

**Drum centrifuge modelling of
displacement piles in sand: data report**

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SUMMARY

This data report presents the results from a drum centrifuge test conducted to investigate the horizontal stress distribution during installation and subsequent loading of a model instrumented pile in sand. The test was conducted using the University of Western Australia (UWA) 1.2 m diameter drum centrifuge and comprised 18 pile installations. The model pile was 9 mm square in cross-section, and equipped with six pressure cells to provide measurements of horizontal stress along the pile shaft. Three different installation methods were used to mimic jacking and dynamic techniques. Static and cyclic load tests were carried out. Extension pieces allowed the shape of the pile to be changed from square to rectangular (with aspect ratio of either two or six) and the subsequent influence on horizontal stress distribution to be examined. Tests were carried out at accelerations levels of 50 g and 150 g to examine similitude. Model CPT tests were conducted to characterise the soil model. This data report presents the results in their entirety without interpretation.

1. Introduction

There are significant uncertainties associated with the prediction of the axial capacity of displacement piles in sand. Recent experiments involving field-scale instrumented piles (e.g. Lehane 1992, Chow 1997) have been successful in reducing the level of this uncertainty, leading to the development of approaches such as those proposed by Randolph et al. (1994) and Jardine & Chow (1996). Despite the improved reliability of these methods, which is a direct result of actual measurements of lateral stresses on pile shafts (Poulos et al. 2001), a number of significant facets require further investigation, clarification and refinement to enable formulation of more generally accepted and reliable design approaches. In particular, the factors controlling the distribution of at-rest horizontal stresses acting on the pile shaft and the mechanisms controlling horizontal stress changes during pile loading require further investigation.

Another motivation for research lies in the recent development of pile installation techniques that involve jacking rather than conventional dynamic techniques, which create unacceptable noise and vibration pollution in urban areas. White et al. (2002) and Lehane et al. (2003) describe two novel pile jacking systems for the installation of large pre-formed displacement piles which offer an alternative to bored piling for the construction of axially-loaded foundations in urban areas. However, if these new jacking techniques are to become more widely accepted, research is needed to investigate the influence of the installation method on pile behaviour. Since conventional design methods have been developed based on historic experience with dynamically-installed piles, caution is required when these methods are applied to jacked piles.

2. Background

Lehane's (1992) field investigations using a heavily instrumented pile equipped with three lateral pressure cells located at various distances, h , above the pile tip allowed the horizontal stress at a given soil depth to be recorded on three occasions as multiple instruments passed that level. These measurements established the importance of the dimension h on local shaft friction, t_s , at a given soil horizon. It was found that the horizontal stress decreased sharply with distance behind the pile tip, which is in sharp contrast with conventional design methods (eg. API 1993, Bustamante & Gianeselli 1982). Subsequent design methods have included this phenomenon, which has become widely known as 'friction fatigue' (Lehane & Jardine 1994, Randolph et al. 1994, Jardine & Chow 1996). These methods have included friction fatigue in a semi-empirical manner (calibrated against field records) rather than using a particular behavioural model. Few of these records include measurements of local shaft friction,

t_s , and even fewer include horizontal stress s'_h . Although Lehane et al. (1993) established that s'_h and t_s can be linked through Coulomb's simple friction equation, an additional complication was identified since a sharp variation in s'_h occurs during loading, as the 'at-rest' or 'stationary' value, s'_{hs} , rises to the failure value, s'_{hf} . Dilation of the interface layer and Poisson strains within the pile provide plausible explanations for this effect. Increases in horizontal stresses have, however, been recorded whilst loading smooth piles (Lehane & Jardine 1994), suggesting an alternative mechanism is also operative.

The foregoing observations relate primarily to monotonic loading. Cyclic loading offers a further mechanism by which horizontal stress, and hence shaft friction, can reduce. It is widely observed that repeated axial loading leads to a reduction in shaft friction (Poulos 1989). This reduction is usually attributed to the decrease in horizontal stress that occurs as the interface layer contracts under cyclic loading. In addition, it has been observed that the number of blows required for pile installation influences the subsequent capacity under monotonic loading (Randolph 1988). However, since cyclic loading tests have not previously been conducted on piles instrumented for horizontal stress, it is not clear whether cyclic loading reduces the stationary horizontal stress, s'_{hs} , or the additional capacity mobilised during loading.

Previous research related to cyclic loading of piles in sand has generally considered only cyclic loading during the working life. The construction technique, and the corresponding amount of cyclic loading during installation, have received little attention. Since few alternatives exist, displacement piles are conventionally installed by hammering or vibration. The key exceptions are piles installed purely for research, and equipped with sensitive instrumentation. These piles are often installed by jacking (e.g. Lehane 1992, Chow 1996).

New pile driving machines, which can install large displacement piles by static force alone, offer an alternative to conventional dynamic techniques. Pile jacking involves less load and displacement cycles at the pile-soil interface during installation, and potentially a different distribution of stationary horizontal stress prior to application of the working load. Furthermore, the differing residual base stresses and strain history adjacent to the pile shaft may lead to a difference in the load-displacement response of a jacked pile compared to a dynamically-installed pile.

These new methods of pile installation are gaining wider acceptance, particularly due to their lower environmental impact (Lehane et al. 2003, White et al. 2002), and field

data suggest that conventional design methods developed from experience with dynamically-installed piles may be overly conservative for jacked piles (White et al. 2003, Yetginer et al. 2003).

3. Research objectives

The background described above lead to the following primary research objectives, which were addressed through a series of pile tests in the UWA drum centrifuge during December 2002.

1. To investigate the development and variations of horizontal stress acting on the shaft of a displacement pile. The influence of the following was examined:
 - (i) Pile aspect ratio (which controls the possibility of horizontal arching)
 - (ii) Monotonic and cyclic (one-way and two-way) loading
2. To investigate the influence of installation method on the horizontal stress on the pile shaft. Three installation methods were considered:
 - (i) Monotonic (no cycles: comparable to a CPT)
 - (ii) Jacking (cycles of fixed downward displacement followed by unloading)
 - (iii) ‘Pseudo-dynamic’ (two-way cycles of fixed downward and upward displacement)

4. Methodology

Eighteen pile installations were conducted in the drum centrifuge to address the research objectives. In order to investigate the influence of installation method, the pile was installed (i) by a monotonic push to half of the final pile depth followed by another monotonic push to the final pile length (ii) by displacement cycles (jacking) and (iii) by displacement cycles ('pseudo-dynamic'). Piles of three different aspect ratios (ratio of width, W , to breadth, B) were used to investigate the possible influence of horizontal arching. At mid-depth, the installation was paused and a static load test conducted, before installation continued to the full depth. After reaching full depth, static and cyclic load tests were conducted. The cyclic load tests involved one-way compression and tension loading as well as two-way cyclic compression-tension loading.

Drum centrifuge

The tests described in this report were conducted on the drum centrifuge at the University of Western Australia (Figure 1), which was commissioned in 1998. The ring channel of the machine has an outer diameter of 1.2 m, an inner diameter of 0.8 m, and a channel height of 0.3 m. A full technical description of this facility is provided by Stewart et al. (1998).

A key feature of the UWA drum centrifuge is the independently-rotating central shaft and tool table, which can be driven relative to the ring channel by a Dynaserv hollow stepper motor, and brought to a halt independent of the channel. Mounted on the tool table is an actuator, onto which instrumented tools can be attached and controlled. Twin stepper motors allow precise vertical and radial movement of the tool, whilst a further stepper motor controls a counterbalance. The vertical movement range of the actuator is sufficient for the central shaft to be halted and the actuator to be moved up from within the ring channel and ‘parked’ in a safe zone above the protective shield (Figure 2). Tools can be swapped or cleaned without changing the acceleration level of the soil within the ring channel. Two tools were used during this research; the model pile and a miniature CPT probe.

Two PCs are mounted on the tool table; one controls the actuator stepper motors, and another is for data acquisition. The actuator control PC receives commands from a PC in the control room via a serial link across the slip rings. Feedback between the onboard data acquisition PC and the control room PC allows the actuator to be operated in a load-controlled mode.

Model pile

To measure the horizontal stress acting on the shaft, a model pile was fabricated with miniature total pressure cells (Kyowa PS-5KA) embedded on the surface (Figure 3). A square section pile was used so that these flat circular cells could be mounted flush with the pile surface. The square section also accommodated the attachment of ‘wings’ to the side walls so that the pile’s aspect ratio (i.e. ratio of width, W to breadth, B) could be modified.

In order to allow a margin of 1.5 mm around the 6 mm diameter pressure cells, a pile breadth, B , of 9 mm was adopted. The maximum achievable sample depth of 180 mm limited the pile to a maximum penetration depth of 120 mm (to avoid base effects). The pile was fabricated from stainless steel. A test piece machined in a similar manner was found to have a mean centreline average roughness, R_A , of 0.55 μm .

Six pressure cells were mounted at four locations behind the pile tip ($h/B = 1, 3, 6$, and 12) (Figure 4). By instrumenting both sides of the pile close to the tip, a degree of redundancy was built in and the repeatability of the measurements could be checked. The pressure cells were glued into slots machined into the face of the pile using Kyowa RC-19 adhesive, after which the slots were backfilled with clear epoxy (Figure 5).

All instrumentation cabling passed up through a hole drilled into the shaft and exited through a 6 mm diameter hole 165 mm above the pile tip. Each pressure cell had an independent power supply, with a total of 24 cores passing through the pile shaft. The head of the pile attached to a pile cap which was connected via a 10 kN axial load cell to the tool table (Figure 6). Two pairs of ‘wings’ attached to either side of the pile to increase the width, W , to 18 mm and 54 mm respectively (to obtain $W/B = 2$ and 6).

After construction of the pile, the pressure cells were exercised under air in a pressurised chamber. No hysteresis was evident in the range 0–500 kPa and linear calibration factors were established (Table 1).

Soil properties

The tests were carried out using IMDEX silica sand (‘superfine’ fraction). Particle size analyses and index properties carried out on the batch used in the centrifuge testing are shown in Figure 7 and Table 2 respectively.

Soil model preparation

A single bed of sand was used for the entire testing programme. This bed was prepared in three stages:

1) Dry pluviation (10th December)

The channel was filled with sand by dry pluviation using an automated sand pourer mounted on the central shaft whilst the ring channel was spinning at 20 g. The automated sand pourer comprises a vertically-translating nozzle fed by a flexible hose which is connected via a rotary coupling to a hopper above the centrifuge. Dry sand was slowly poured from the hopper to the pouring head. The pouring head was translated vertically across the ring channel triggered by a z wave of period 40 seconds. The central shaft was rotating relative to the ring channel at a rate of 7°/sec. The channel was filled to the full depth of 200 mm in three hours. The depth of sand varied by up to 10 mm around the channel.

2) Saturation and partial drying (Overnight- 10th – 11th December)

The soil was saturated with water then left to drain overnight through the base, leaving the material slightly damp and with sufficient suction to hold the sample in position when the ring channel was halted.

3) Cutting (11th December) and drying (12th December)

The channel was brought to a halt, with the sand maintaining sufficient suction to stand. The surface was screeded flat to a nominal sample depth of 180 mm using a rotating cutter attached to the tool table. The actual variation in sample depth around the channel, as shown by the touchdown position of each pile test (Table 3), was less than ± 1 mm. The channel was then accelerated to 50 g (12 noon, 11th December), and remained spinning (including the period at 150 g) for 9 days whilst the test programme was conducted. The bottom channel drain remained open throughout testing, and no outflow of water was evident after the first 24 hours of spinning. However, during emptying of the channel after testing, the lower part of the sand bed remained slightly moist, indicating that 0% moisture content had not been achieved.

Soil profile characterisation

A total of 12 CPT were conducted to characterize the sand bed, using a 6 mm diameter CPT probe inserted into the soil at a rate of 1 mm/s. These tests were conducted at different positions around the sand bed to assess the homogeneity of the sample, and after each change in g-level. A 20 MPa capacity miniature CPT was used for the initial probe (CPT1A, CPT1B) while a 40 MPa capacity CPT was used thereafter (Figure 8, Table 4).

5. Test programme

A total of 18 pile installations were conducted (Table 3), spread around the circumference of the drum centrifuge as shown in Figure 9. Fifteen tests were conducted at an acceleration level of 50 g, followed by three tests at 150 g. Each installation at 50 g was to a final depth, L , of 120 mm (except for test T13) with a pause at 60 mm depth for a compression load test. On reaching 120 mm depth, a sequence of load tests was conducted after which the pile was extracted and moved to the next test location. At 150 g, the installed depth was reduced to 60 mm, to avoid exceeding the capacity of the axial load cell.

Three installation methods were used:

1. *Monotonic installation*

The pile was pushed continuously downwards (i.e. radially) at a rate of 0.2 mm/s to the required depth.

2. *Jacked installation*

The pile was installed by cycles of (a) downward jacking at 0.2 mm/s for a distance of 2 mm (i.e. 1 ‘jack stroke’) followed by (b) extraction at 0.005 mm/s until the pile head load fell below 50 N.

3. *Pseudo-dynamic installation*

The pile was installed by cycles of downward jacking at 0.2 mm/s for 2 mm followed by extraction at 0.2 mm/s for 1.5 mm.

Five types of load test were conducted:

1. *Compression load test*

The pile was unloaded (i.e. extracted at 0.005 mm/s until the pile head load fell below 50 N), then jacked downwards at 0.005 mm/s for a distance of 1.5 mm (or greater if the pile head load continued to increase sharply).

2. *Tension load test*

The pile was extracted at 0.005 mm/s for a distance of 1.5 mm (or greater if the peak load was not reached).

3. *Cyclic compression load test*

The pile head load was cycled between 50 N and 750 N at a velocity of 0.01 mm/s.

4. *Cyclic compression-tension load test*

The pile head load was cycled between -50 N and 750 N at a velocity of 0.01 mm/s.

5. *Cyclic tension load test*

The pile head load was cycled between -100 N and -20 N at a velocity of 0.001 mm/s.

6. Results

Data processing

After the raw data were converted into engineering units using the factors shown in Table 1, four corrections were applied to the data.

(i) Cross-sensitivity correction

During installation, an increase in recorded horizontal stress concurrent with the increase in pile head load was observed, prior to entry of each pressure cell into the

soil. This cross-sensitivity was considered to be due to axial load in the pile being transmitted to the pressure cell through the surrounding epoxy.

The recorded horizontal stress was plotted against axial load for each pressure sensor, prior to entry into the soil. A linear relationship was observed and a best fit gradient selected, to be used as the cross-sensitivity correction factor. Measurements of horizontal stress throughout each test were corrected by multiplying the axial load with the correction factor. Different correction factors were applied for different pile aspect ratios. The correction factors applied for each pressure cell during each test are listed in Table 5.

(ii) Smoothing of pile depth data

The pile depth measurement is derived from the position encoder on the radial actuator. The encoder data stream is converted into analogue form by an 8-bit data acquisition card whilst sent between the actuator control PC and the data acquisition PC, and therefore has a resolution of 1/4096th of the full actuator range (≈ 230 mm), which corresponds to $\approx 55 \mu\text{m}$. Whilst moving the actuator at low velocity (i.e. during load tests), the displacement data shows apparent steps of $55 \mu\text{m}$ interspersed with stationary periods, although the movement is at constant velocity. Since the velocity was specified during all stages of this test programme, the steps could be smoothed to give continuous displacement data.

(iii) Mechanical compliance

A small compliance of $65 \mu\text{m}$ existed in the pile cap, giving a plateau in the load-displacement curve part way through each compression loading and unloading cycle during load tests. This compliance was most probably in the pile cap, where two faces meet to resist high compression loading, with lower compression load being transmitted through the pre-loaded locating grub screws. The compliance was removed from all data, eliminating the plateau in the load-displacement curves, as follows:

The pile head load interval containing the plateau was selected. The data were then processed in the following way:

- All measurements for which the pile head load was within the load interval range were removed.
- All measurements for which the pile head load was below the load interval remained unchanged.
- All measurements for which the pile head load was above the load interval were corrected by subtracting $65 \mu\text{m}$ from the pile depth.

(iv) Zero drift

All pressure cells were initially zeroed at the start of each test. In some tests (T2, T3, T7, T8, T12, T14, and T18), some individual pressure cell readings drifted by more than 5 kPa, therefore a correction for the drift was required. In these cases, overstressing of the pressure cells may have led to a drift of the zero point.

Comparison of the mean horizontal stress reading just prior to entry and after leaving the soil indicated the zero drift, which was found to be more than 5 kPa in a total of 15 cases, which are listed in Table 6. In eight cases, the source of the drift was identified as overloading during extraction, and no correction was made to the preceding data. In the remaining seven cases, the drift was corrected for by adding 50% of the value to the data for the entire test.

Data presentation

All of the processed data are presented in this report without interpretation, which will follow in subsequent publications. The CPT data are presented in Figures 10-12. The pile data are presented according to test in Figures 13-696. An overview of each test is provided by a plot of pile tip depth against time. Pile head load and horizontal stress are plotted against both time and pile tip depth. Enlarged plots of each load test are included. Model scale units are used throughout.

7. Conclusions

Drum centrifuge tests were conducted to investigate the horizontal stress distribution during installation and subsequent monotonic and cyclic loading of a model instrumented pile in sand. Eighteen pile installations were conducted involving three different installation methods and three different pile aspect ratios. One-way and two-way cyclic load tests were carried out. The results are presented in their entirety without interpretation.

