pcf	$\gamma_d$ 92 pcf		
LL --	PL --	PI --	$G_s$ 2.70			
CLASSIFICATION SANDY SILT (ML)			SOURCE Boring 2 at 14.1'			



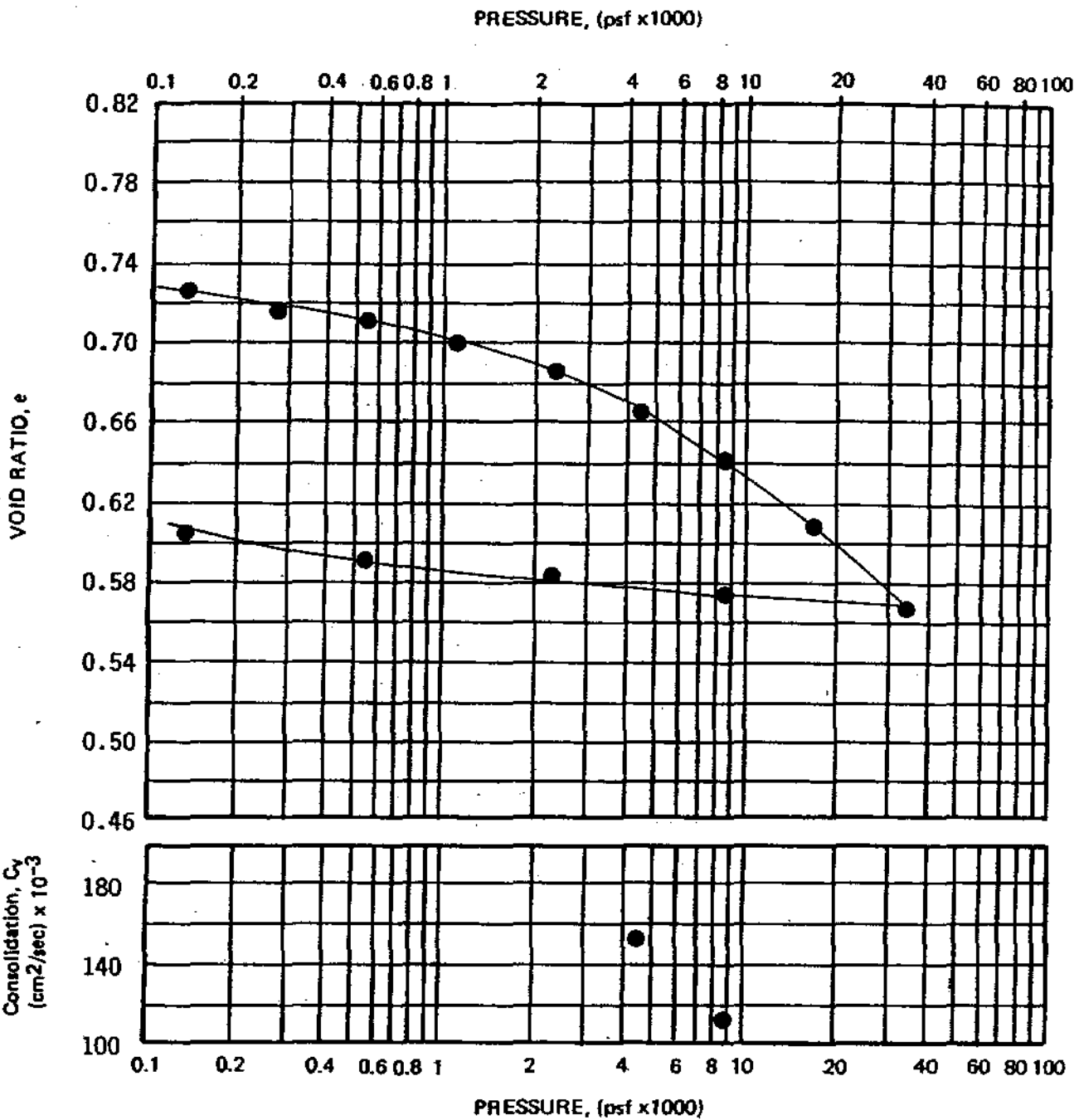
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-124**

DRAWN *JR* JOB NUMBER 19612,031.08 APPROVED *DLB* DATE 4/82 REVISED DATE



TYPE OF SPECIMEN Undisturbed (trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in.) 2.43	HEIGHT(in.) 0.80	MOISTURE CONTENT	$w_o$	27.1 %	$w_f$	22.6 %
OVERBURDEN PRESS., $\sigma'_{vo}$	170 psf	VOID RATIO	$e_o$	0.734	$e_f$	0.604
PRECONSOL. PRESS., $(\sigma'_{vo})_{max}$	-- psf	SATURATION	$S_o$	99 %	$S_f$	101 %
COMPRESSION INDEX, $C_c$	0.145	DRY DENSITY	$\gamma_d$	97 pcf	$\gamma'_d$	105 pcf
LL --	PL --	PI --	$G_s$ 2.69			
CLASSIFICATION SILTY SAND (SM)			SOURCE Boring 4 at 3.0'			

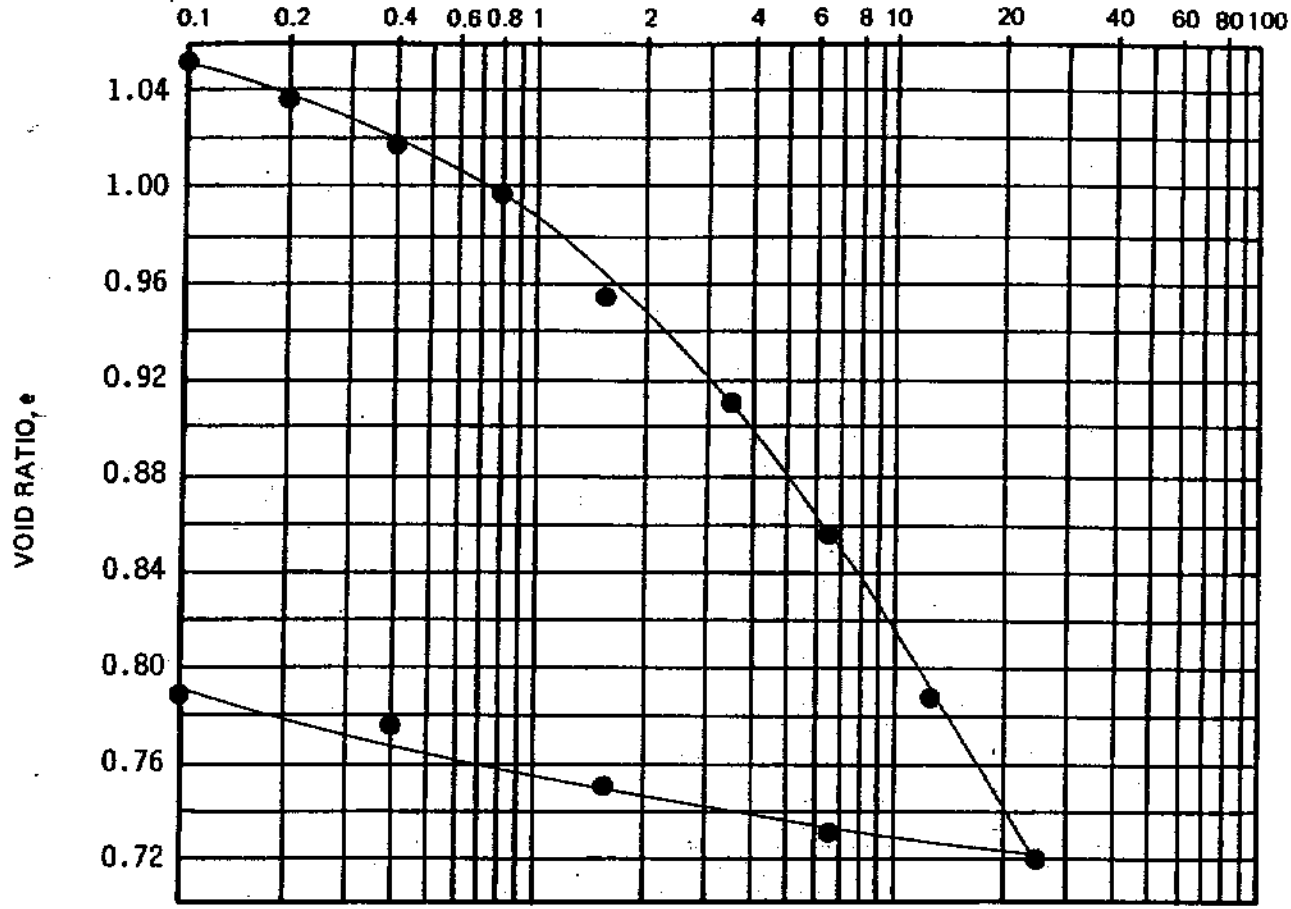


**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

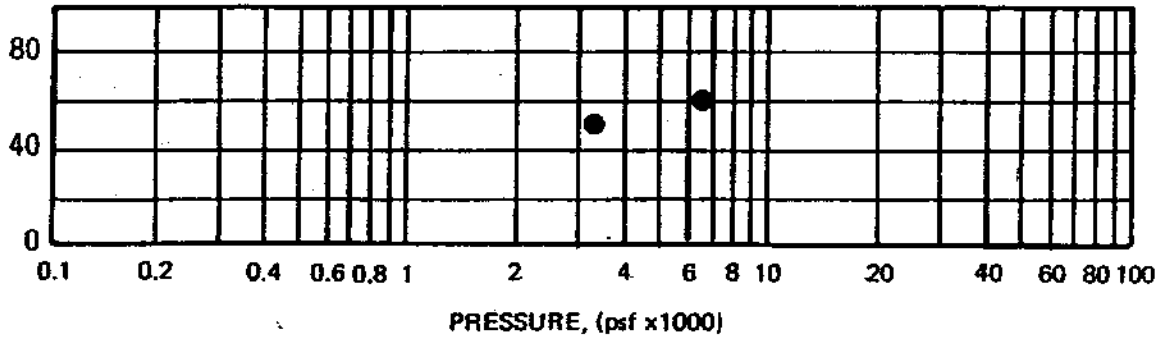
**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE  
**D-125**

PRESSURE, (psf x1000)



Coefficient of Consolidation,  $C_v$   
(cm<sup>2</sup>/sec) x 10<sup>-3</sup>



PRESSURE, (psf x1000)

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in) 2.43	HEIGHT(in.) 0.80	MOISTURE CONTENT	w <sub>0</sub>	36.3 %	w <sub>f</sub>	29.5 %
OVERBURDEN PRESS., σ' <sub>vo</sub> 720 psf		VOID RATIO	e <sub>0</sub>	1.081	e <sub>f</sub>	0.787
PRECONSOL PRESS., (σ' <sub>vo</sub> ) <sub>max</sub> -- psf		SATURATION	S <sub>0</sub>	90 %	S <sub>f</sub>	100 %
COMPRESSION INDEX, C <sub>c</sub> 0.213		DRY DENSITY	γ <sub>d</sub>	80 pcf	γ <sub>d</sub>	93 pcf
LL --	PL --	PI --		G <sub>s</sub> 2.67		
CLASSIFICATION ORGANIC SILT (OL)			SOURCE Boring 4 at 13.0'			

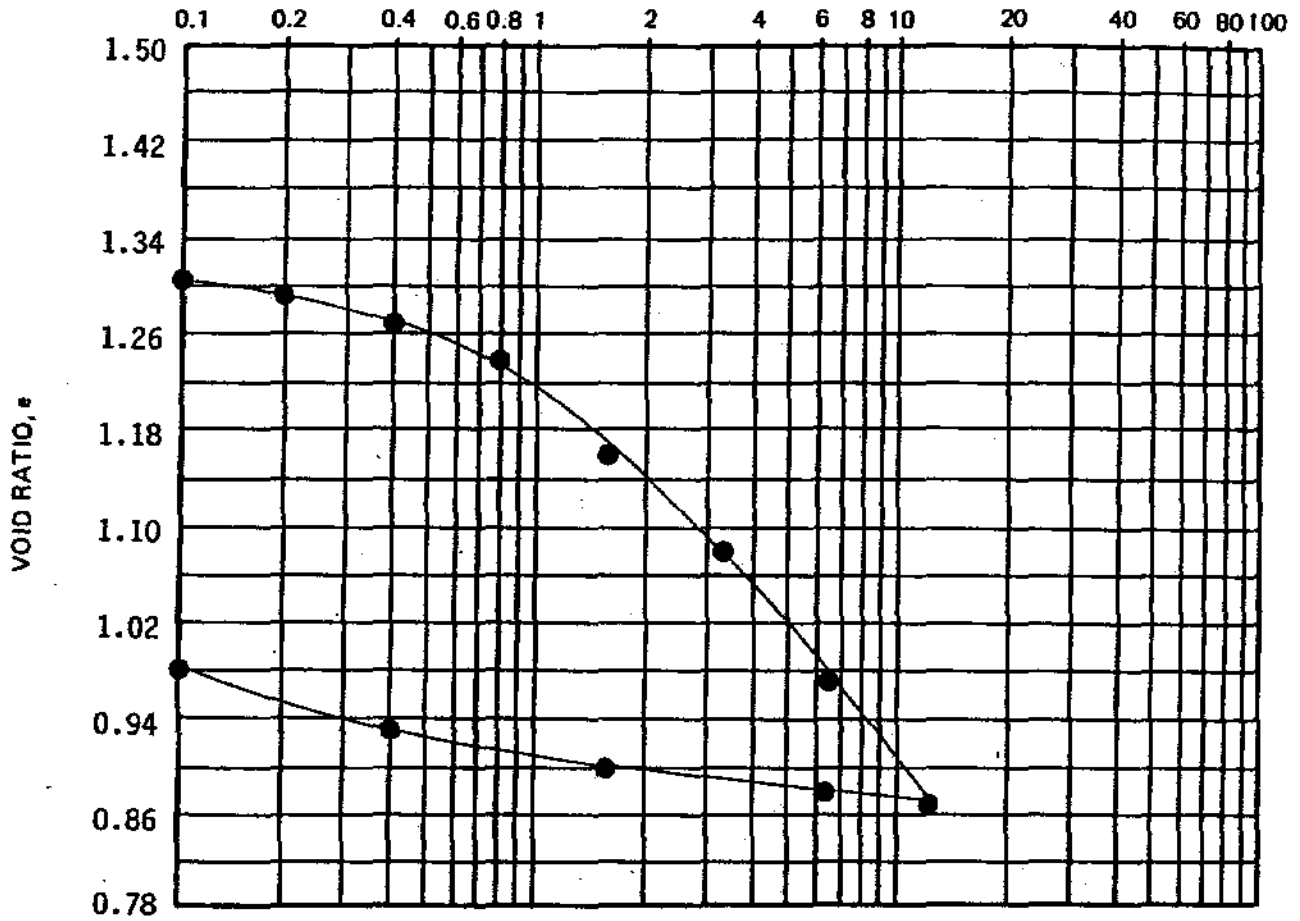


**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

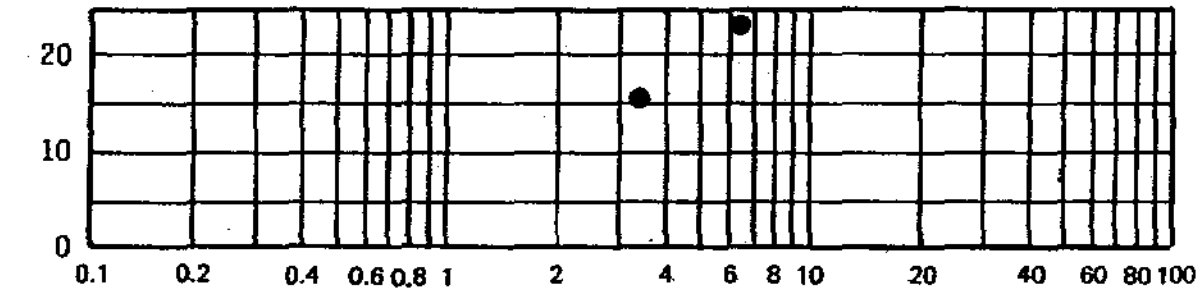
**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE  
**D-126**

PRESSURE, (psf x1000)