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Tables

<i>Instrument</i>	<i>Factor</i>
Axial load cell	5.2763 N/bit
Pressure cell B1 (h/B=1)	0.4465 kPa/bit
Pressure cell B2 (h/B=3)	0.4378 kPa/bit
Pressure cell B3 (h/B=6)	0.4322 kPa/bit
Pressure cell B4 (h/B=12)	0.4489 kPa/bit
Pressure cell F1 (h/B=1)	0.4554 kPa/bit
Pressure cell F2 (h/B=3)	0.4458 kPa/bit
CPT (20 MPa)	0.01122 MPa/bit
CPT (50 MPa)	0.02710 MPa/bit

Table 1. Instrument calibration factors

<i>Property</i>	<i>Value</i>
D ₁₀ particle size	0.100 mm
D ₅₀ particle size	0.180 mm
Maximum voids ratio (e _{max})	0.762
Maximum voids ratio (e _{max})	0.493
Specific gravity, G _s	2.65

Table 2. IMDEX superfine silica sand properties

Test reference	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18
Test code	T1-M-A1-g50-L-T-C-CYC-T	T2-J-A1-g50-L-T-C-CYC-T	T3-PD-A1-g50-L-T-C-CYC-T	T4-M-A1-g50-L-T-C-CY2-T	T5-M-A1-g50-L-T-C-CY-T-T	T6-J-A1-g50-L-T-C-CYT-T	T7-J-A1-g50-L-T-C-CYT-T	T8-PD-A1-g50-L-T-C-CY2-T	T9-PD-A1-g50-L-T-C-CYT-T	T10-M-A1-g50-L-T-C-C-T	T11-J-A1-g50-L-T-C-T	T12-PD-A1-g50-C-T	T13-J-A1-g50-L-T-C-760mm	T14-J-A2-g50-L-T-C-T	T15-J-A6-g150-L-T-C-T	T16-J-A6-g150-L-T-C-T	T17-J-A2-g150-L-T-C-T	T18-J-A1-g150-L-T-C-T
Date (Dec)	13th	16th	16th	16th	17th	17th	17th	17th	18th	18th	18th	18th	18th	19th	19th	19th	20th	
Start time	1630	930	1500	1900	900	1200	1800	2300	900	1400	1600	1800	2030	1000	1300	1700	1900	900
Angular position around ring channel	10	20	30	40	50	60	70	80	90	100	110	120	130	145	200	225	165	250
Elevation above base of channel	110	190	110	190	110	190	110	190	110	190	110	190	110	150	150	110	150	190
Sample depth (mm)	180.3	180.6	180.2	180.4	180.5	180.2	180.6	179.2	181.1	181.2	180.8	179.9	181.1	180.7	181.2	179.6	179.7	179.2
Pile aspect ratio, W/B	1	1	1	1	1	1	1	1	1	1	1	1	1	2	6	6	2	1
Acceleration level (g)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	150	150	150	150
Installation method																		
Monotonic installation																		
Jacked installation																		
Pseudo dynamic																		
Load testing																		
Compression load test at L/2																		
Compression load test at L																		
Tension test on extraction L														(L/2)	(L/2)	(L/2)		
1-way cyclic compression test																		
2-way cyclic compression/tension test																		
1-way cyclic tension test																		
Key to test codes	M	Monotonic installation	LT	Prefix to load test list	CY2	2- way cyclic test (compression/tension)												
	J	Jacked installation	C	Compression test	CYC	Cyclic compression test												
	PD	Pseudo-driven	T	Tension test	CYT	Cyclic tension test												
	A	Aspect ratio (W/B)																
	g	g-level																

Table 3. Pile test details

	CPT1A	CPT1B	CPT2A	CPT2B	CPT3A	CPT3B	CPT3C	CPT3D	CPT4A	CPT4B	CPT4C	CPT4D
Date (Dec)	13th	13th	13th	13th	20th							
Start time	1010	1018	1128	1140	1130	1135	1140	1145	1200	1205	1210	1215
Angular position around ring channel	0	0	180	180	260	260	270	270	280	280	290	290
Elevation above base of channel	110	190	110	190	110	190	190	110	110	190	190	110
Acceleration level (g)	50	50	50	50	150	150	150	150	50	50	50	50
Over-consolidation ratio	1	1	1	1	1	1	1	1	3	3	3	3

Table 4. CPT test details

Test	Cell correction factor (kPa / N)					
	B1	B2	B3	B4	F1	F2
Aspect ratio $W/B= 1$ (T1-13, T20)	0.0163	0.0099	0.0099	0.0102	0.0188	0.0206
Aspect ratio $W/B= 2$ (T14, T17)	0.0068	0.0040	0.0046	0.0044	0.0051	0.0088
Aspect ratio $W/B= 6$ (T15-T16)	0.0054	0.0005	0.0012	0.0013	-0.0013	0.0035

Table 5. Cross-sensitivity correction factors

Test	Cell	Drift (kPa)	Overload during Extraction	Test	Cell	Drift (kPa)	Overload during Extraction
2	B1	7.9701		2	F2	12.3217	x (Fig. 102)
14	B1	5.0544		3	F2	19.0888	x (Fig. 153)
14	B2	10.3839	x (Fig. 576)	7	F2	6.2901	x (Fig. 288)
14	B3	5.0047		8	F2	15.4065	x (Fig. 330)
18	B4	-9.5852		12	F2	13.0349	x (Fig. 513)
2	F1	6.8861		14	F2	16.1153	x (Fig. 576)
14	F1	5.4105		18	F2	-5.5758	
15	F1	-9.3546					