Coefficient of Consolidation,  $C_v$  (cm<sup>2</sup>/sec) x 10<sup>-3</sup>



PRESSURE, (psf x1000)

TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	$w_o$ 48.7 %	$w_f$ 36.8 %
OVERBURDEN PRESS., $\sigma'_{vo}$	790 psf	VOID RATIO	$e_o$ 1.335		$e_f$ 0.982	
PRECONSOL. PRESS., $(\sigma'_{vo})_{max}$	-- psf	SATURATION	$S_o$ 99 %		$S_f$ 101 %	
COMPRESSION INDEX, $C_c$	0.350	DRY DENSITY	$\gamma_d$ 72 pcf		$\gamma_d$ 85 pcf	
LL	--	PL	--	PI	--	$G_s$ 2.70
CLASSIFICATION SILT (ML)			SOURCE Boring 4 at 14.4'			



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-127**

DRAWN

JP

JOB NUMBER

9612,031.08

APPROVED

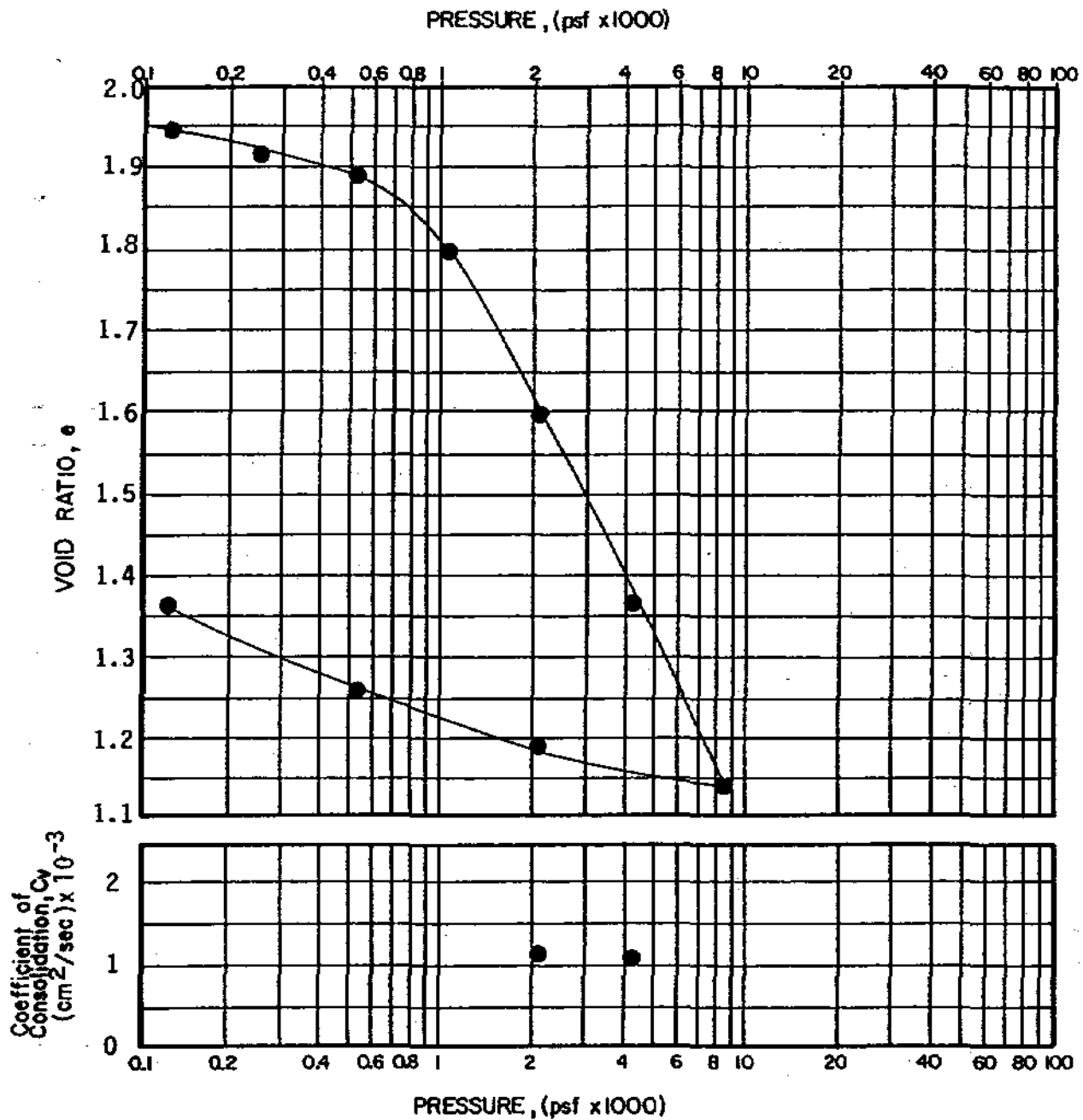
DWB

DATE

4/82

REVISED

DATE



TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in) 2.43	HEIGHT(in) 0.80	MOISTURE CONTENT	w <sub>0</sub>	74.7 %	w <sub>f</sub>	50.4 %
OVERBURDEN PRESS., σ' <sub>vo</sub>	1030 psf	VOID RATIO	e <sub>0</sub>	1.967	e <sub>f</sub>	1.364
PRECONSOL. PRESS., (σ' <sub>vo</sub> ) <sub>max</sub>	-- psf	SATURATION	S <sub>0</sub>	100 %	S <sub>f</sub>	100 %
COMPRESSION INDEX, C <sub>c</sub>	0.770	DRY DENSITY	γ <sub>d</sub>	56 pcf	γ <sub>d</sub>	70 pcf
LL --	PL --	PI --	G <sub>s</sub> 2.66			
CLASSIFICATION CLAY (CL)			SOURCE Boring 4 at 18.8'			