Table 6: Instances of pressure cell zero drift greater than 5 kPa

Figures

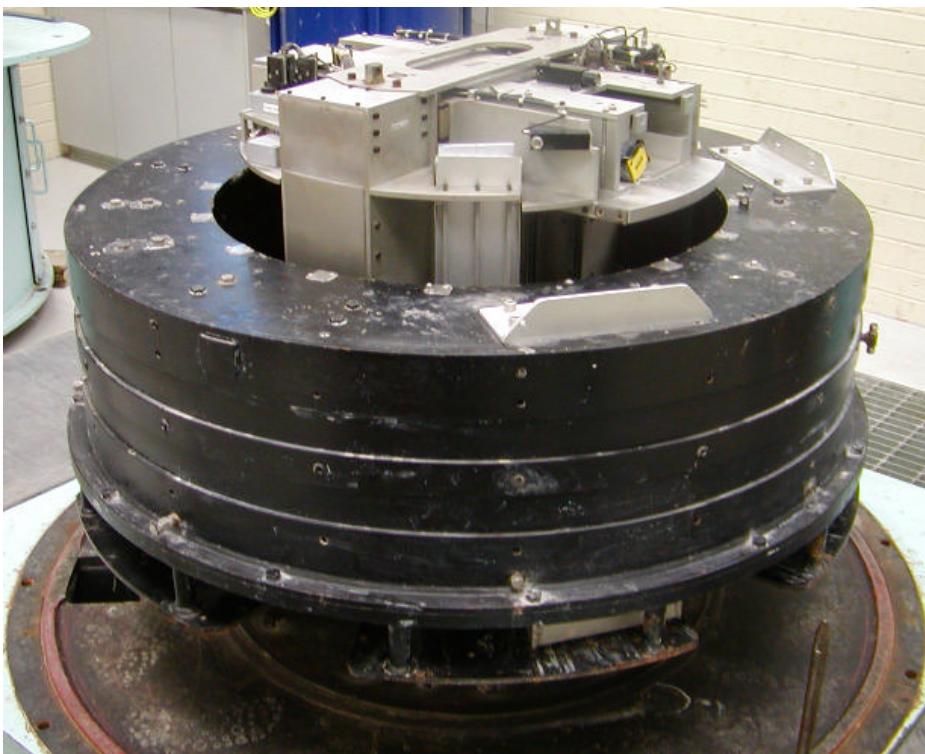


Figure 1. UWA drum centrifuge with safety cover removed

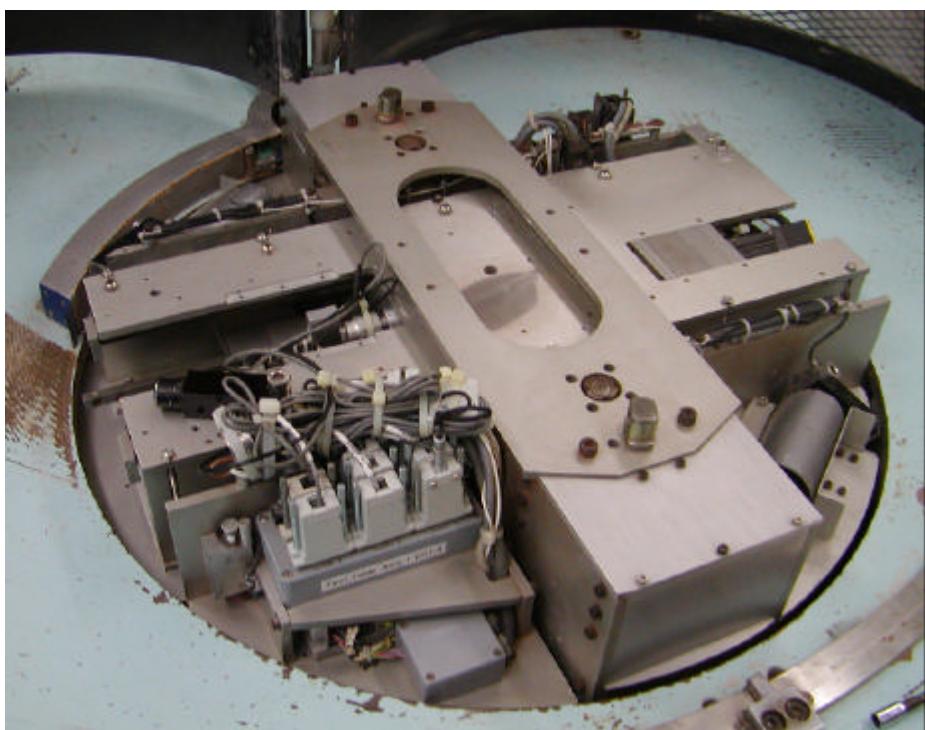


Figure 2. UWA drum centrifuge tool table actuator in 'parked' position

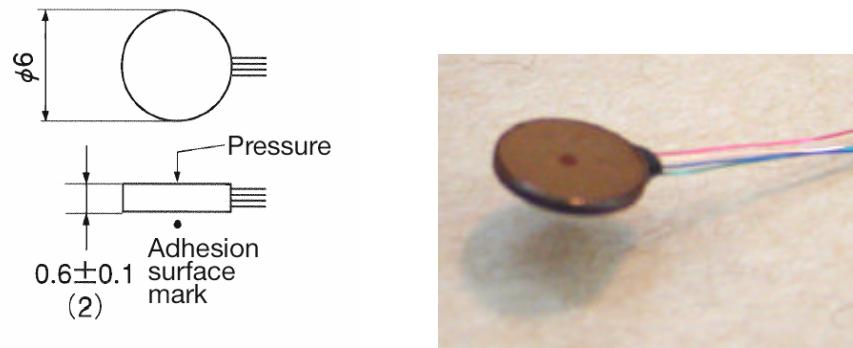


Figure 3. Kyowa PS-5KA miniature pressure transducer

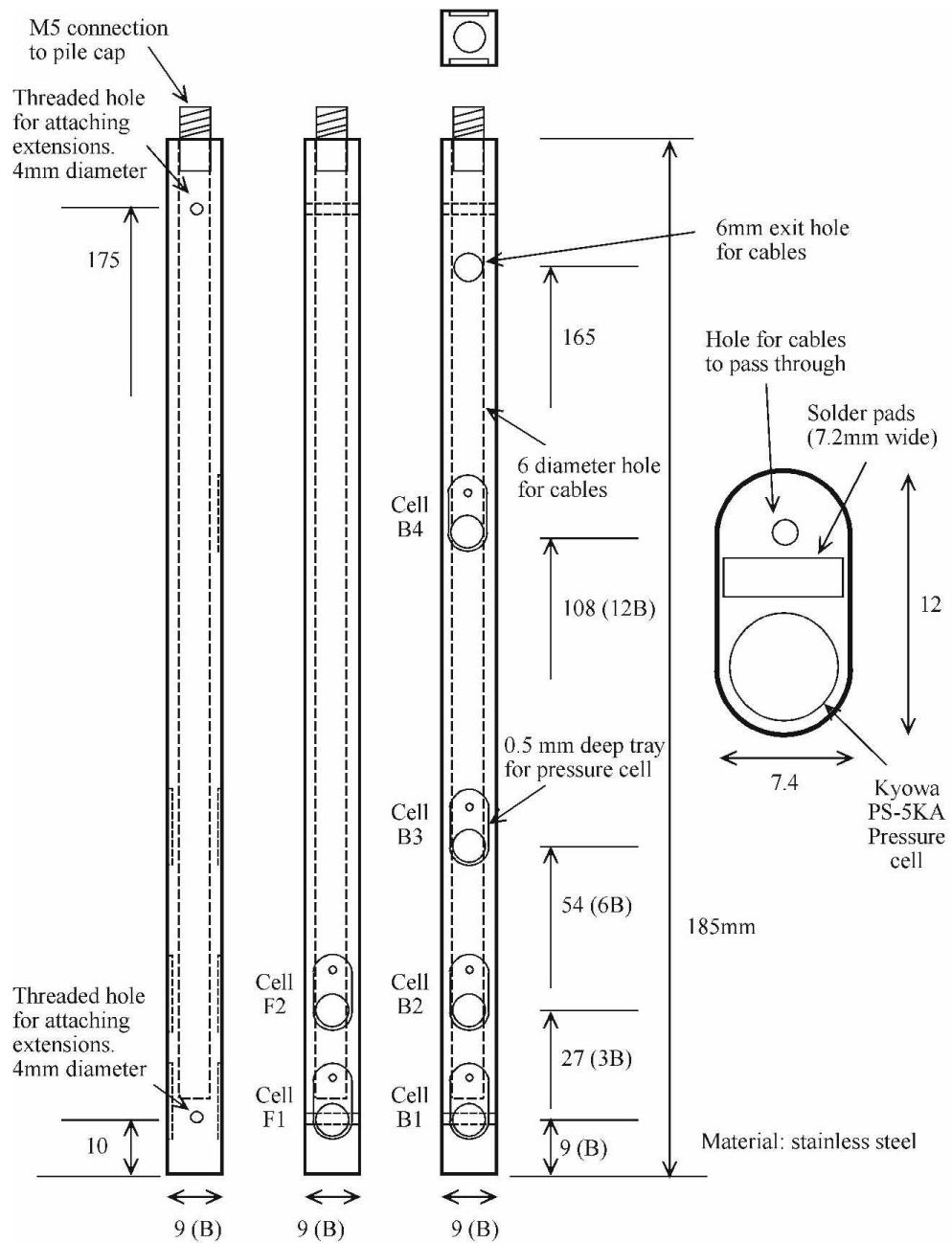


Figure 4. Drawing of instrumented model pile



Figure 5. Miniature pressure cells B1 and B2 mounted on pile surface

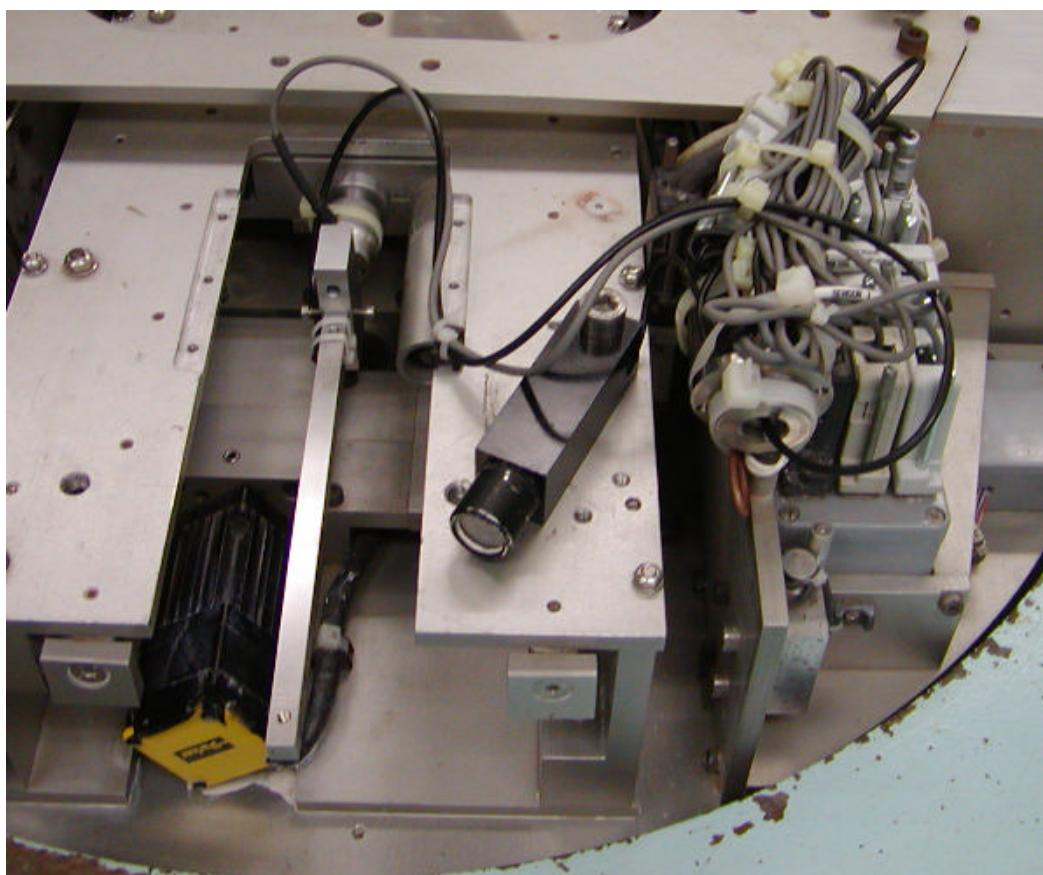


Figure 6. Model pile mounted on tool table actuator

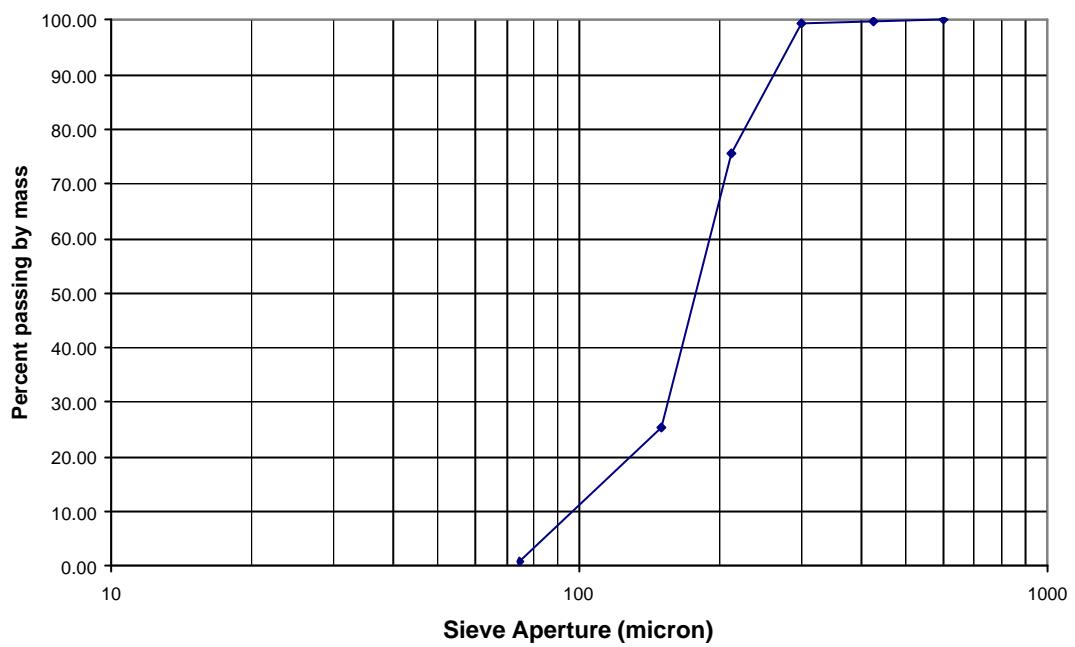


Figure 7. IMDEX superfine silica sand particle size distribution

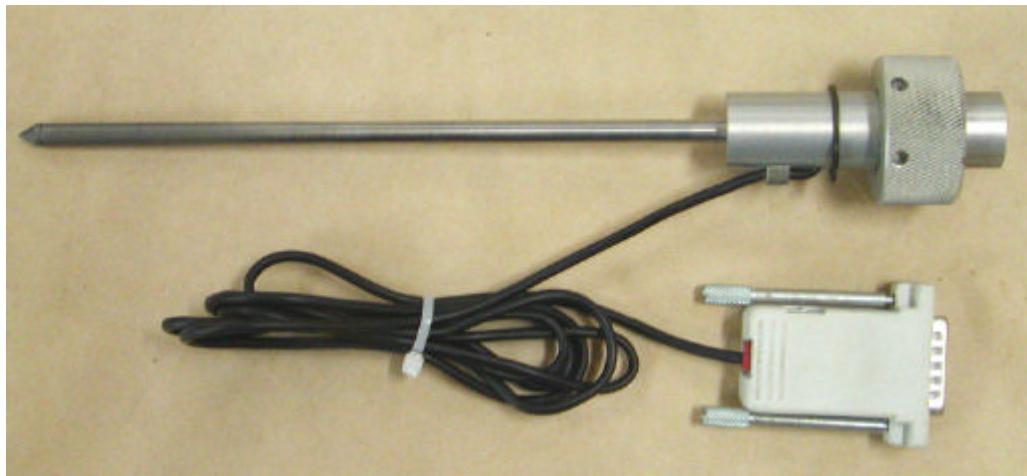


Figure 8. Miniature CPT instrument

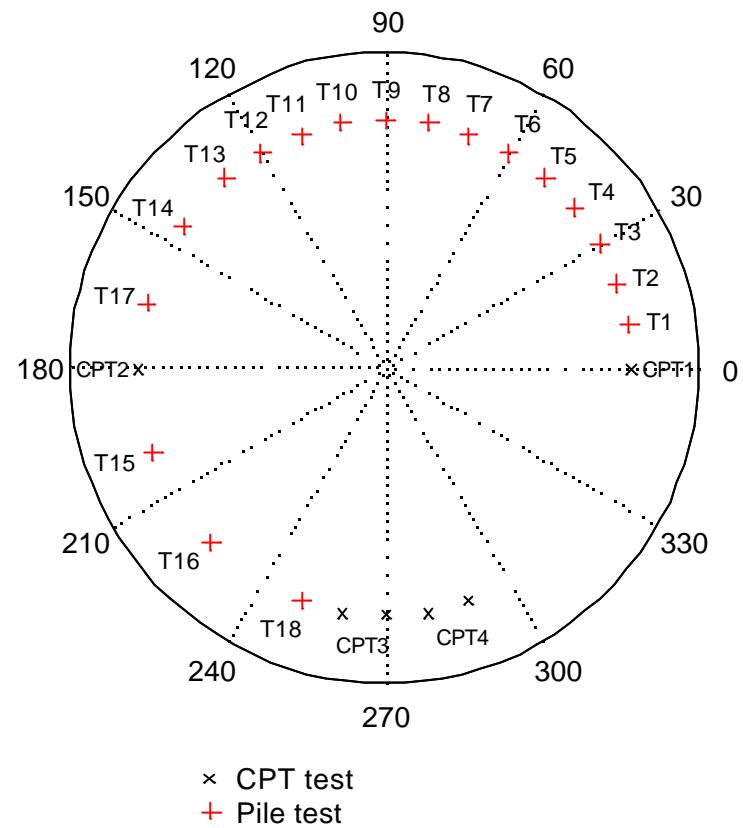


Figure 9. Test locations around drum centrifuge channel

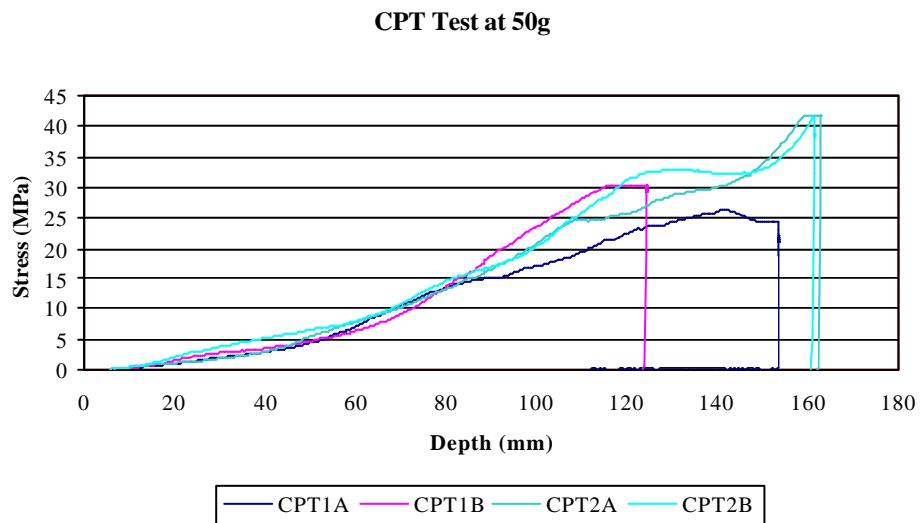


Figure 10 CPT results for 50 g, OCR = 1: CPT1, CPT2

CPT Test at 150g

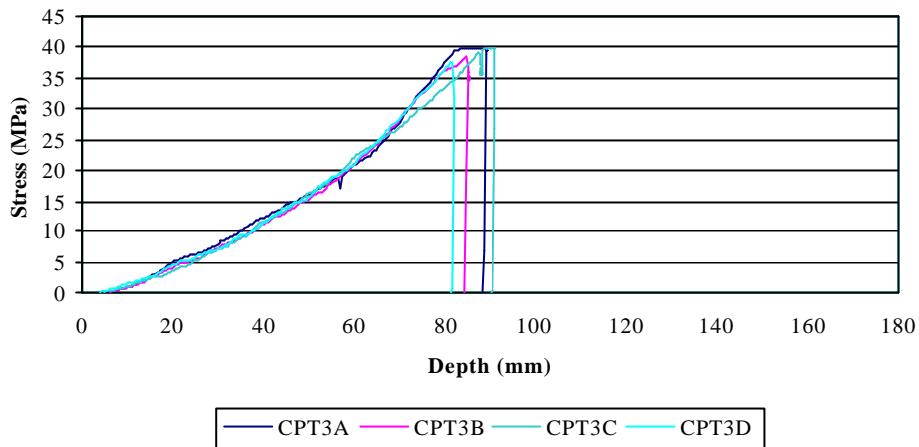


Figure 11 CPT results for 150 g, OCR = 1: CPT3

CPT Test at 50g (After soil driven to 150g)

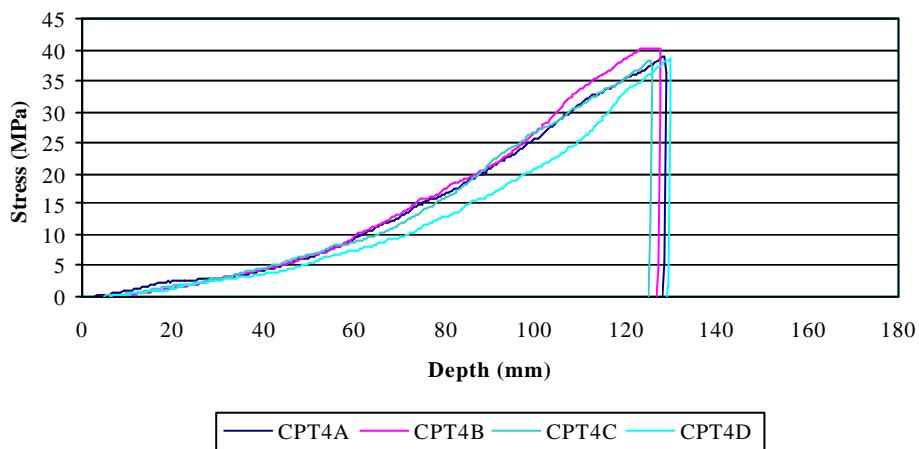


Figure 12 CPT results for 50 g, OCR = 3: CPT4

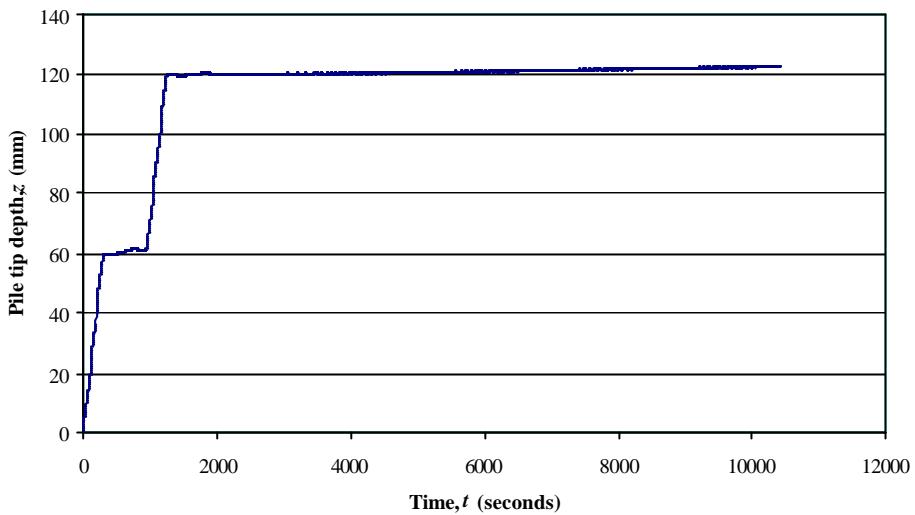


Figure 13 Test T1, Pile tip depth vs. time (entire test)

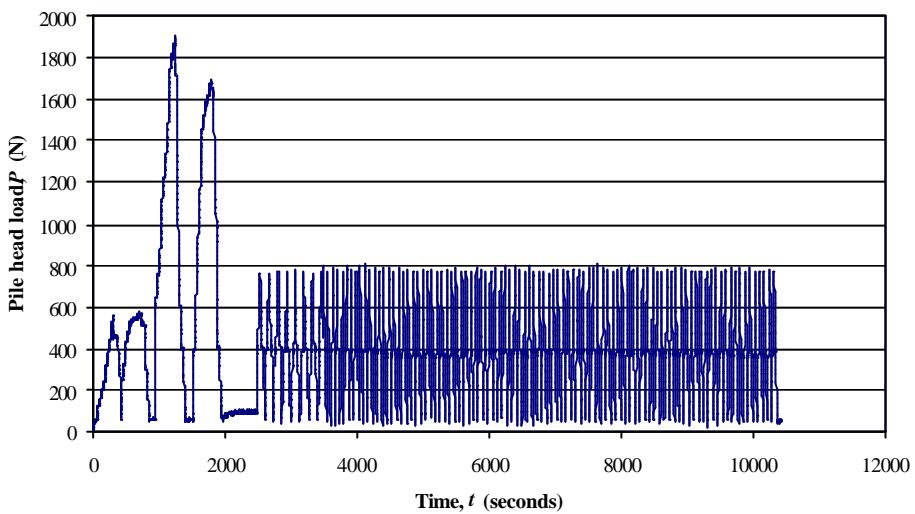


Figure 14 Test T1, Pile head load vs. time (entire test)

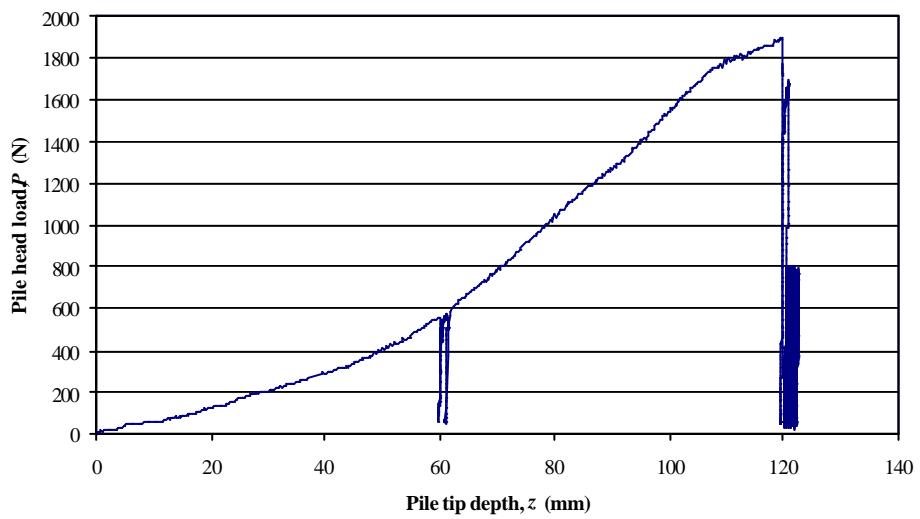


Figure 15 Test T1, Pile head load vs. pile tip depth (entire test)

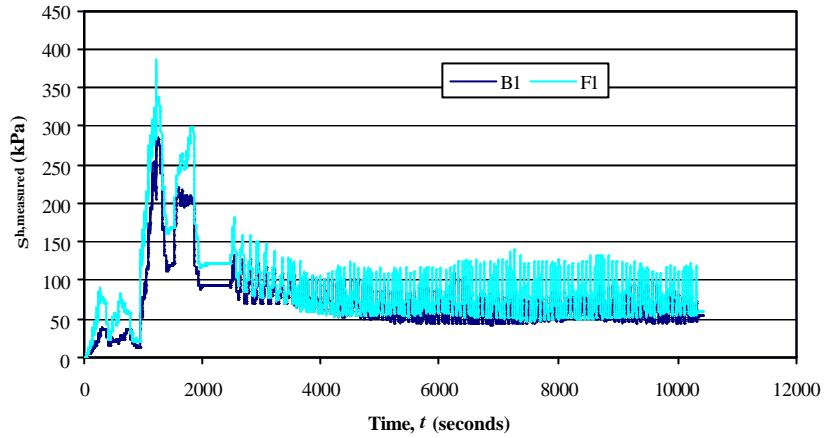


Figure 16 Test T1, B1, F1 pressure cells vs. time (entire test)

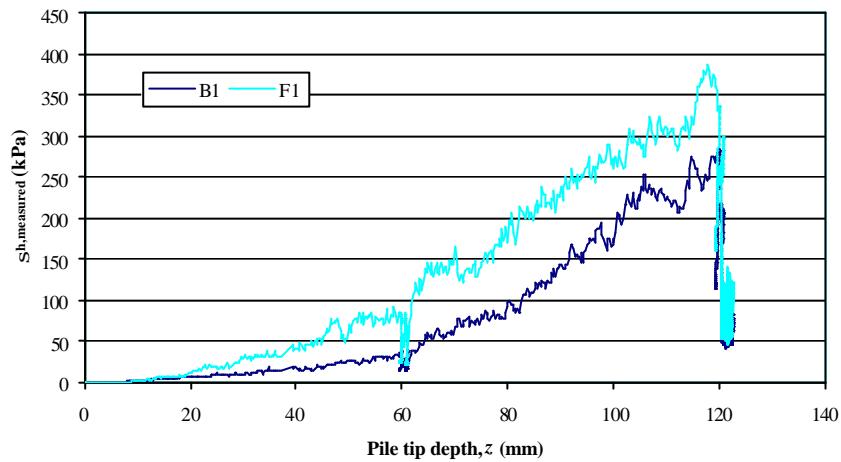


Figure 17 Test T1, B1, F1 pressure cells vs. pile tip depth (entire test)

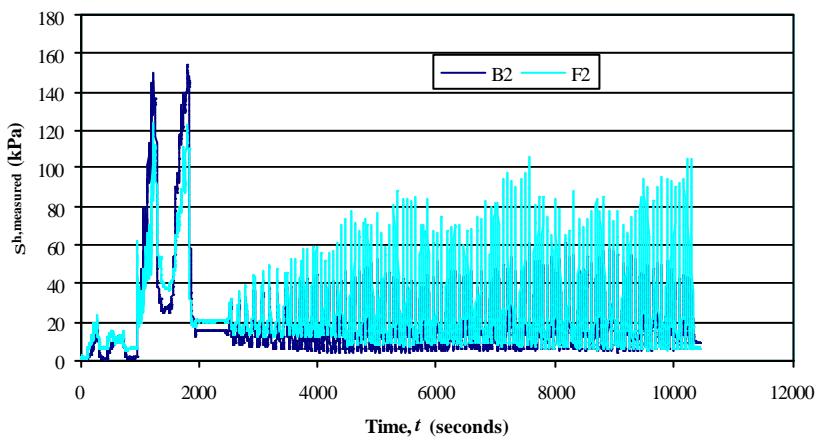


Figure 18 Test T1, B2, F2 pressure cells vs. time (entire test)

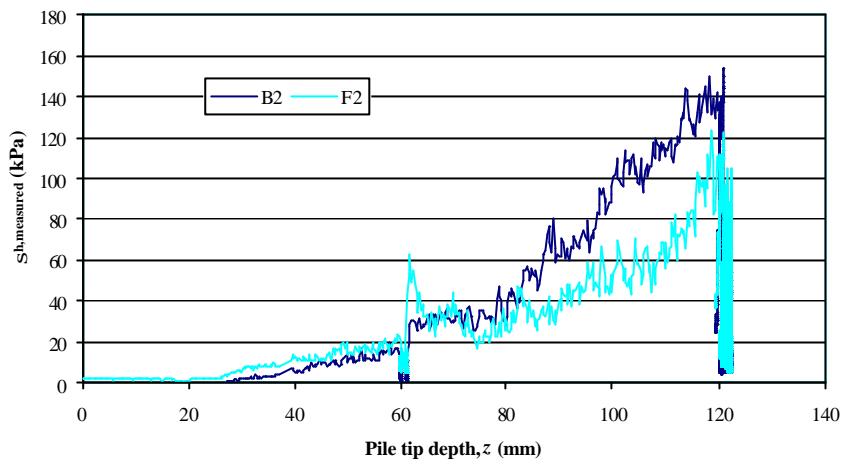


Figure 19 Test T1, B2, F2 pressure cells vs. pile tip depth (entire test)

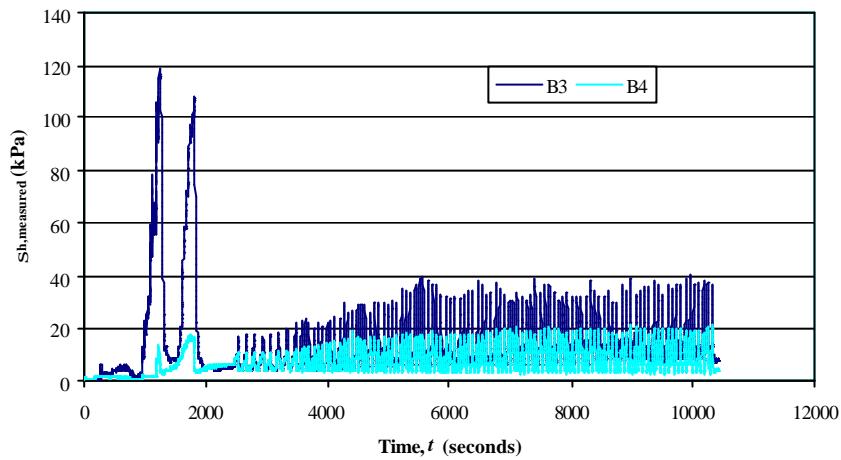


Figure 20 Test T1, B3, B4 pressure cells vs. time (entire test)

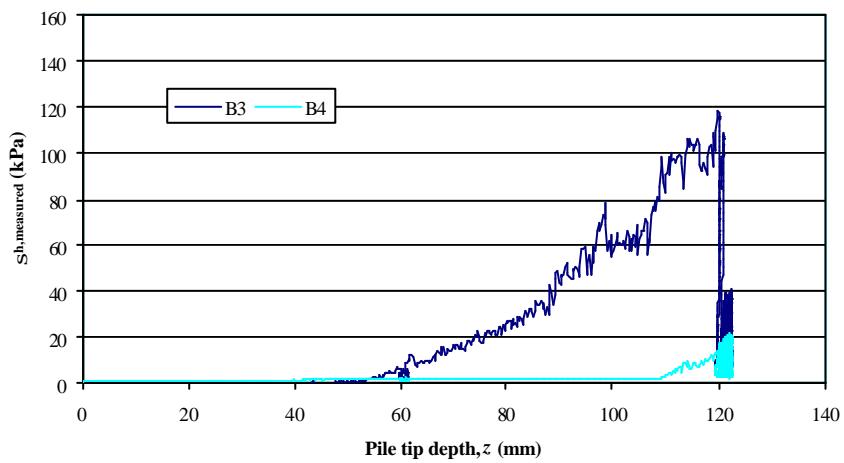


Figure 21 Test T1, B3, B4 pressure cells vs. pile tip depth (entire test)

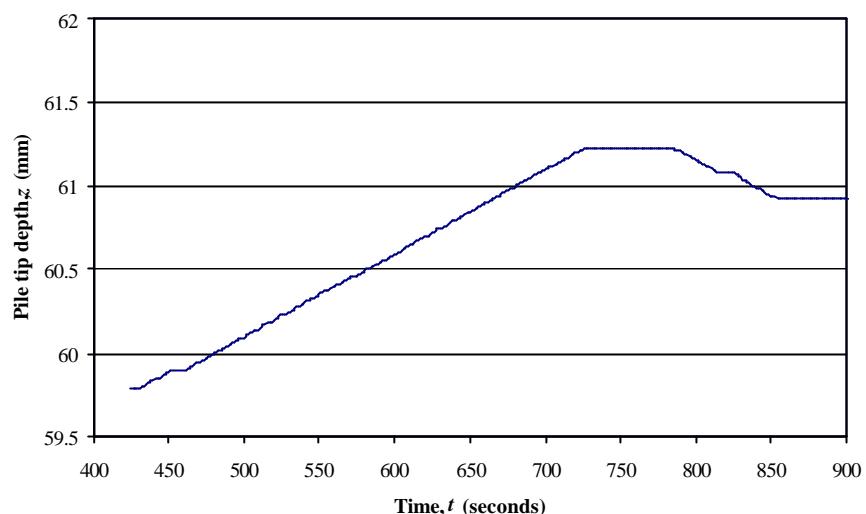


Figure 22 Test T1, Pile tip depth vs. time (load test 1: compression at L/2)

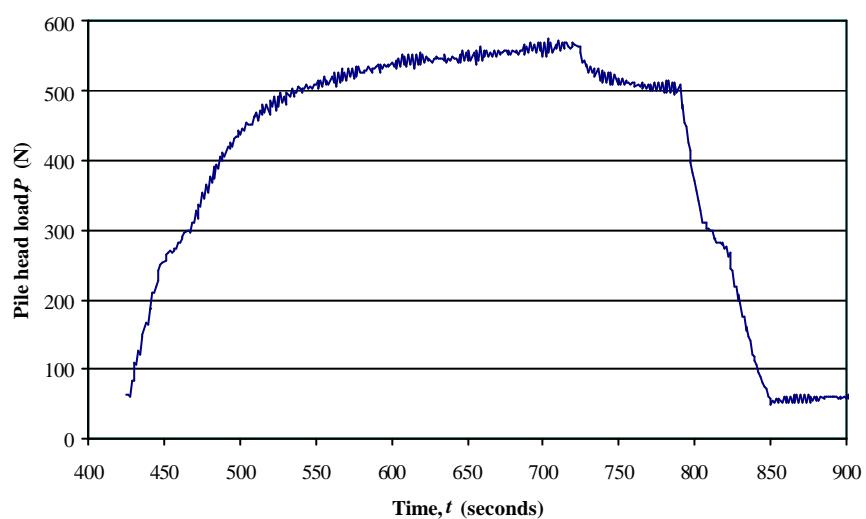


Figure 23 Test T1, Pile head load vs. time (load test 1: compression at L/2)

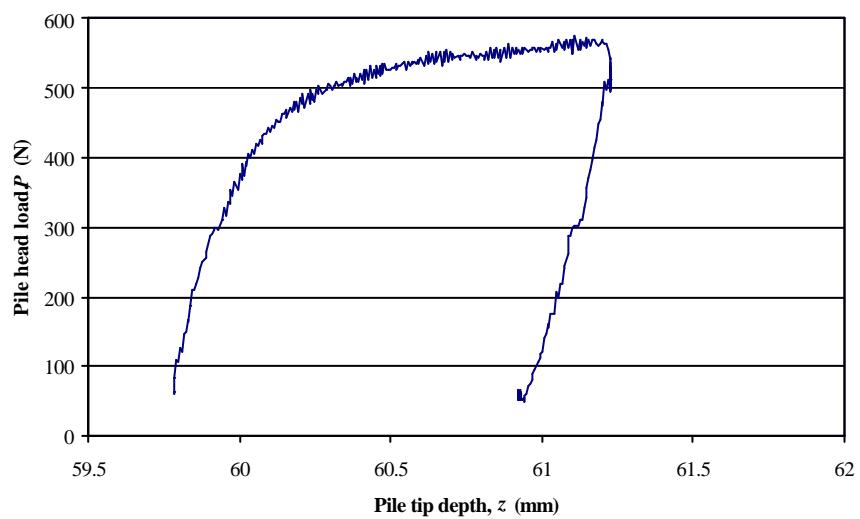


Figure 24 Test T1, Pile head load vs. pile tip depth (load test 1: compression at L/2)

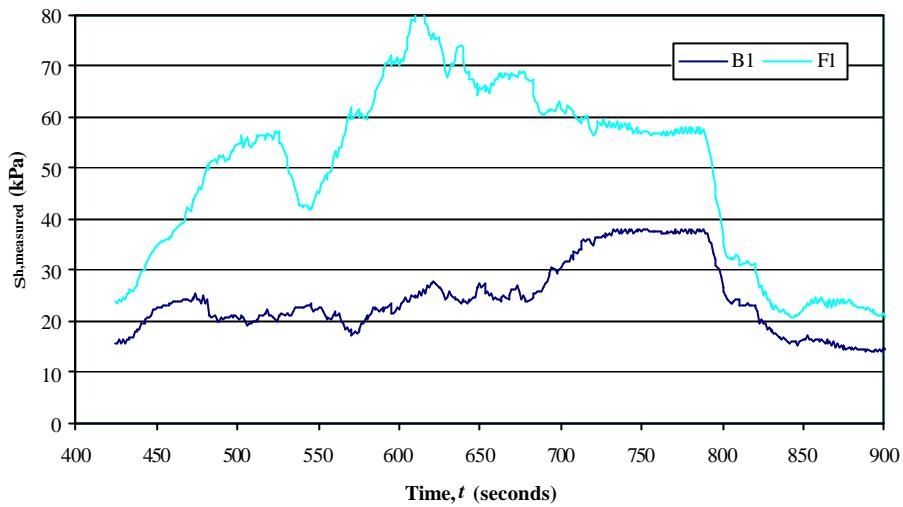


Figure 25 Test T1, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

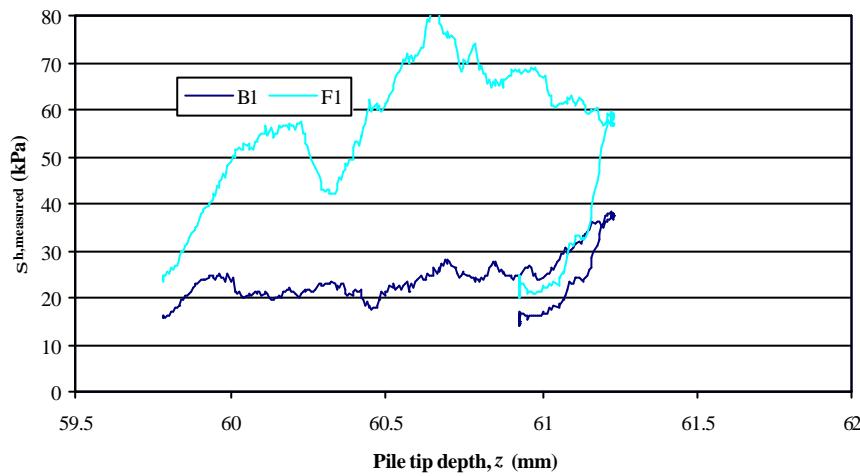


Figure 26 Test T1, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

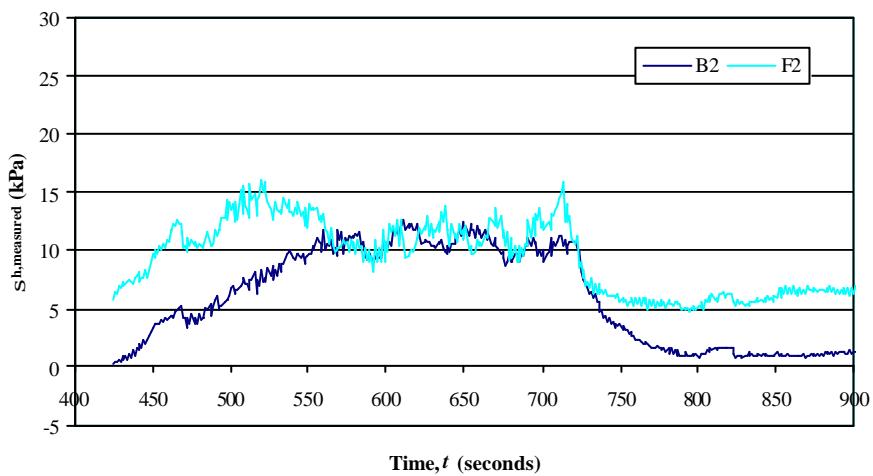


Figure 27 Test T1, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

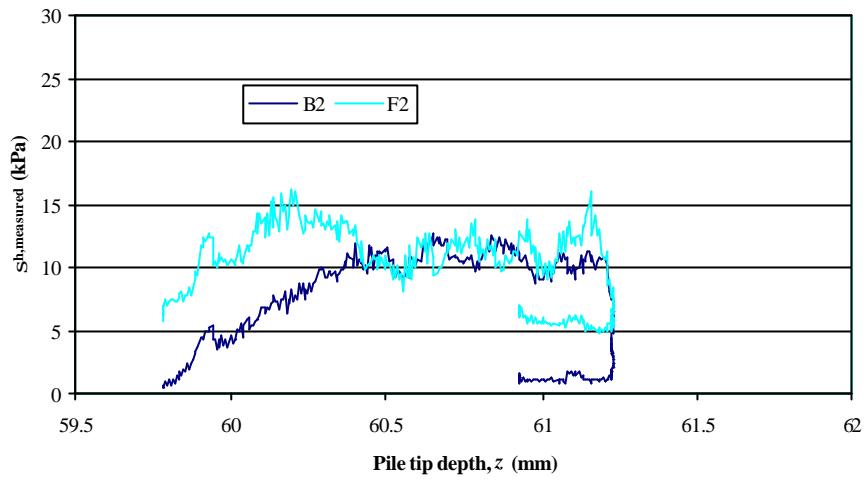


Figure 28 Test T1, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

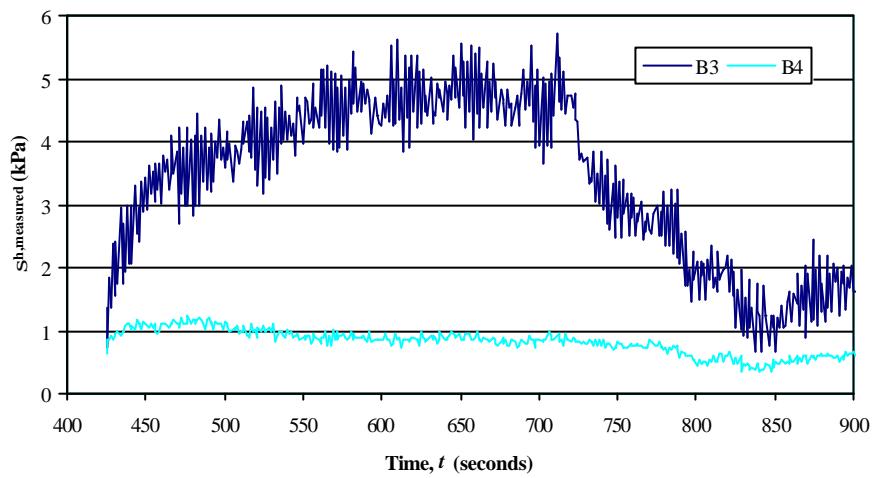


Figure 29 Test T1, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

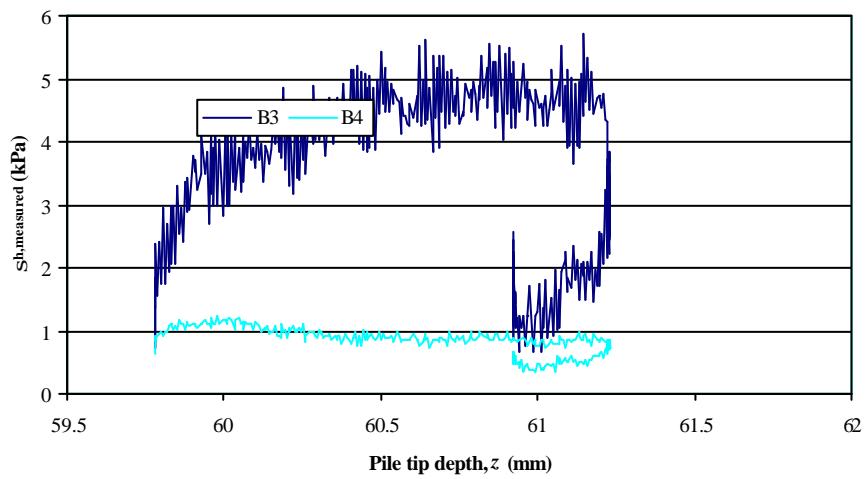


Figure 30 Test T1, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

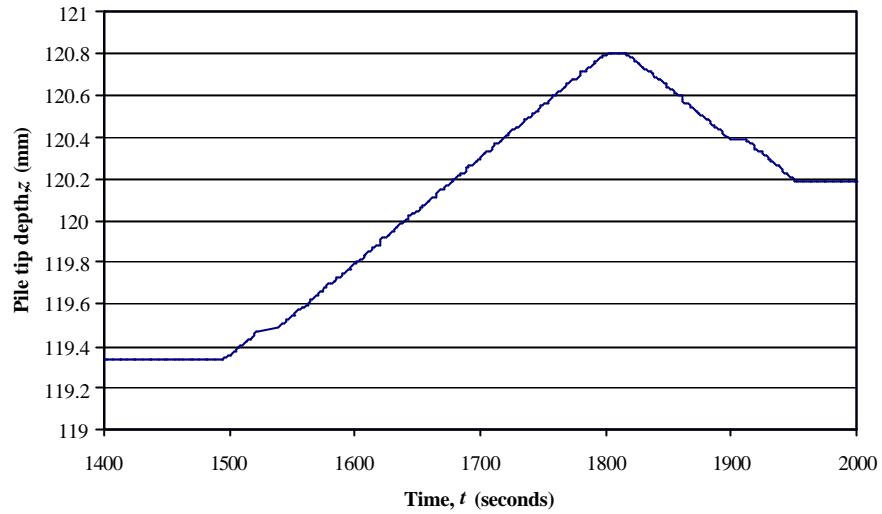


Figure 31 Test T1, Pile tip depth vs. time (load test 2: compression at L)

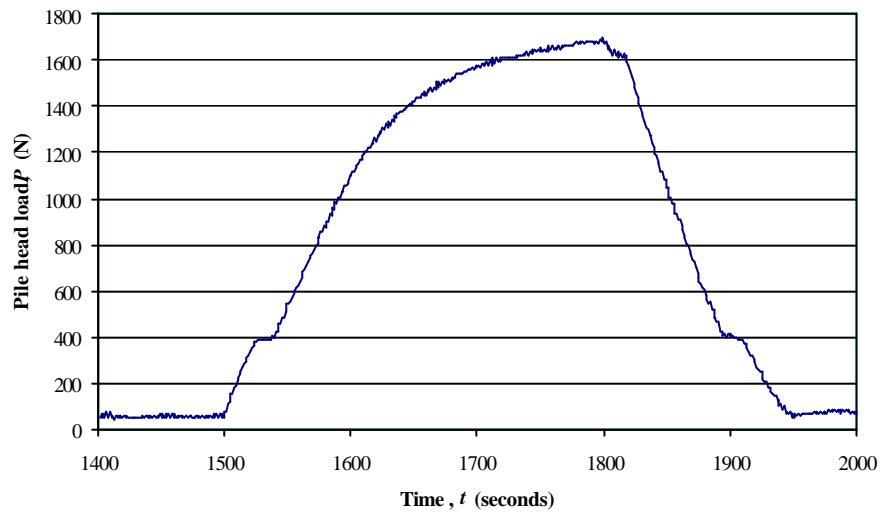


Figure 32 Test T1, Pile head load vs. time (load test 2: compression at L)