**Hardening Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-128**

DRAWN

*JP*

JOB NUMBER

9612,031.08

APPROVED

*DB*

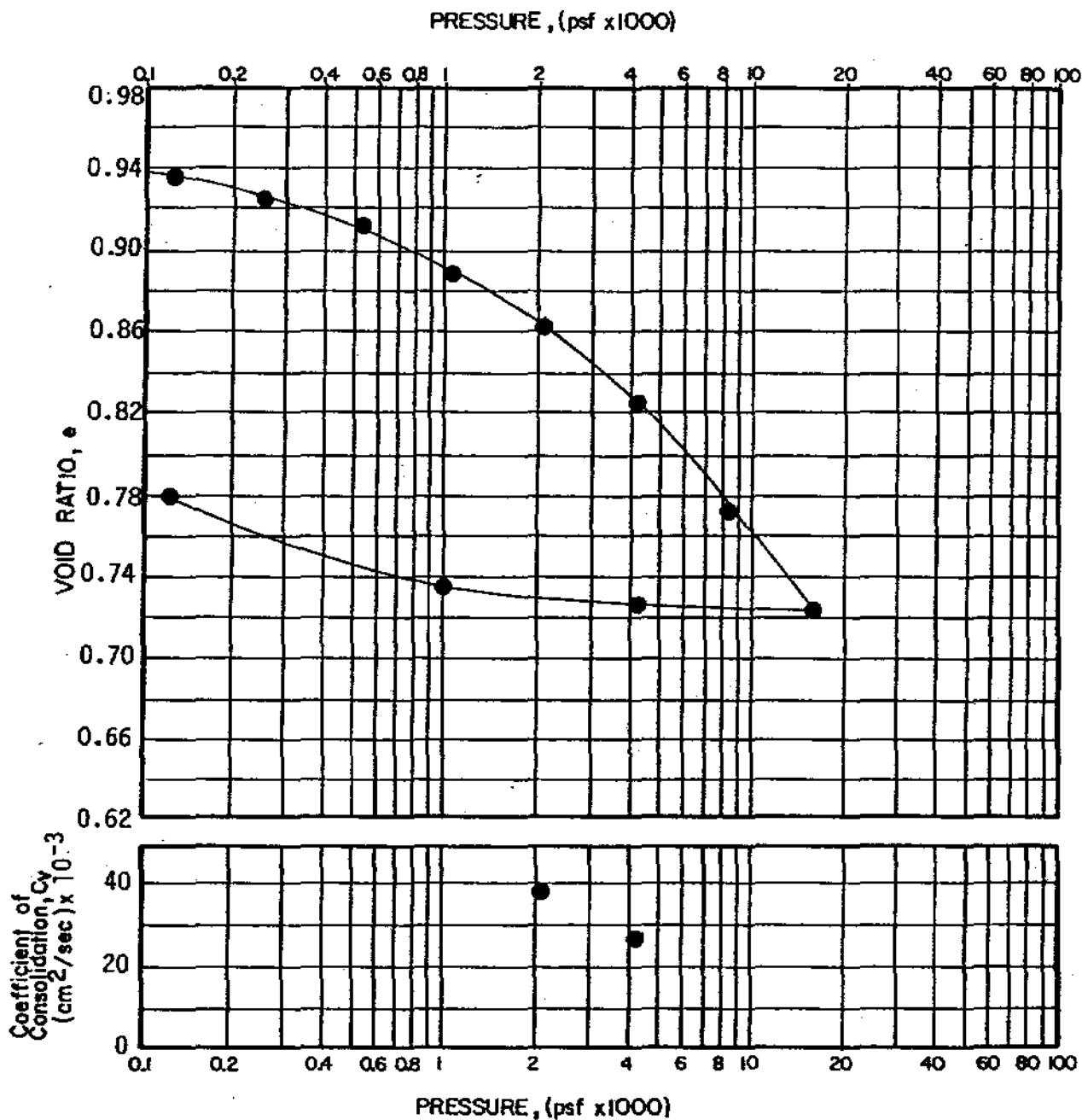
DATE

4/82

REVISED

DATE





TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in) 2.43	HEIGHT(in) 0.80	MOISTURE CONTENT	$w_0$	36.6 %	$w_f$	29.4 %
OVERBURDEN PRESS., $\sigma'_{v0}$	1070 psf	VOID RATIO	$e_0$	0.964	$e_f$	0.780
PRECONSOL PRESS., $(\sigma'_{v0})_{max}$	-- psf	SATURATION	$S_0$	100 %	$S_f$	100 %
COMPRESSION INDEX, $C_c$	0.185	DRY DENSITY	$\delta_d$	87 pcf	$\delta_d$	96 pcf
LL 31	PL 21	PI 10	$G_s$ 2.72			
CLASSIFICATION SILTY CLAY (CL)			SOURCE Boring 5 at 19.5'			



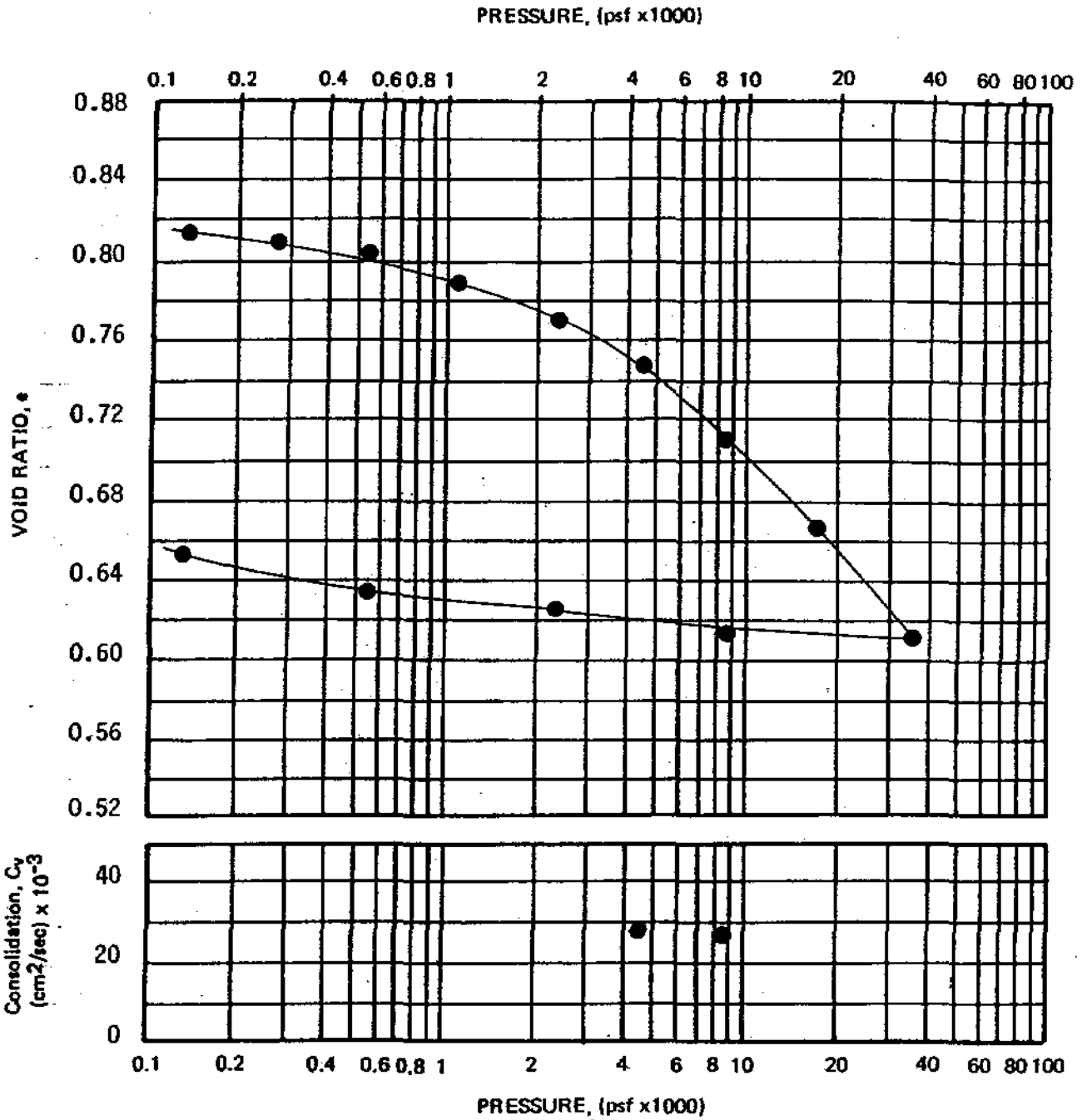
**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-129**

DRAWN *W* JOB NUMBER 9612,031.08 APPROVED *DEB* DATE 4/82 REVISED DATE



TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST		
Undisturbed (trimmed)								
DIAMETER(in.)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	w <sub>o</sub>	30.4 %	w <sub>f</sub>	24.4 %
OVERBURDEN PRESS., σ' <sub>vo</sub>	200	psf		VOID RATIO	e <sub>o</sub>	0.819	e <sub>f</sub>	0.655
PRECONSOL PRESS., (σ' <sub>vo</sub> ) <sub>max</sub>	--	psf		SATURATION	S <sub>o</sub>	100 %	S <sub>f</sub>	100 %
COMPRESSION INDEX, C <sub>c</sub>	0.209			DRY DENSITY	γ <sub>d</sub>	92 pcf	γ <sub>d</sub>	101 pcf
LL	--	PL	--	PI	--	G <sub>s</sub>	2.69	
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 6 at 3.6'				