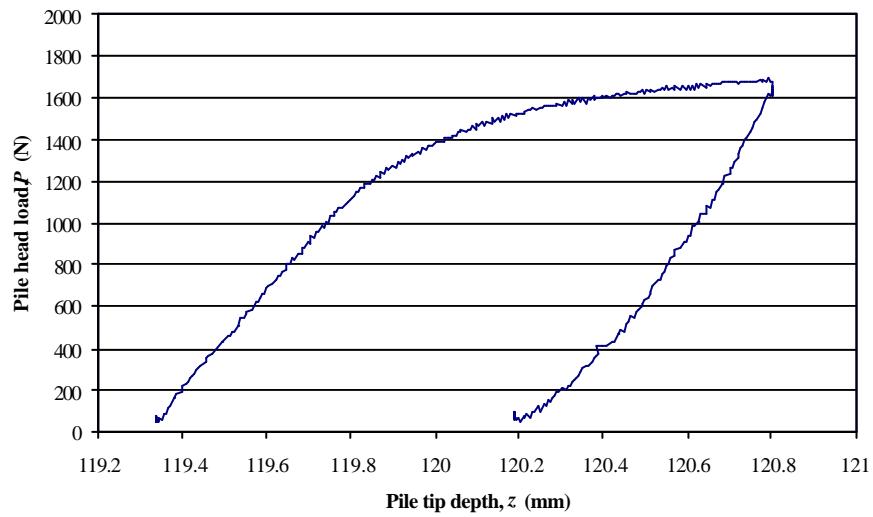


Figure 33 Test T1, Pile head load vs. pile tip depth (load test 2: compression at L)

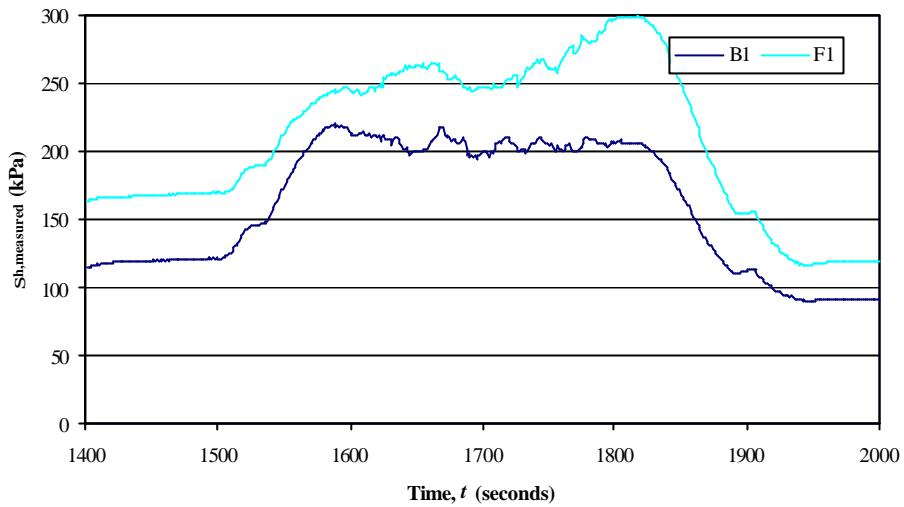


Figure 34 Test T1, B1, F1 pressure cells vs. time (load test 2: compression at L)

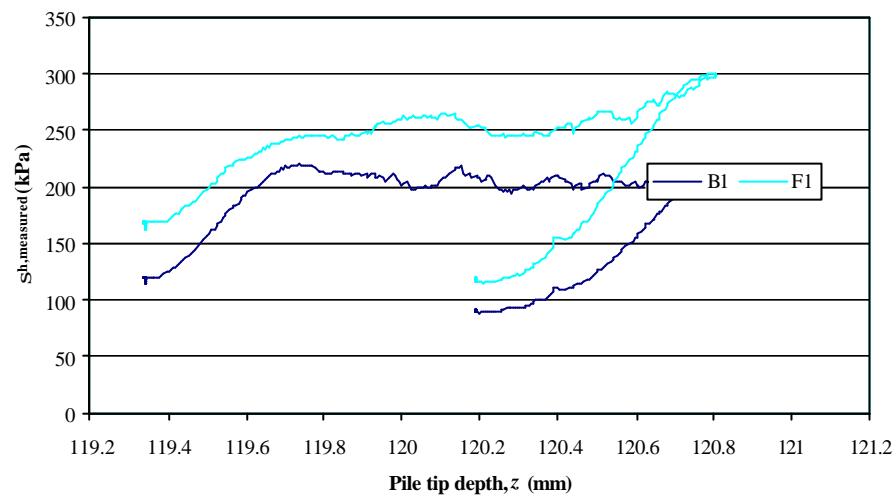


Figure 35 Test T1, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

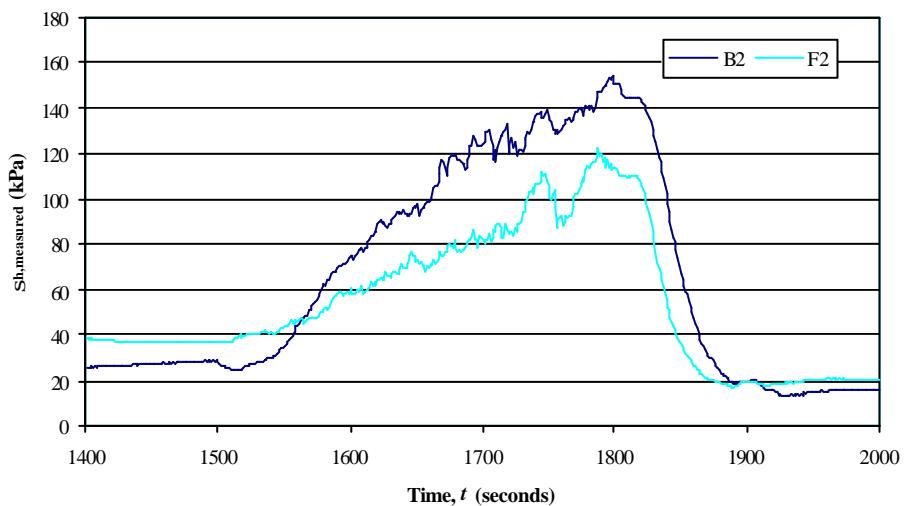


Figure 36 Test T1, B2, F2 pressure cells vs. time (load test 2: compression at L)

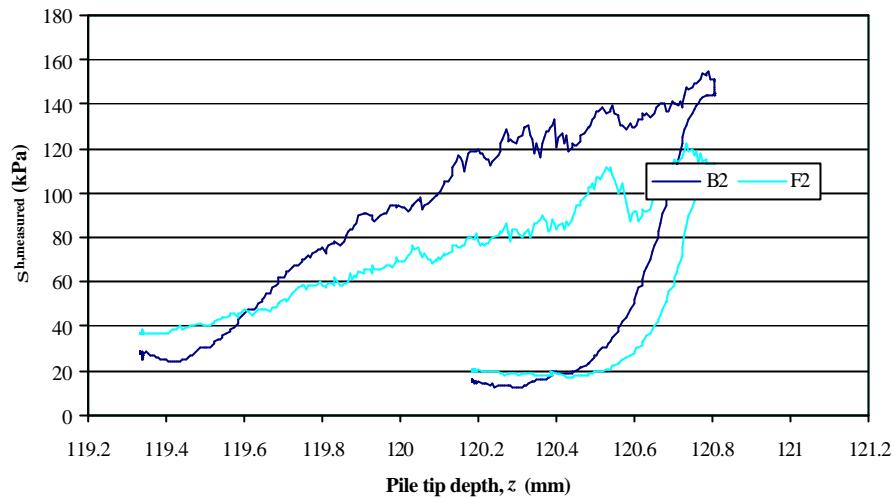


Figure 37 Test T1, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

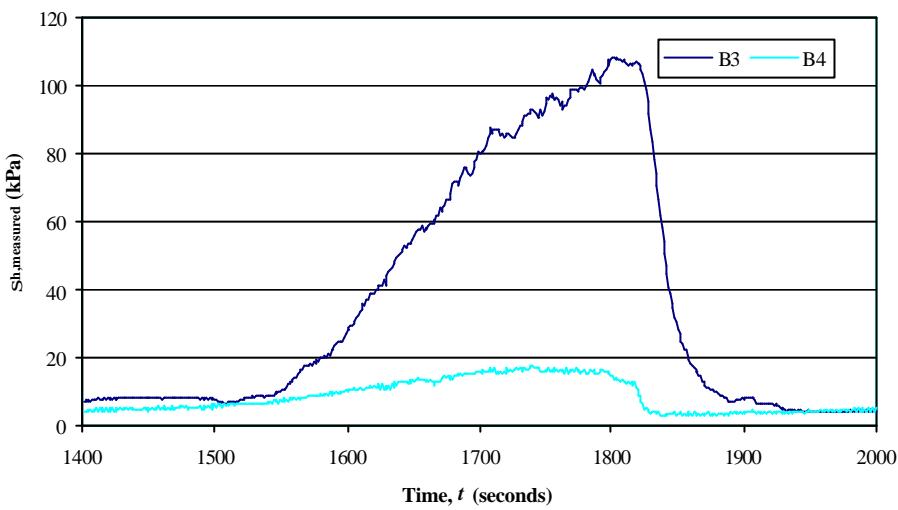


Figure 38 Test T1, B3, B4 pressure cells vs. time (load test 2: compression at L)

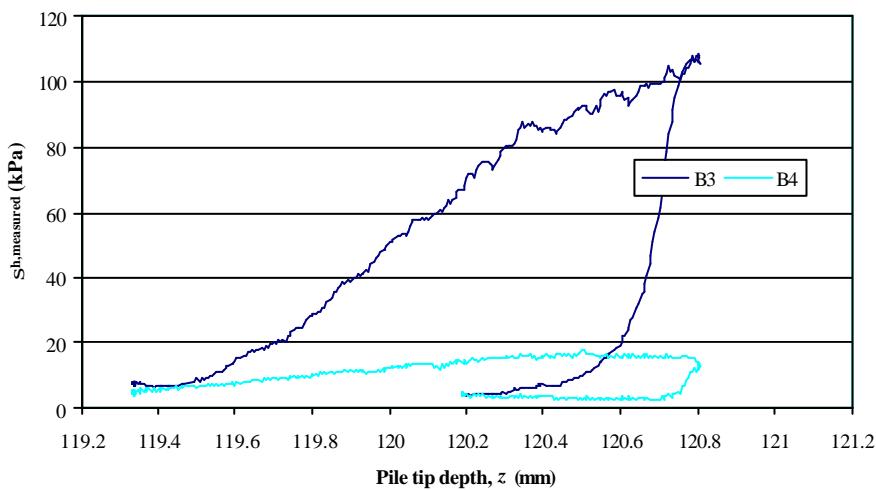


Figure 39 Test T1, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

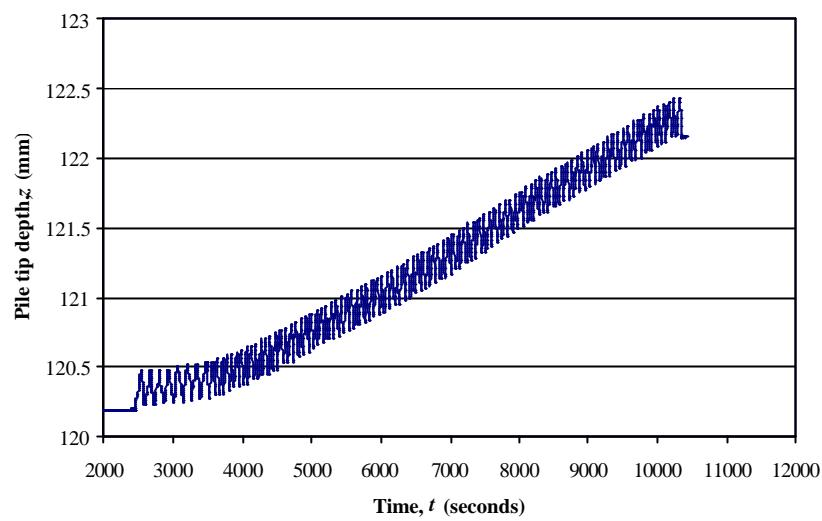


Figure 40 Test T1, Pile tip depth vs. time (load test 3: cyclic compression at L)

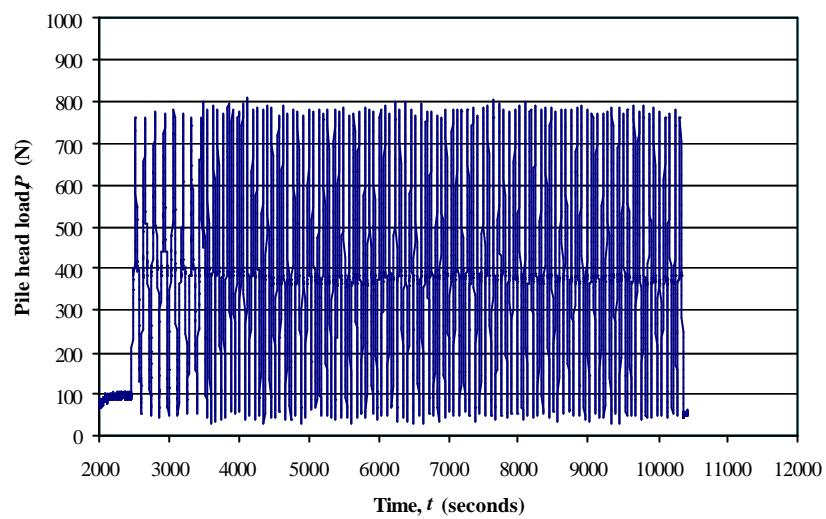


Figure 41 Test T1, Pile head load vs. time (load test 3: cyclic compression at L)

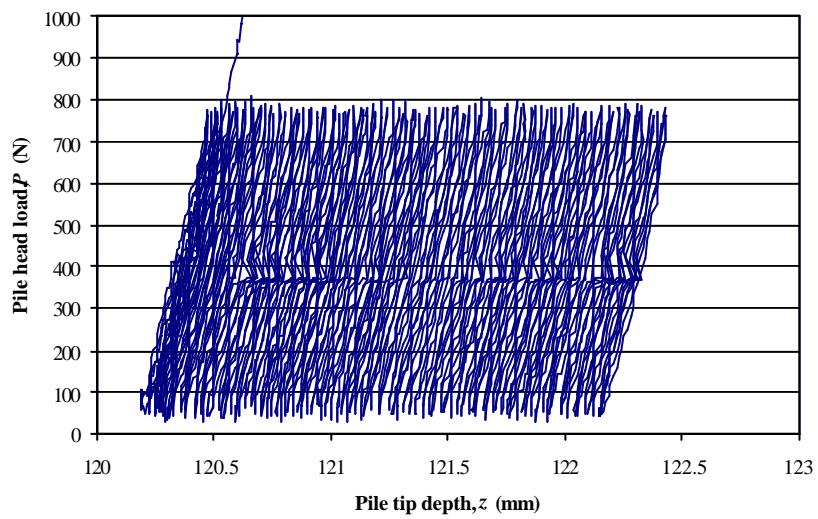


Figure 42 Test T1, Pile head load vs. pile tip depth (load test 3: cyclic compression at L)

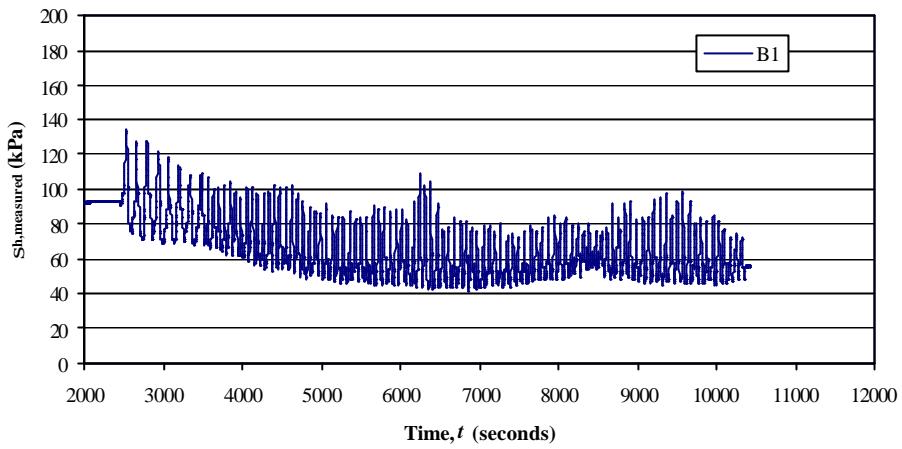


Figure 43 Test T1, B1 pressure cell vs. time (load test 3: cyclic compression at L)

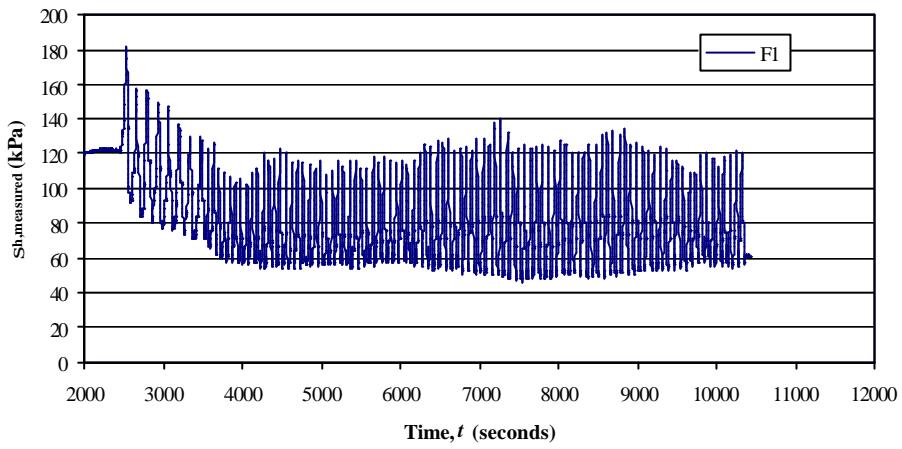


Figure 44 Test T1, F1 pressure cell vs. time (load test 3: cyclic compression at L)

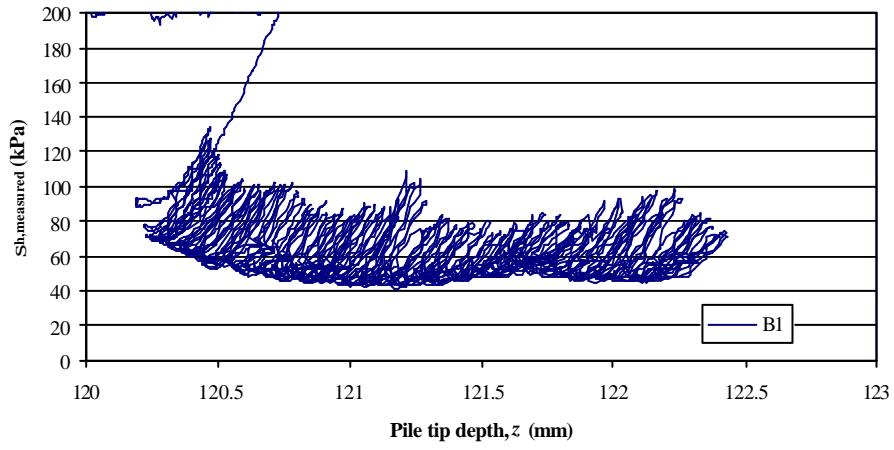


Figure 45 Test T1, B1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

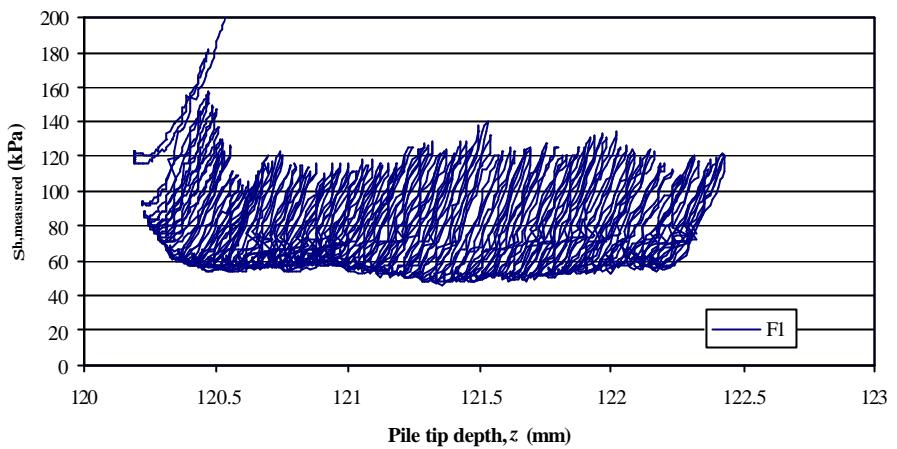


Figure 46 Test T1, F1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

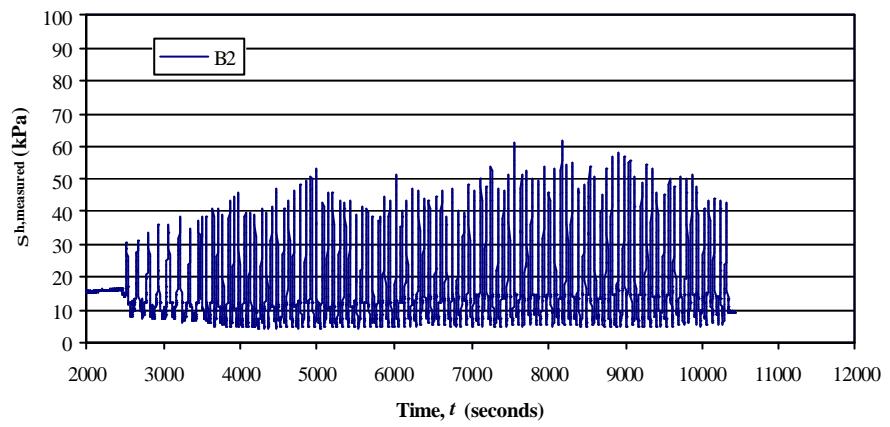


Figure 47 Test T1, B2 pressure cell vs. time (load test 3: cyclic compression at L)

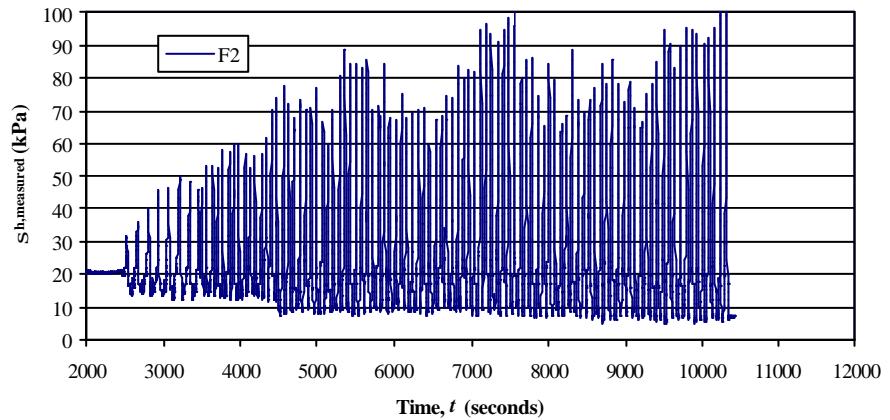


Figure 48 Test T1, F2 pressure cell vs. time (load test 3: cyclic compression at L)

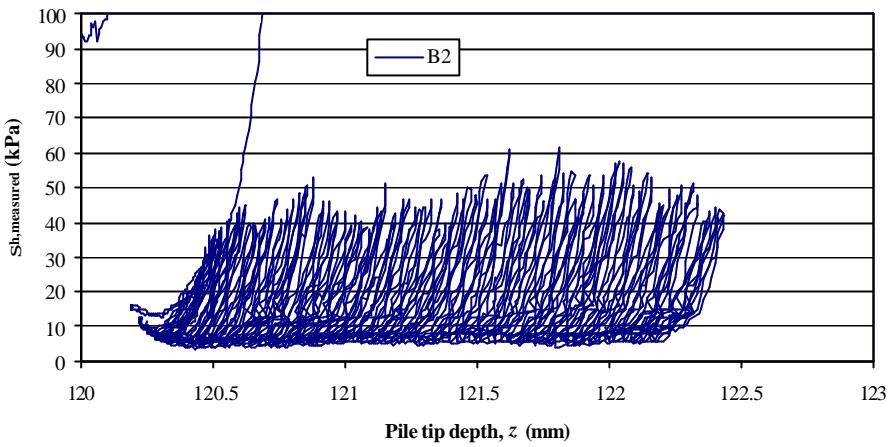


Figure 49 Test T1, B2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

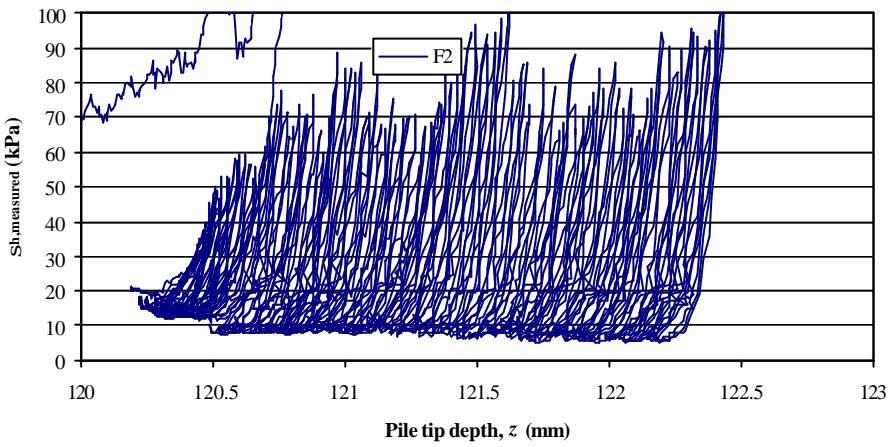


Figure 50 Test T1, F2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

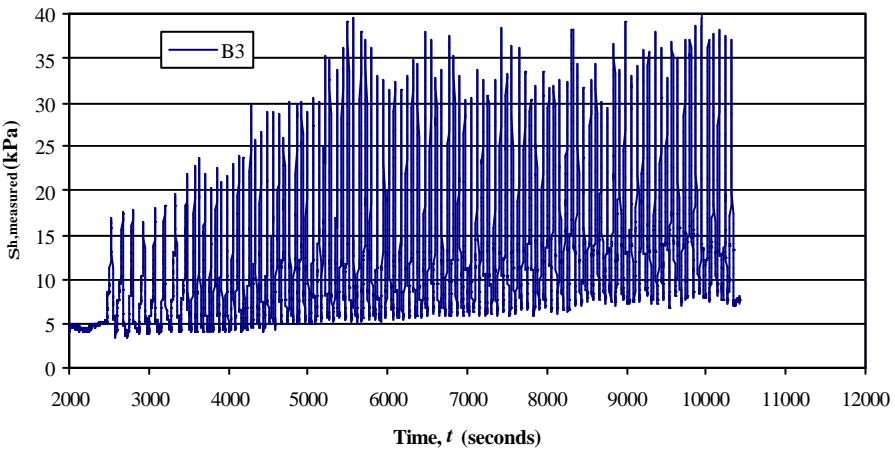


Figure 51 Test T1, B3 pressure cell vs. time (load test 3: cyclic compression at L)

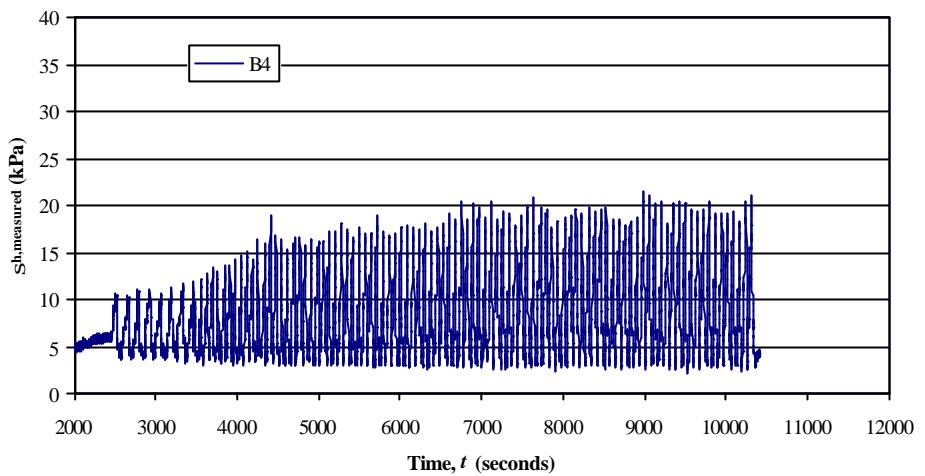


Figure 52 Test T1, B4 pressure cell vs. time (load test 3: cyclic compression at L)

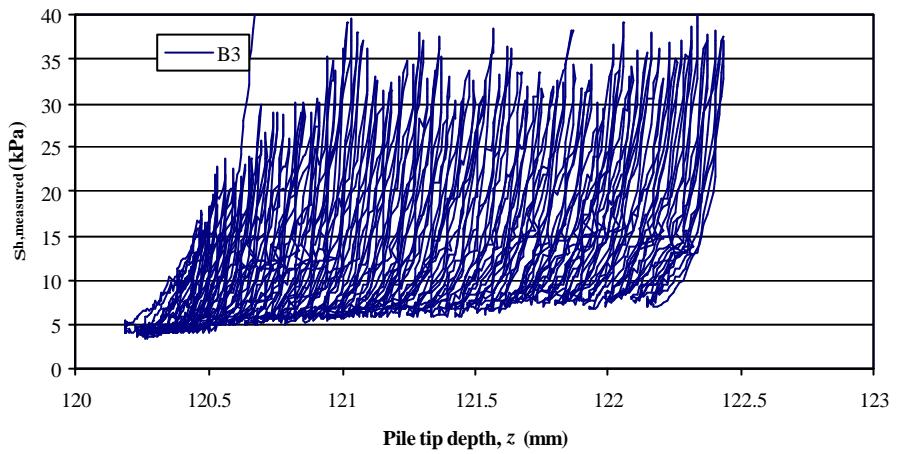


Figure 53 Test T1, B3 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

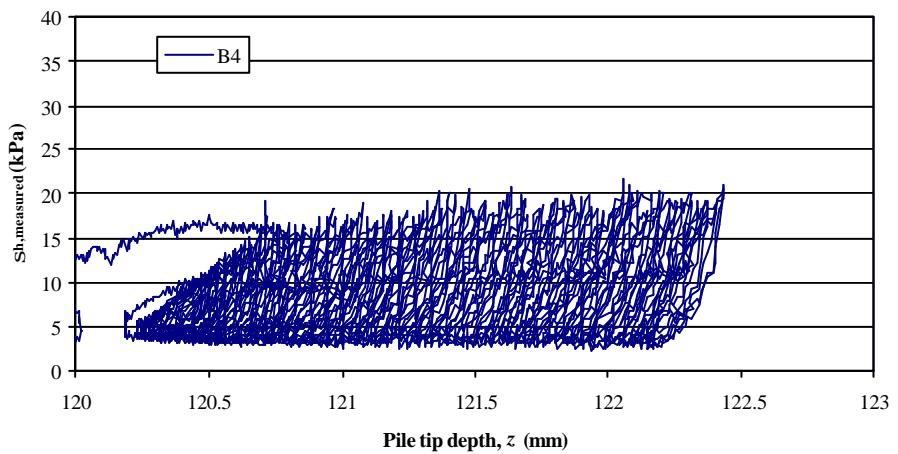


Figure 54 Test T1, B4 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

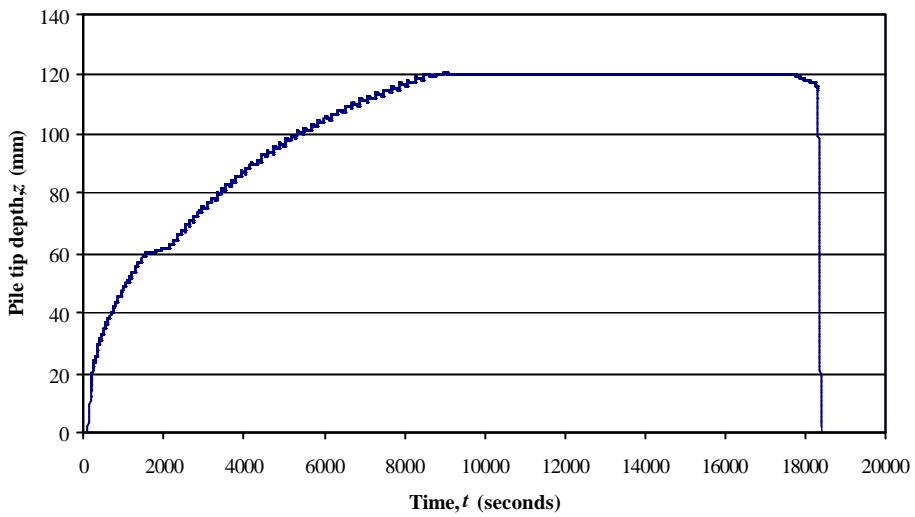


Figure 55 Test T2, Pile tip depth vs. time (entire test)

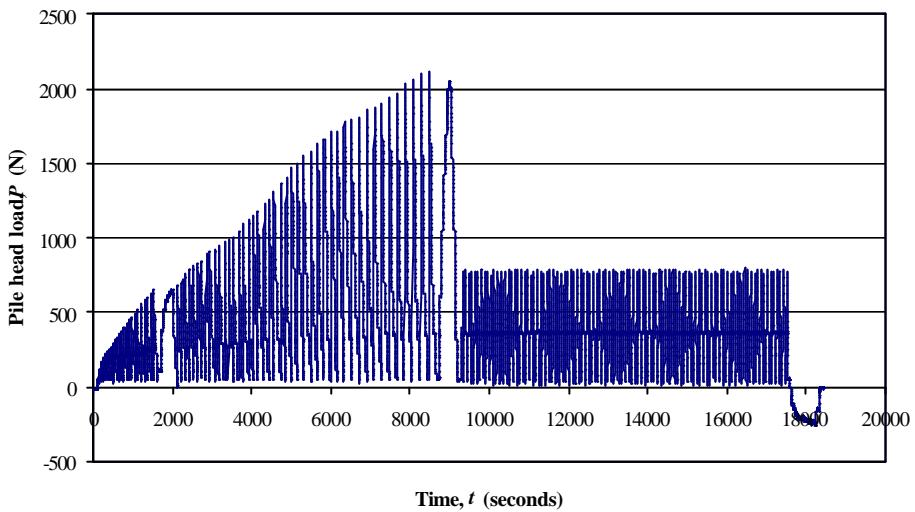


Figure 56 Test T2, Pile head load vs. time (entire test)

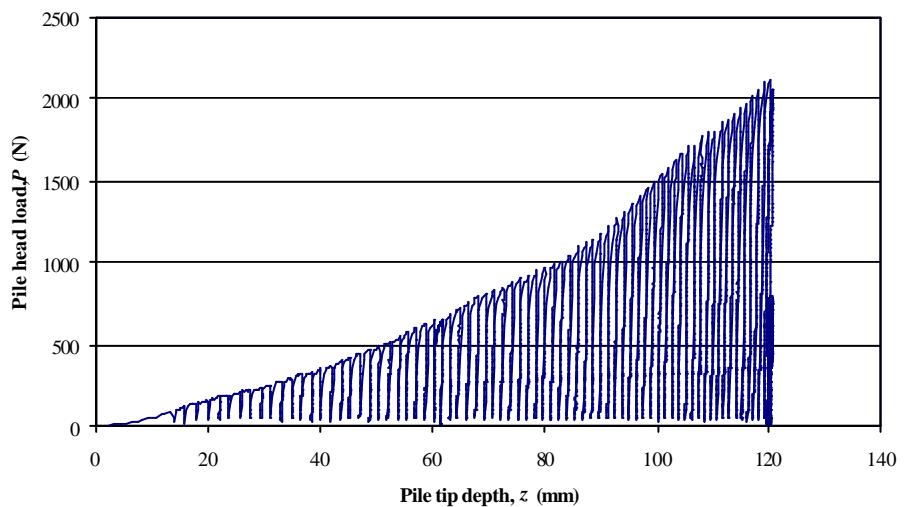


Figure 57 Test T2, Pile head load vs. pile tip depth (entire test)

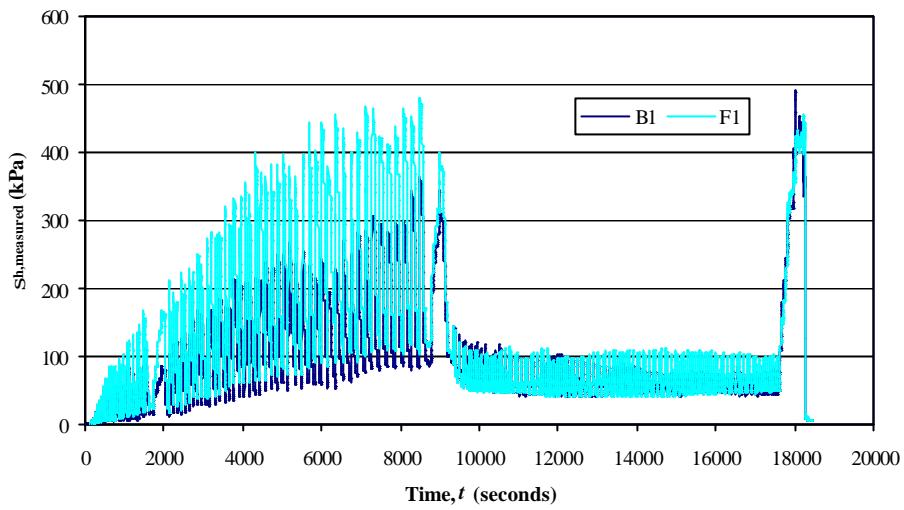


Figure 58 Test T2, B1, F1 pressure cells vs. time (entire test)