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE  
**D-130**

DRAWN

JP

JOB NUMBER

9612.031.08

APPROVED

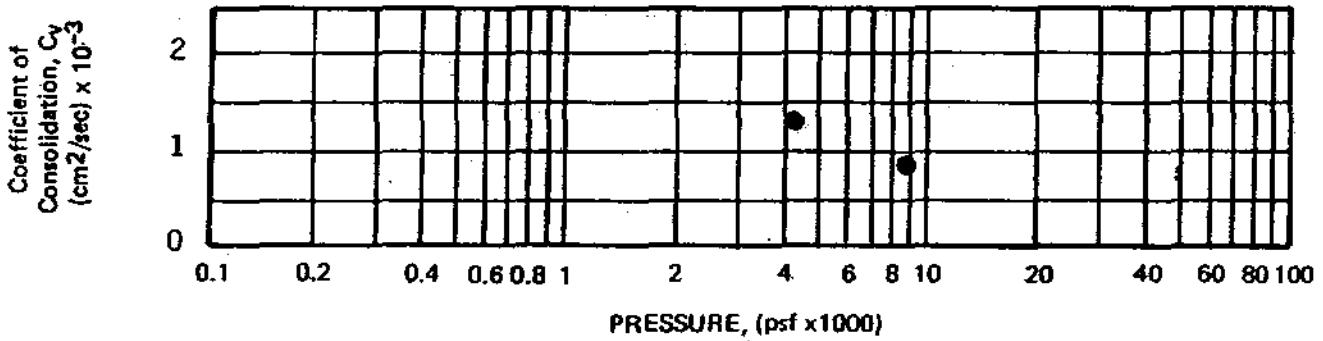
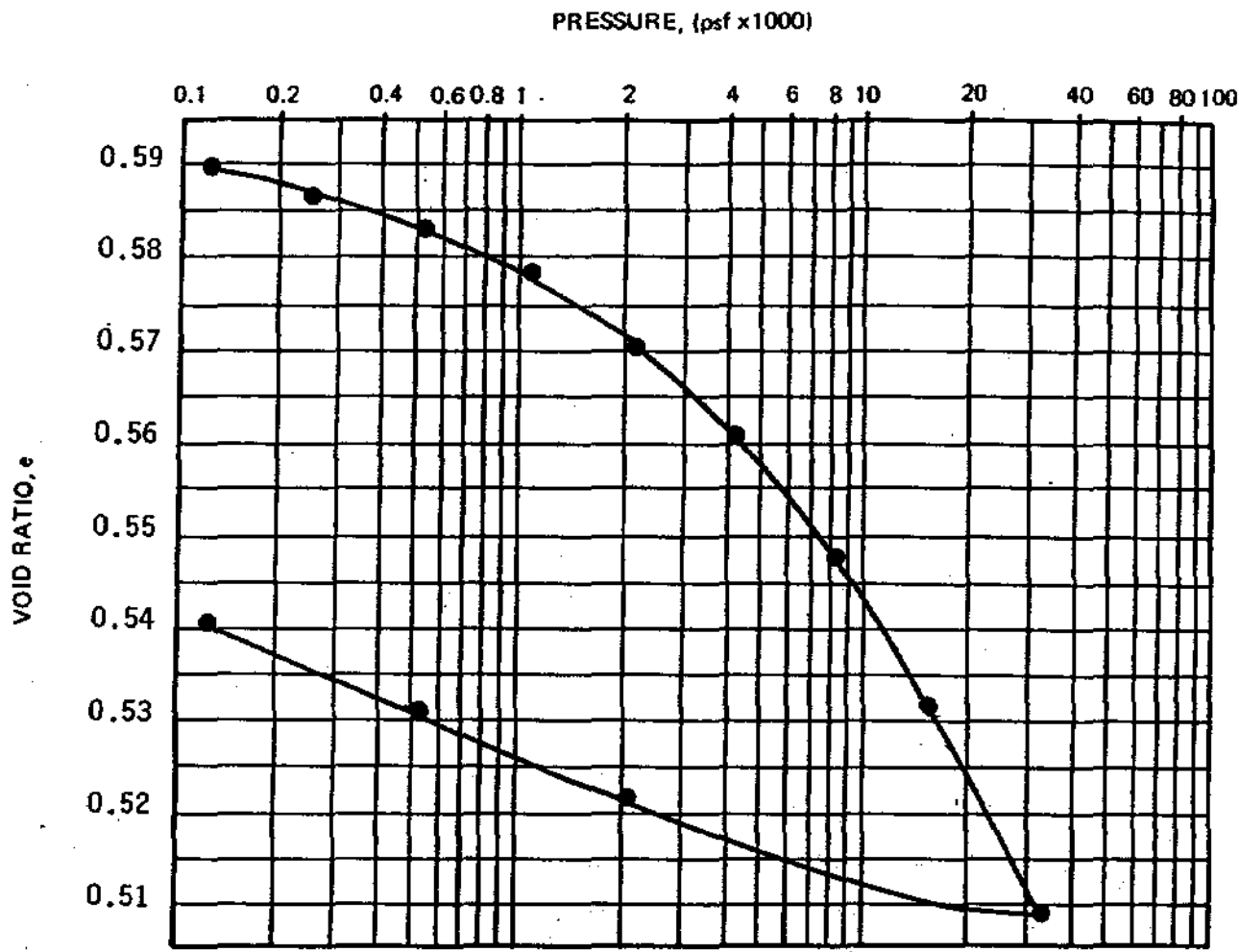
DLB

DATE

4/82

REVISED

DATE



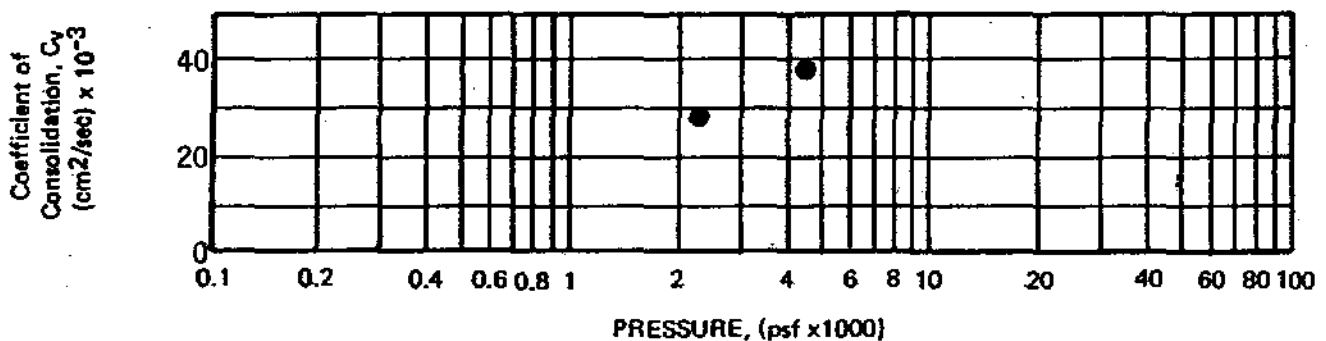
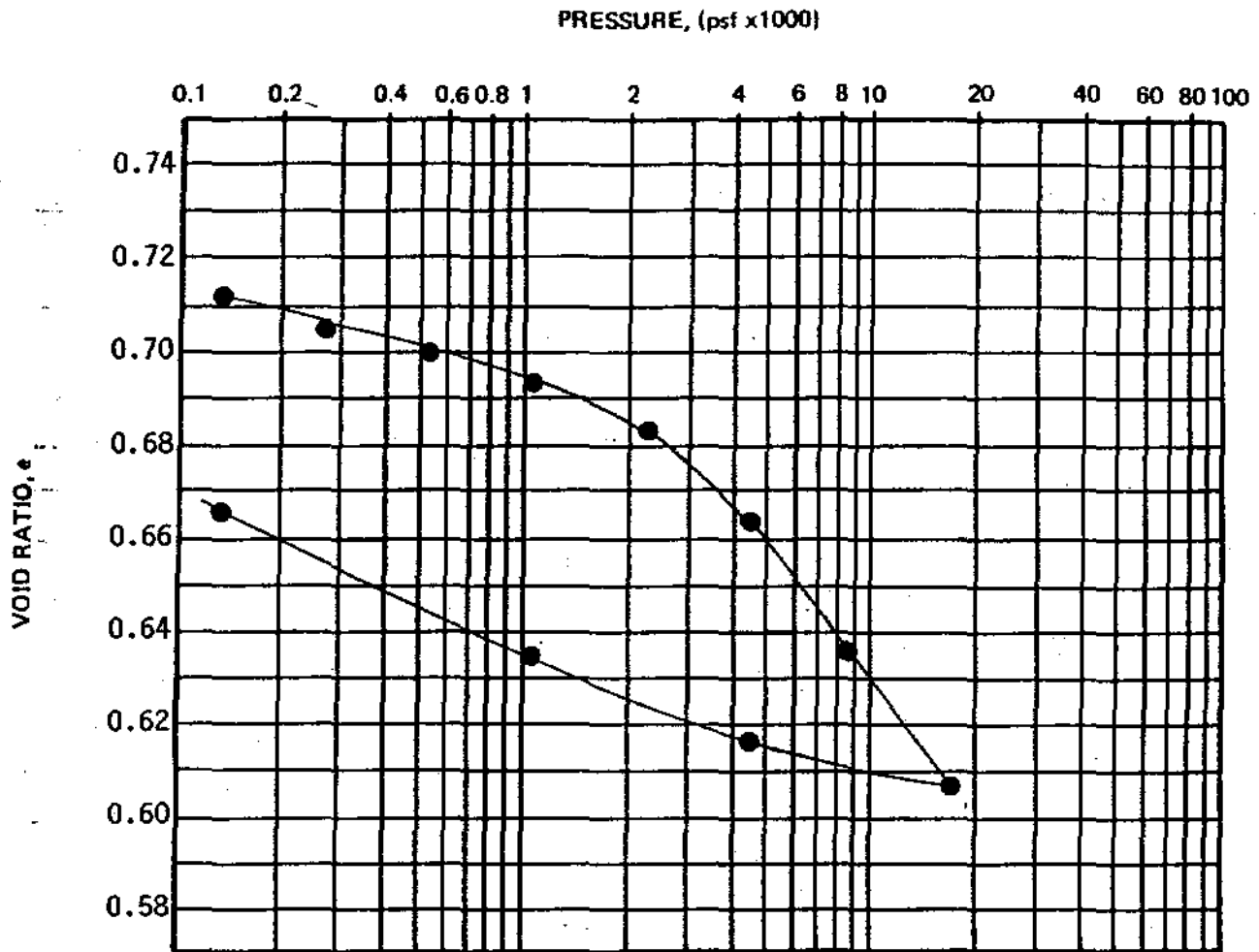
TYPE OF SPECIMEN		BEFORE TEST				AFTER TEST	
Undisturbed(trimmed)		DIAMETER(in) 2.43		HEIGHT(in.) 0.80		MOISTURE CONTENT	
				w <sub>o</sub> 23.1 %		w <sub>f</sub> 19.8 %	
OVERBURDEN PRESS., σ <sub>vd</sub> '		1190 psf		VOID RATIO		e <sub>o</sub> 0.599	
				e <sub>f</sub> 0.541			
PRECONSOL PRESS., (σ <sub>vd</sub> ') max		---		SATURATION		S <sub>o</sub> 100 %	
				S <sub>f</sub> 100 %			
COMPRESSION INDEX, C <sub>c</sub>		0.066		DRY DENSITY		γ <sub>d</sub> 107 pcf	
				γ <sub>d</sub> 111 pcf			
LL	29	PL	24	PI	5	G <sub>s</sub>	2.73
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 6 at 21.7'			