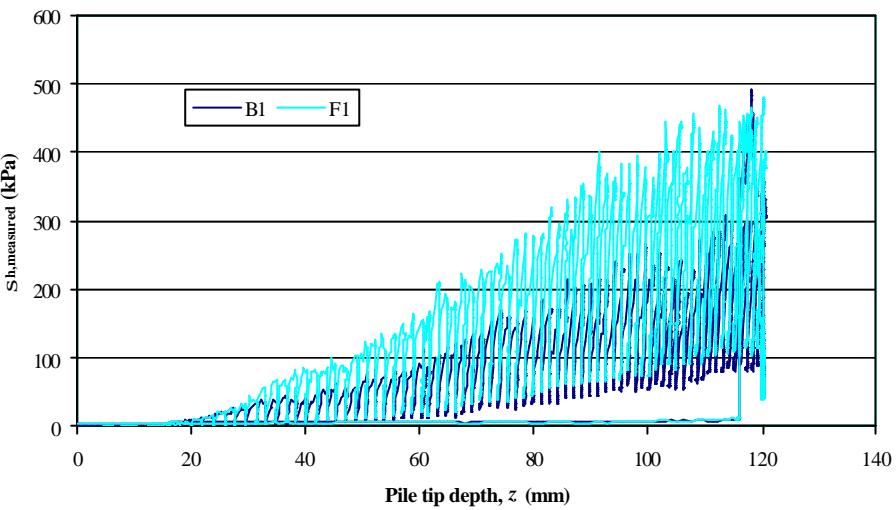


Figure 59 Test T2, B1, F1 pressure cells vs. pile tip depth (entire test)

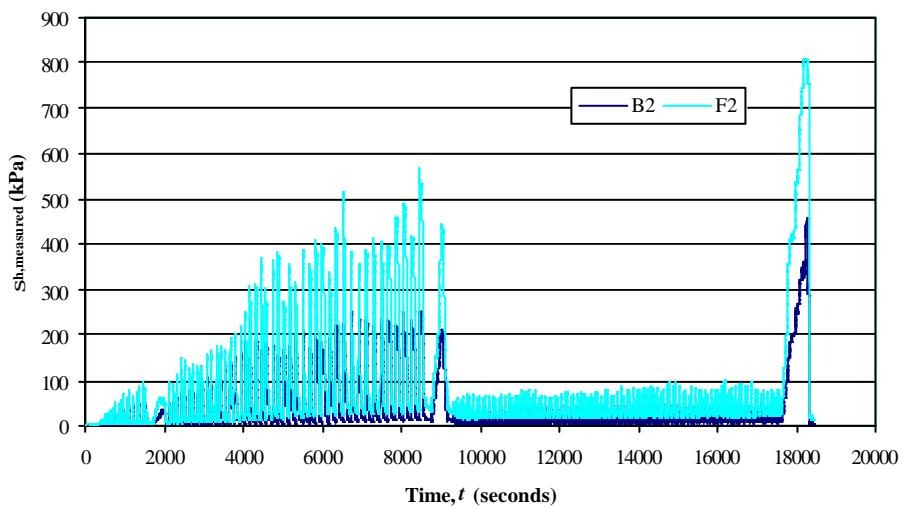


Figure 60 Test T2, B2, F2 pressure cells vs. time (entire test)

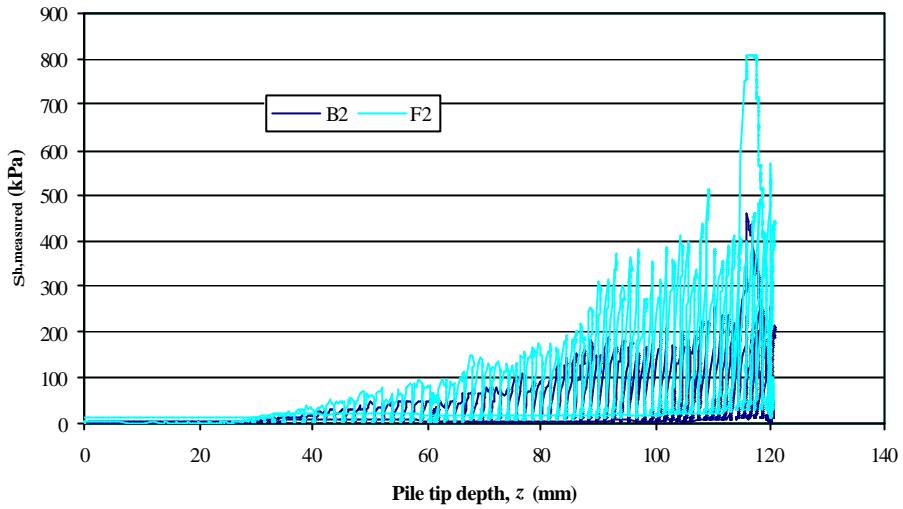


Figure 61 Test T2, B2, F2 pressure cells vs. pile tip depth (entire test)

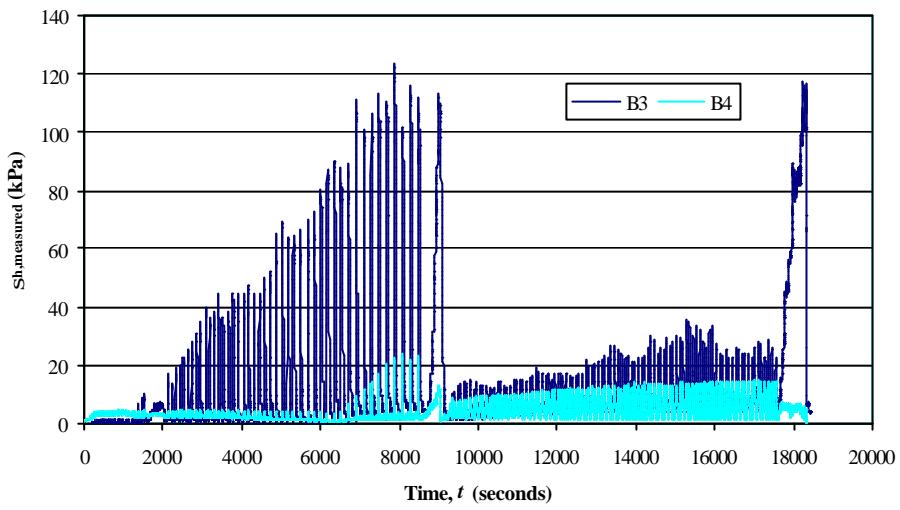


Figure 62 Test T2, B3, B4 pressure cells vs. time (entire test)

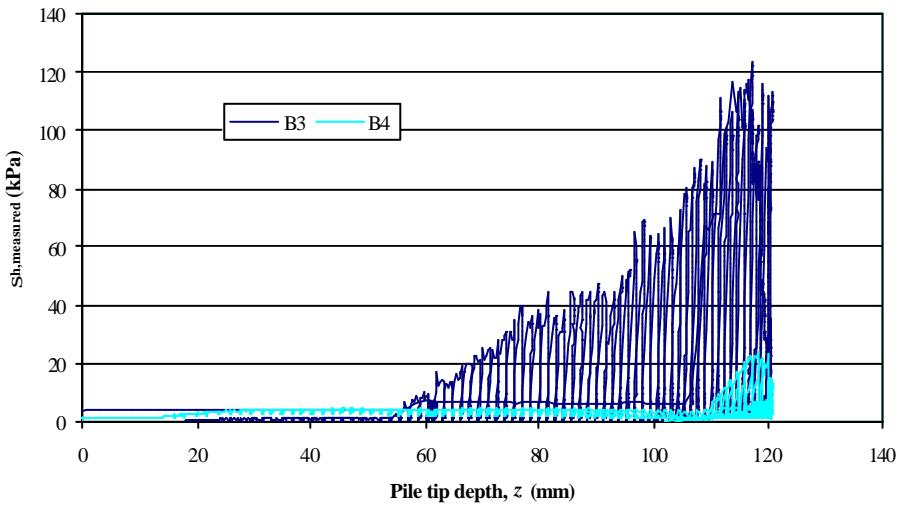


Figure 63 Test T2, B3, B4 pressure cells vs. pile tip depth (entire test)

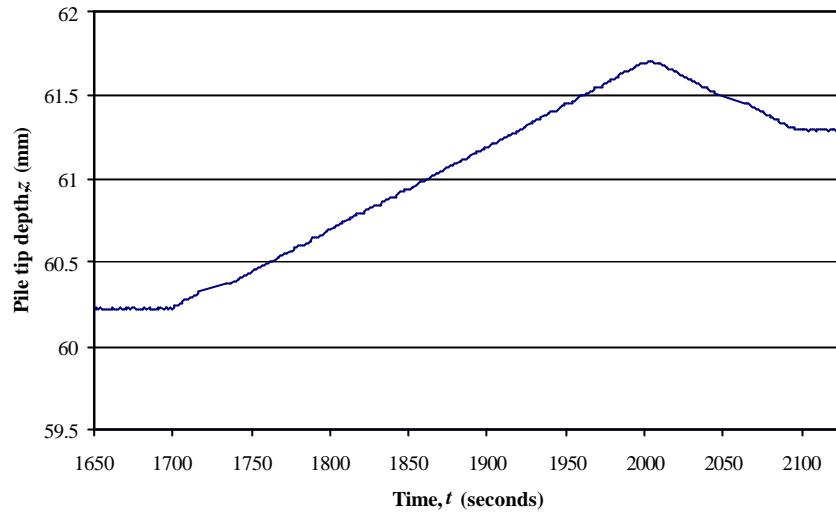


Figure 64 Test T2, Pile tip depth vs. time (load test 1: compression at L/2)

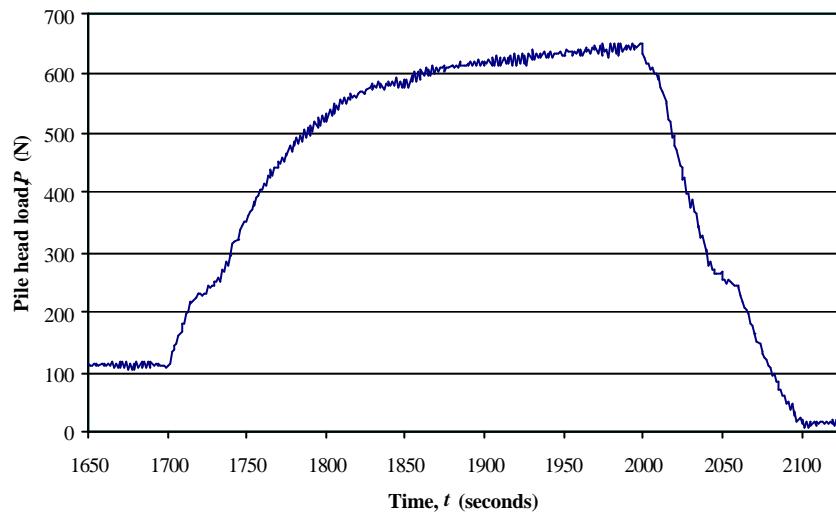


Figure 65 Test T2, Pile head load vs. time (load test 1: compression at L/2)

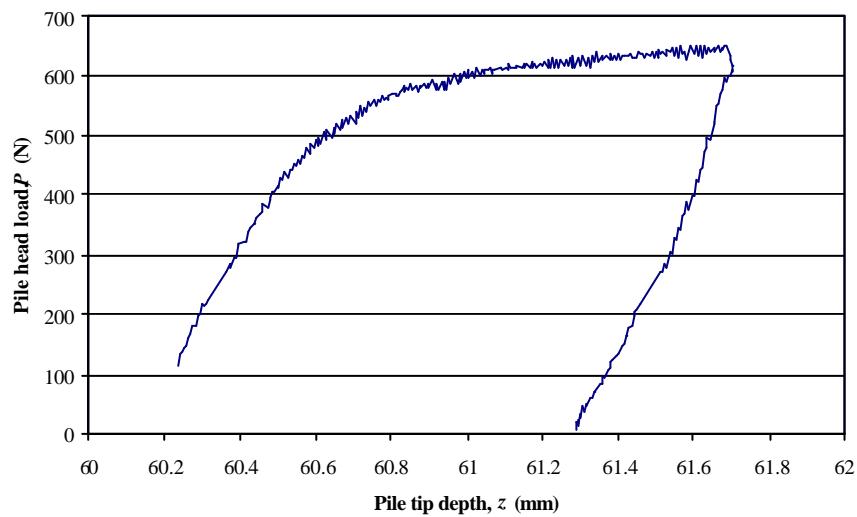


Figure 66 Test T2, Pile head load vs. pile tip depth (load test 1: compression at L/2)