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidation Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-131**



TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in) 2.43	HEIGHT(in.) 0.80	MOISTURE CONTENT	$w_o$	26.0 %	$w_f$	24.4 %
OVERBURDEN PRESS., $\sigma'_{vo}$	700 psf	VOID RATIO	$e_o$	0.722	$e_f$	0.666
PRECONSOL PRESS., $(\sigma'_{vo})_{max}$	-- psf	SATURATION	$S_o$	98 %	$S_f$	100 %
COMPRESSION INDEX, $C_c$	0.081	DRY DENSITY	$\gamma_d$	99 pcf	$\gamma'_d$	102 pcf
LL --	PL --	PI --	$G_s$ 2.73			
CLASSIFICATION SILT (ML)			SOURCE Boring 8 at 12.8'			



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidation Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-132**

DRAWN  
 VI

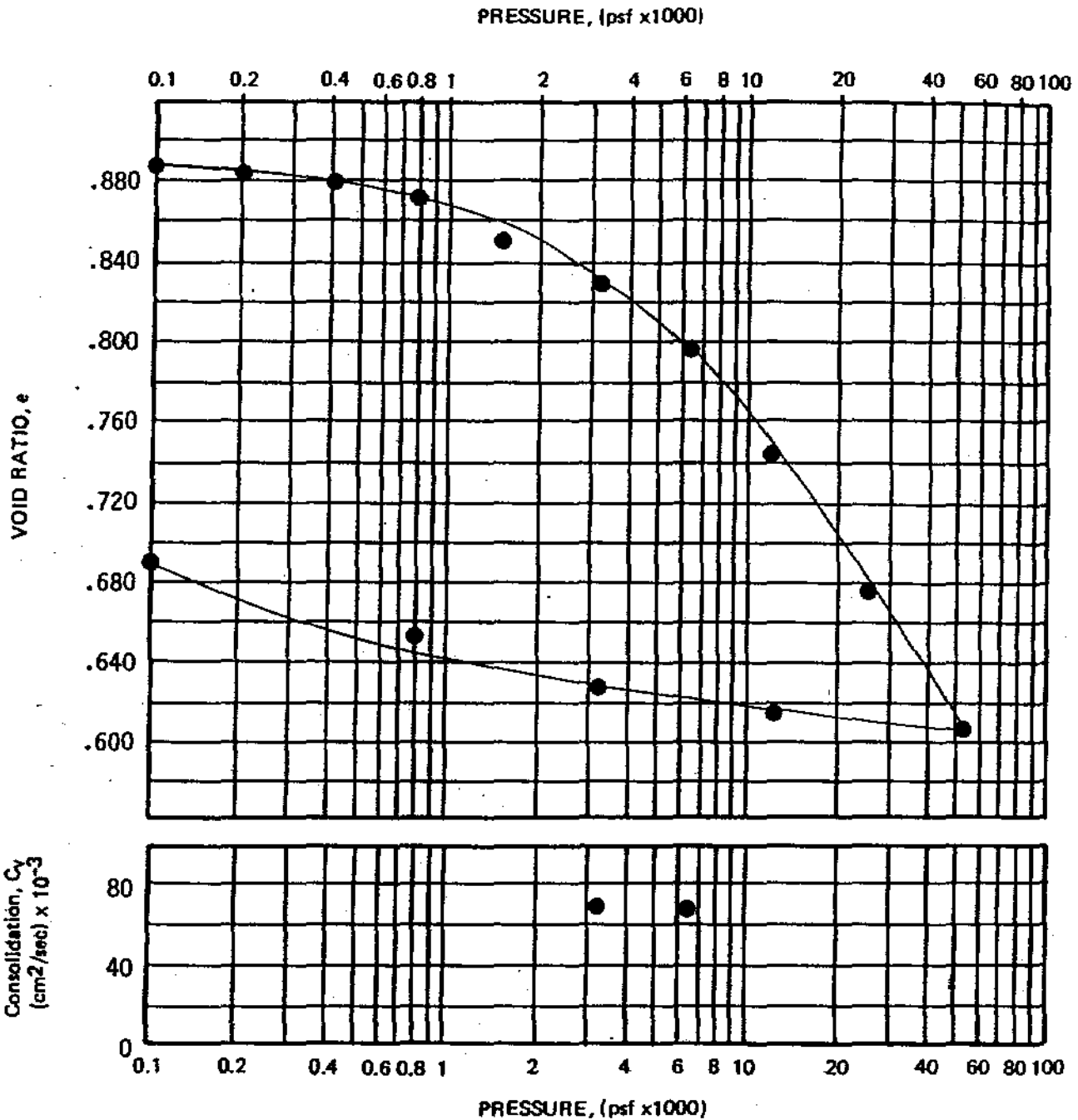
JOB NUMBER  
 9612 031 08

APPROVED  
 DCA

DATE  
 4/82

REVISED

DATE



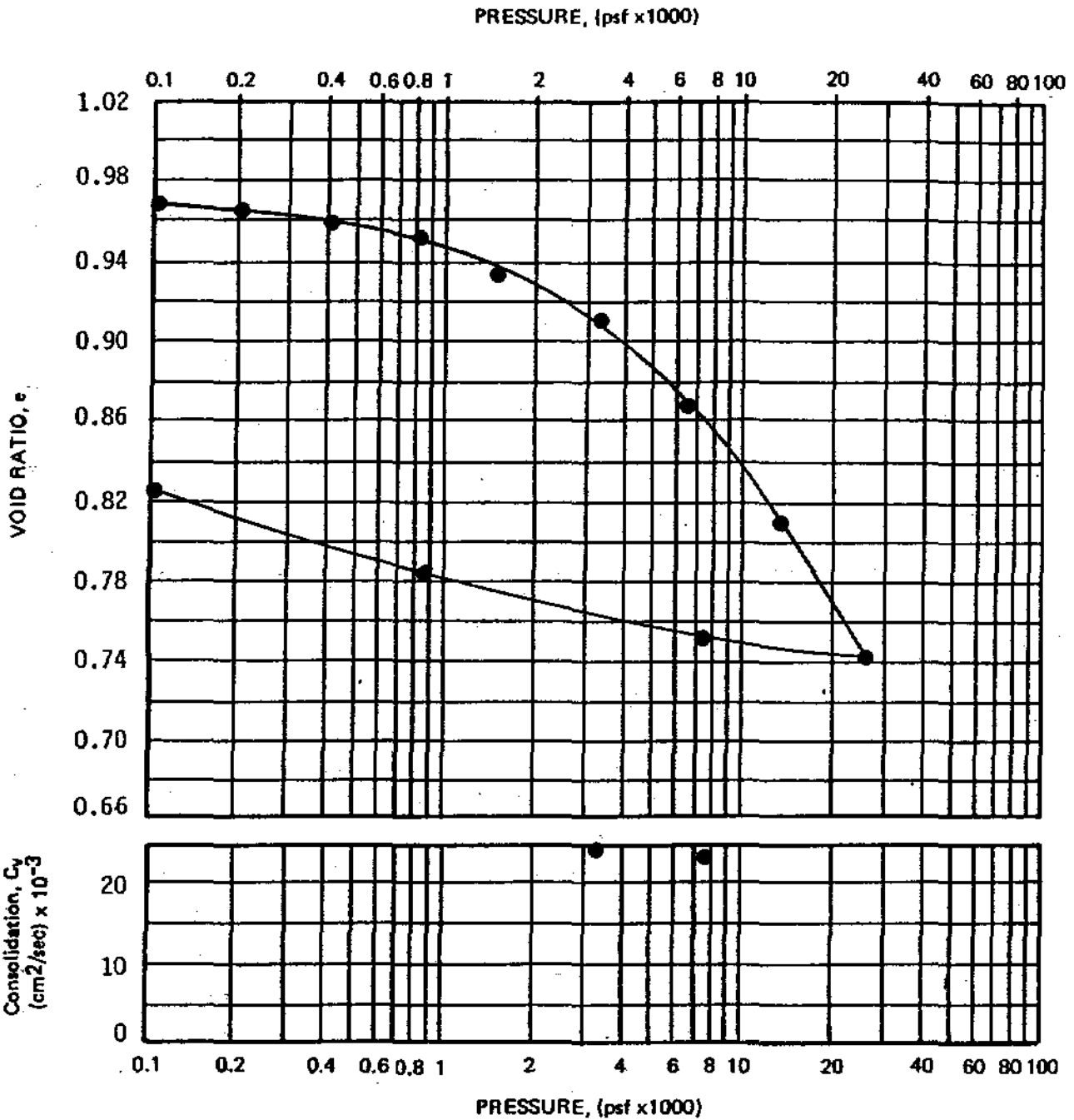
TYPE OF SPECIMEN		BEFORE TEST			AFTER TEST						
Undisturbed (trimmed)											
DIAMETER(in)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	$w_o$	32.1 %	$w_f$	25.3 %			
OVERBURDEN PRESS., $\sigma'_{vo}$	310	psf		VOID RATIO	$e_o$	0.894	$e_f$	0.693			
PRECONSOL PRESS., $(\sigma'_{vo})_{max}$	--	psf		SATURATION	$S_o$	97.7 %	$S_f$	100 %			
COMPRESSION INDEX, $C_c$	0.207			DRY DENSITY	$\gamma_d$	90	pcf	$\gamma_d$	100 pcf		
LL	--	PL	--	PI	--	$G_s$	2.72				
CLASSIFICATION				SILTY SAND (SM)				SOURCE		Boring 9 at 5.7'	



**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidation Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-133**



TYPE OF SPECIMEN Undisturbed (trimmed)		BEFORE TEST				AFTER TEST	
DIAMETER(in.)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	$w_o$	35.0 %	$w_f$ 30.3 %
OVERBURDEN PRESS., $\sigma'_{vo}$	530 psf	VOID RATIO	$e_o$	0.971	$e_f$	0.824	
PRECONSOL PRESS., $(\sigma'_{vo})_{max}$	-- psf	SATURATION	$S_o$	98 %	$S_f$	100 %	
COMPRESSION INDEX, $C_c$	0.215	DRY DENSITY	$\gamma_d$	86 pcf	$\gamma_d$	93 pcf	
LL	--	PL	--	PI	--	$G_s$	2.71
CLASSIFICATION SANDY SILT (ML)				SOURCE Boring 9 at 9.7'			

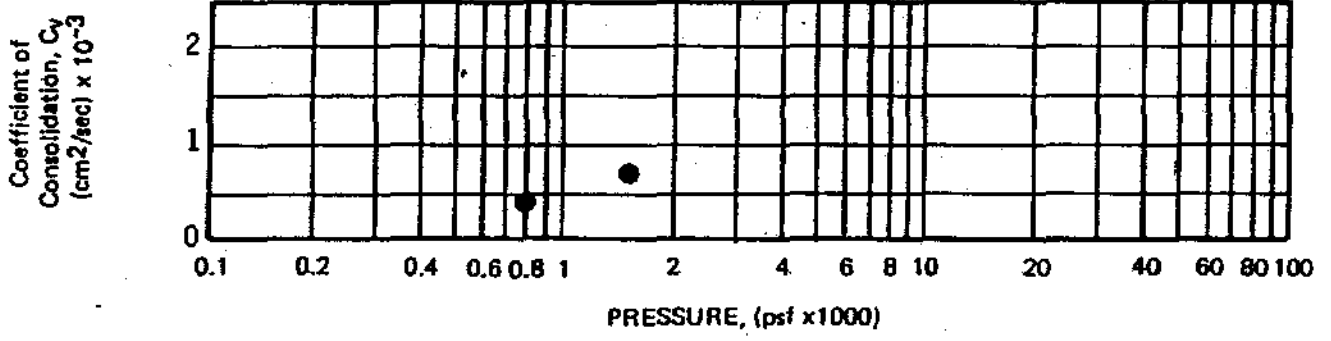
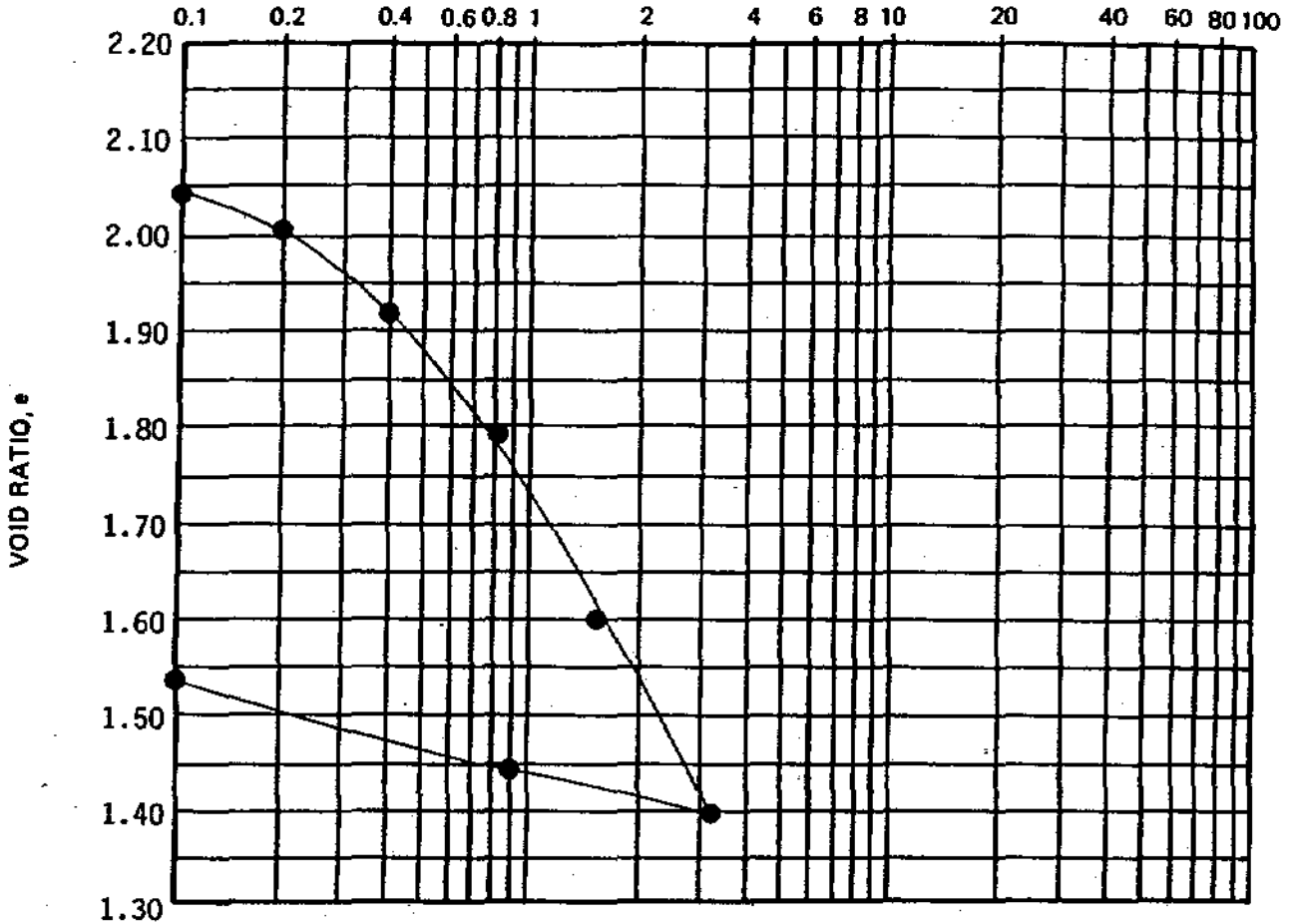


**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidation Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-134**

PRESSURE, (psf x1000)

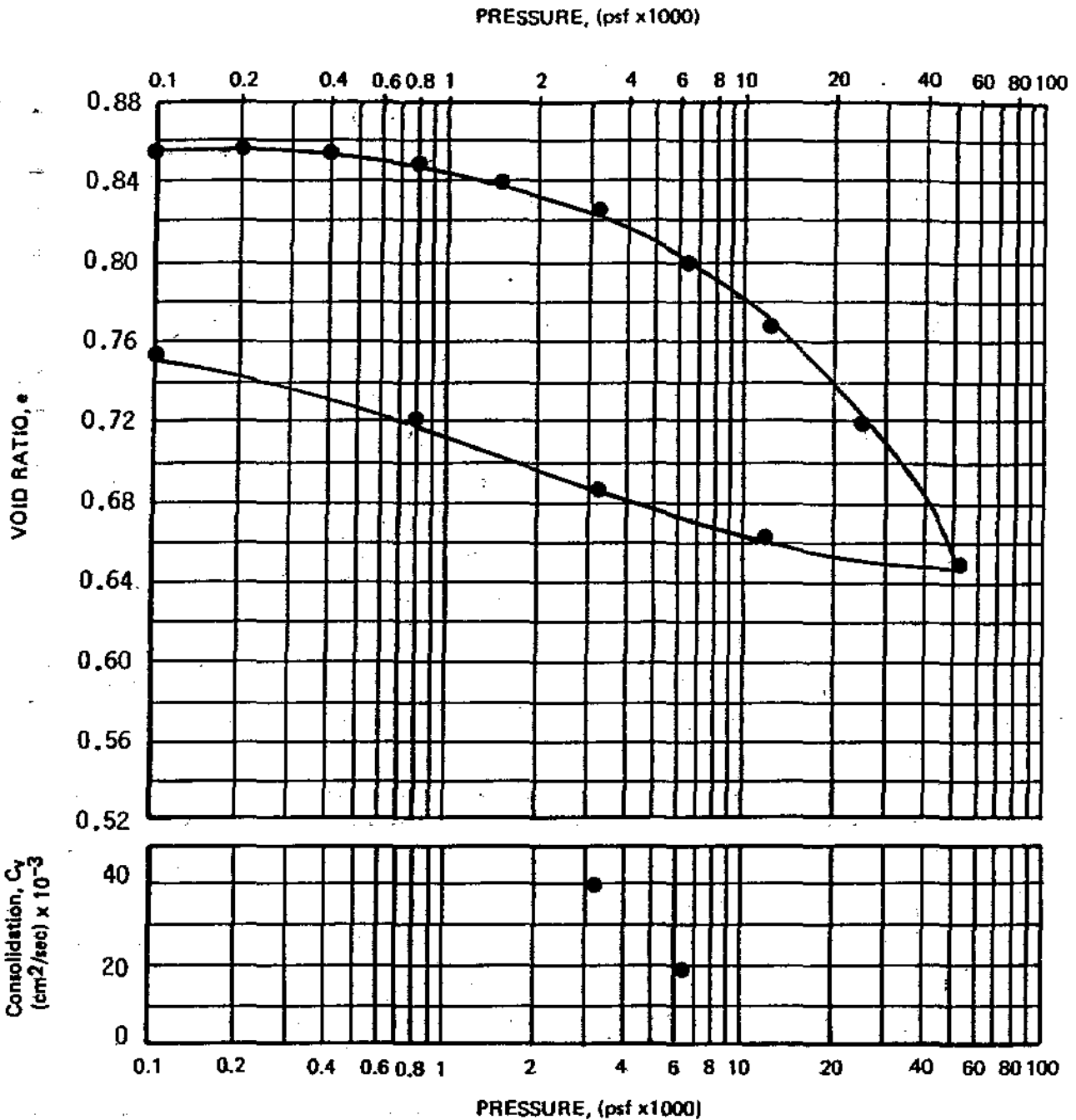


TYPE OF SPECIMEN Undisturbed (trimmed)		BEFORE TEST				AFTER TEST		
DIAMETER(in)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	w <sub>o</sub>	80.4 %	w <sub>f</sub>	59.4 %
OVERBURDEN PRESS., σ <sub>vo</sub> '	1060 psf	VOID RATIO	e <sub>o</sub>	2.134	e <sub>f</sub>	1.543		
PRECONSOL. PRESS., (σ <sub>vo</sub> ') <sub>max</sub>	-- psf	SATURATION	S <sub>o</sub>	100 %	S <sub>f</sub>	102 %		
COMPRESSION INDEX, C <sub>c</sub>	0.665	DRY DENSITY	γ <sub>d</sub>	53 pcf	γ <sub>d</sub>	65 pcf		
LL	--	PL	--	PI	--	G <sub>s</sub>	2.66	
CLASSIFICATION SILT (MH)				SOURCE Boring 9 at 19.3'				

**Harding Lawson Associates**  
 Engineers, Geologists  
 & Geophysicists

**Consolidation Test Report**  
 Pt. Thomson Development Project  
 Winter 1982, Geotechnical Study  
 EXXON Company, U.S.A.

PLATE  
**D-135**



TYPE OF SPECIMEN Undisturbed(trimmed)		BEFORE TEST			AFTER TEST	
DIAMETER(in)	2.43	HEIGHT(in.)	0.80	MOISTURE CONTENT	w <sub>0</sub> 32.8 %	w <sub>f</sub> 27.7 %
OVERBURDEN PRESS. (σ <sub>vo</sub> )	2270	psf		VOID RATIO	e <sub>0</sub> 0.869	e <sub>f</sub> 0.754
PRECONSOL PRESS. (σ <sub>vo</sub> ) <sub>max</sub>	---	psf		SATURATION	S <sub>0</sub> 103 %	S <sub>f</sub> 100 %
COMPRESSION INDEX, C <sub>c</sub>	0.218			DRY DENSITY	γ <sub>d</sub> 91 pcf	γ <sub>d</sub> 97 pcf
LL	---	PL	---	PI	---	G <sub>s</sub> 2.73
CLASSIFICATION CLAYEY SILT (ML)				SOURCE Boring 9 at 41.2'		



**Harding Lawson Associates**  
Engineers, Geologists  
& Geophysicists

**Consolidation Test Report**  
Pt. Thomson Development Project  
Winter 1982, Geotechnical Study  
EXXON Company, U.S.A.

PLATE

**D-136**

DRAWN  
10

JOB NUMBER  
0612 031 08

APPROVED  
*[Signature]*

DATE  
4/82

REVISED

DATE