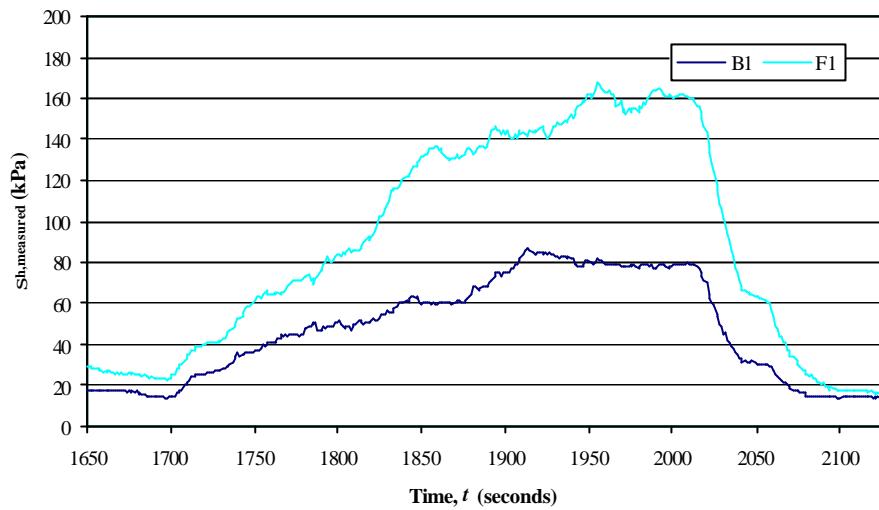


Figure 67 Test T2, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

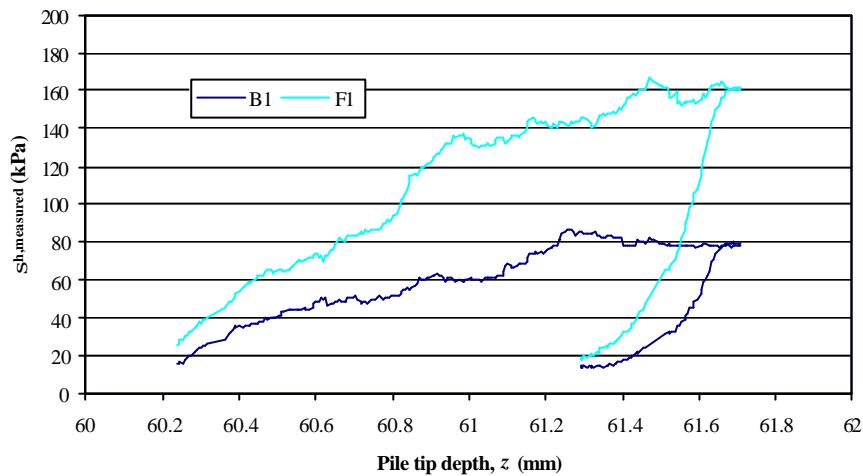


Figure 68 Test T2, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

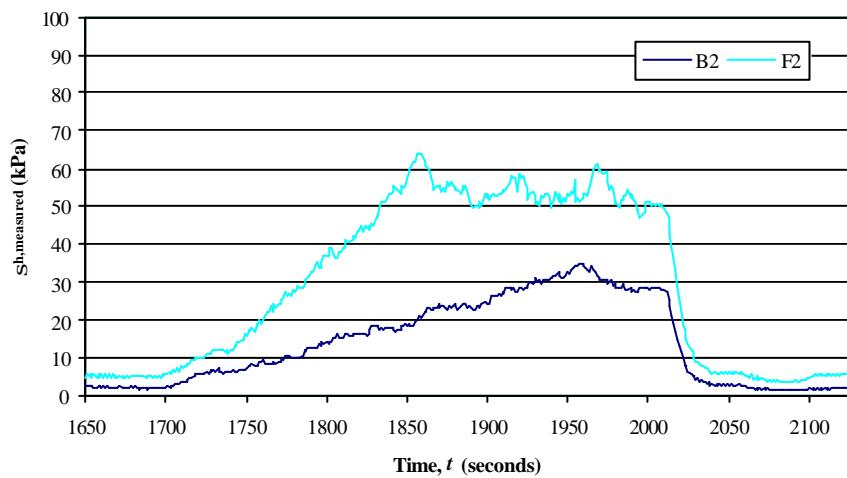


Figure 69 Test T2, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

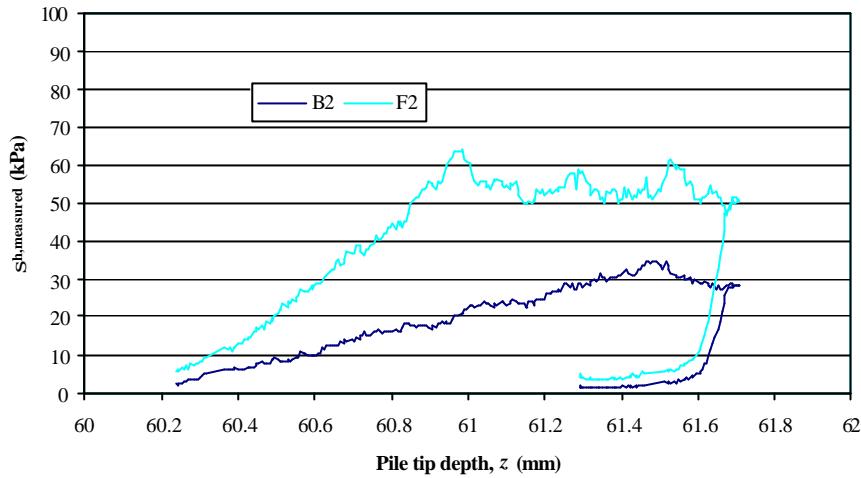


Figure 70 Test T2, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

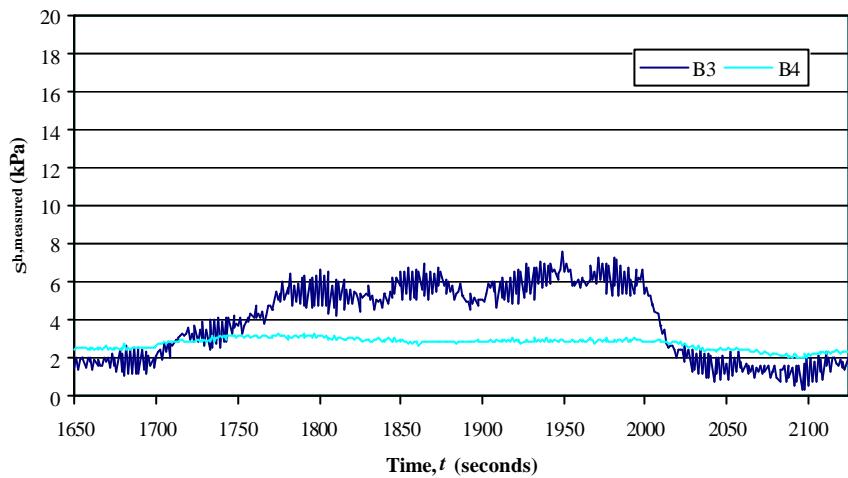


Figure 71 Test T2, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

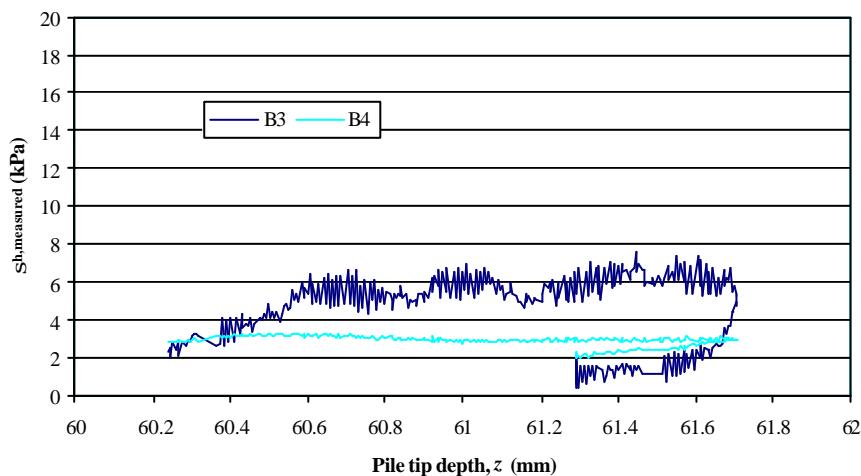


Figure 72 Test T2, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

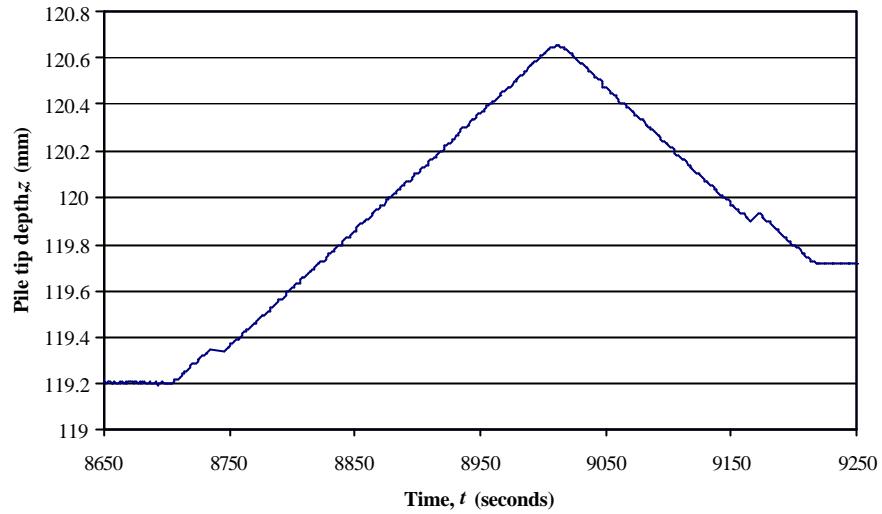


Figure 73 Test T2, Pile tip depth vs. time (load test 2: compression at L)

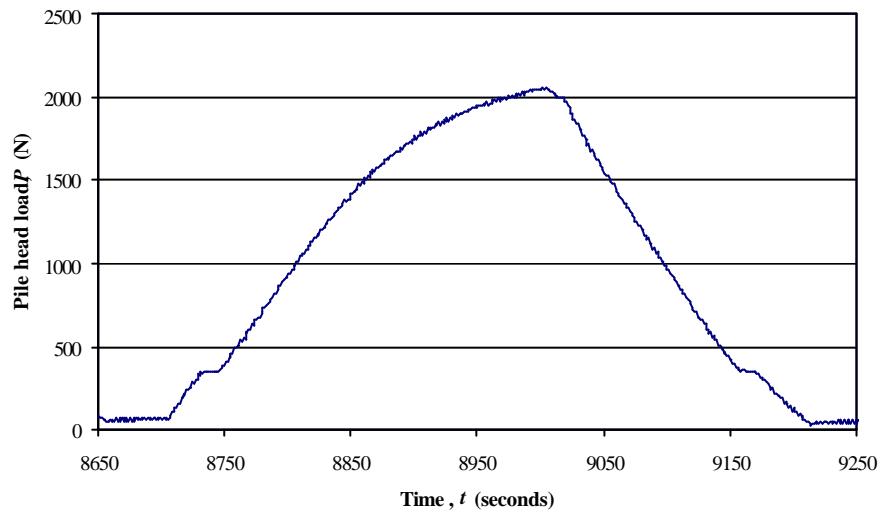


Figure 74 Test T2, Pile head load vs. time (load test 2: compression at L)

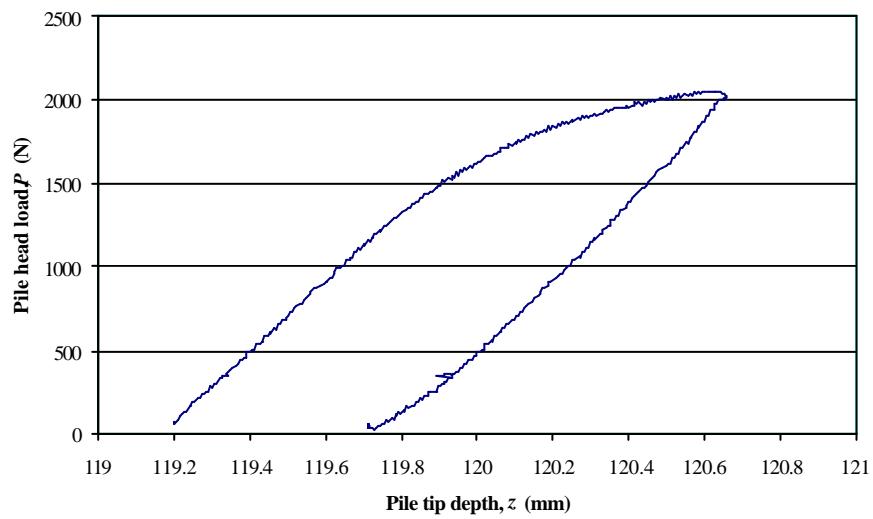


Figure 75 Test T2, Pile head load vs. pile tip depth (load test 2: compression at L)

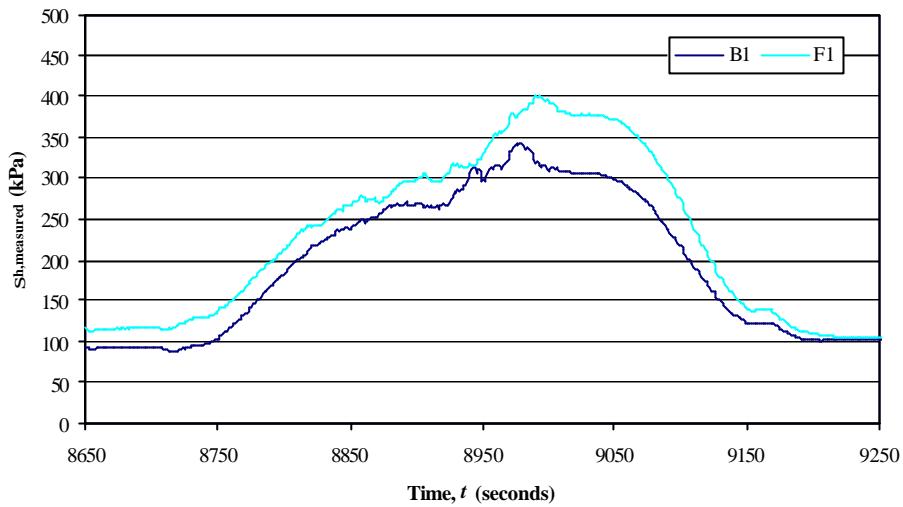


Figure 76 Test T2, B1, F1 pressure cells vs. time (load test 2: compression at L)

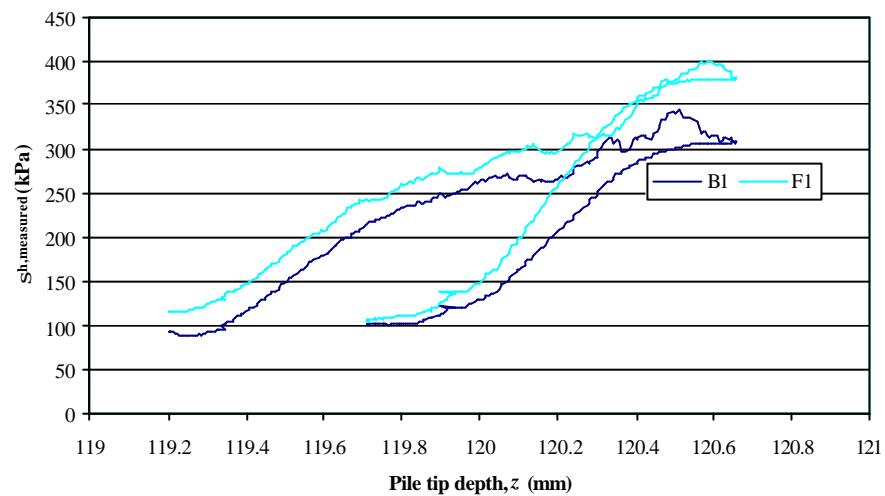


Figure 77 Test T2, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

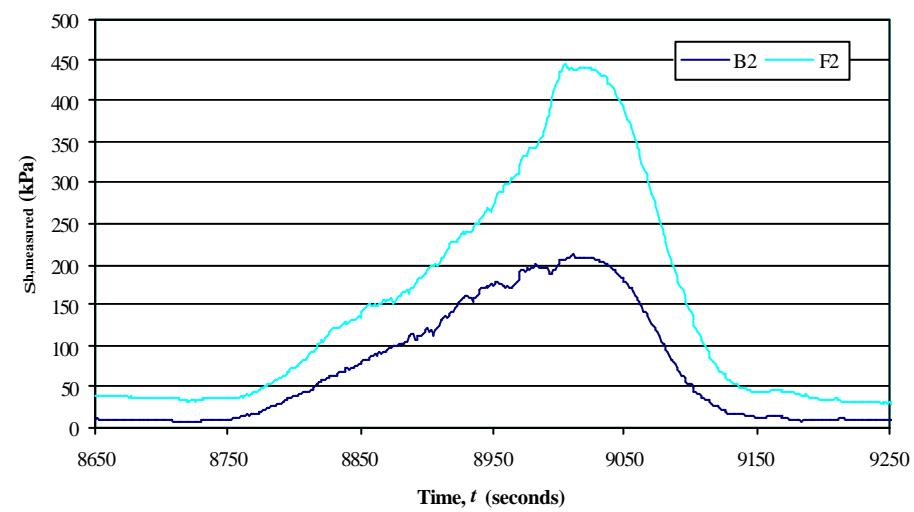


Figure 78 Test T2, B2, F2 pressure cells vs. time (load test 2: compression at L)

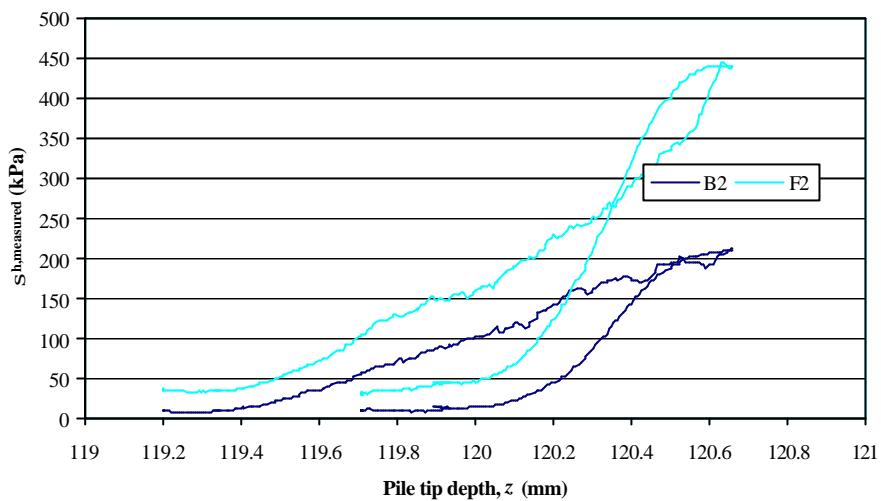


Figure 79 Test T2, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

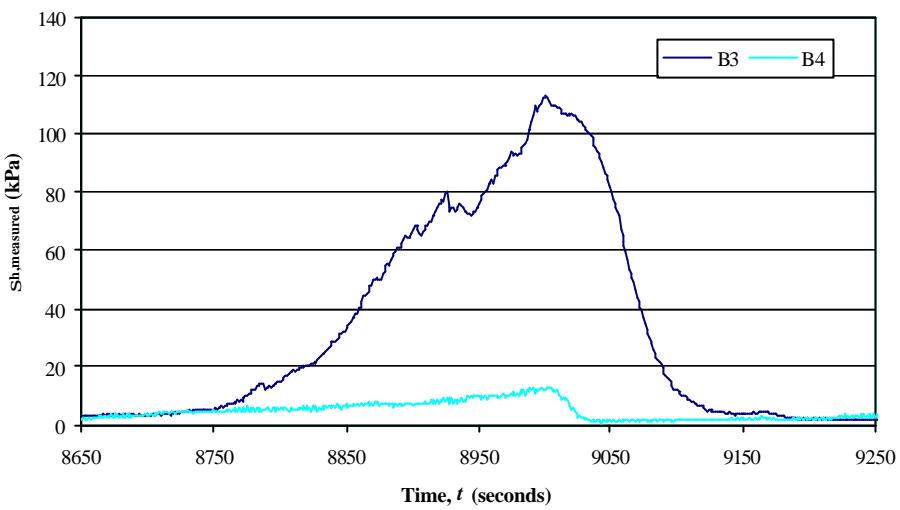


Figure 80 Test T2, B3, B4 pressure cells vs. time (load test 2: compression at L)

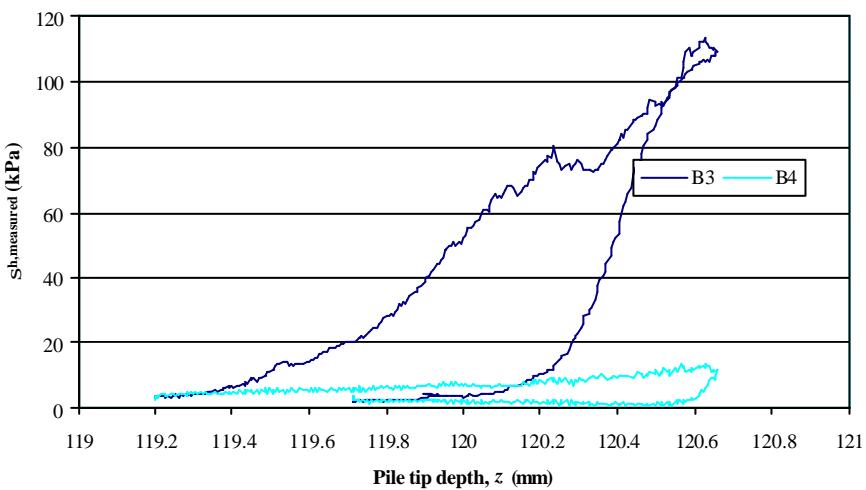


Figure 81 Test T2, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

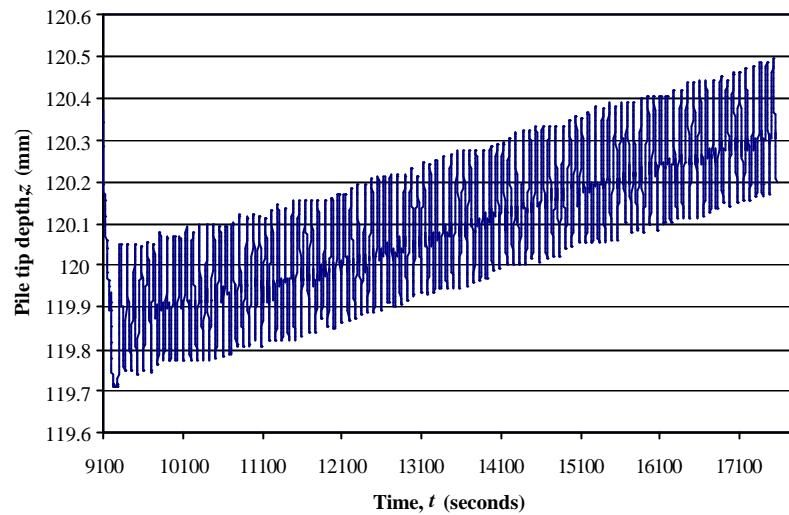


Figure 82 Test T2, Pile tip depth vs. time (load test 3: cyclic compression at L)

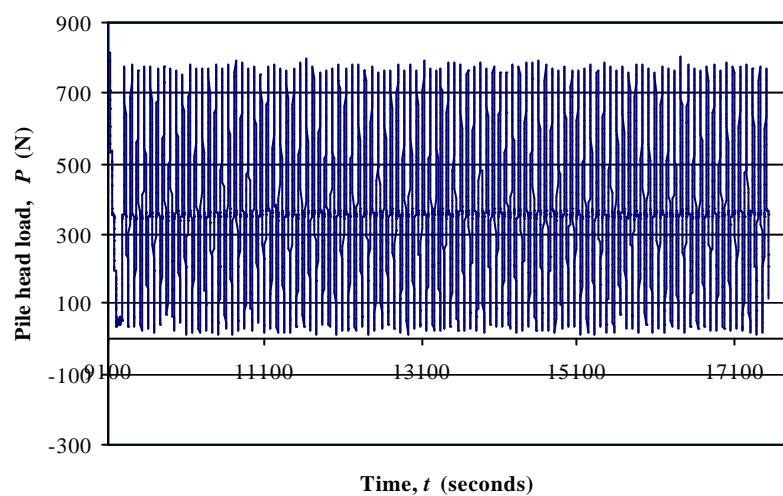


Figure 83 Test T2, Pile head load vs. time (load test 3: cyclic compression at L)

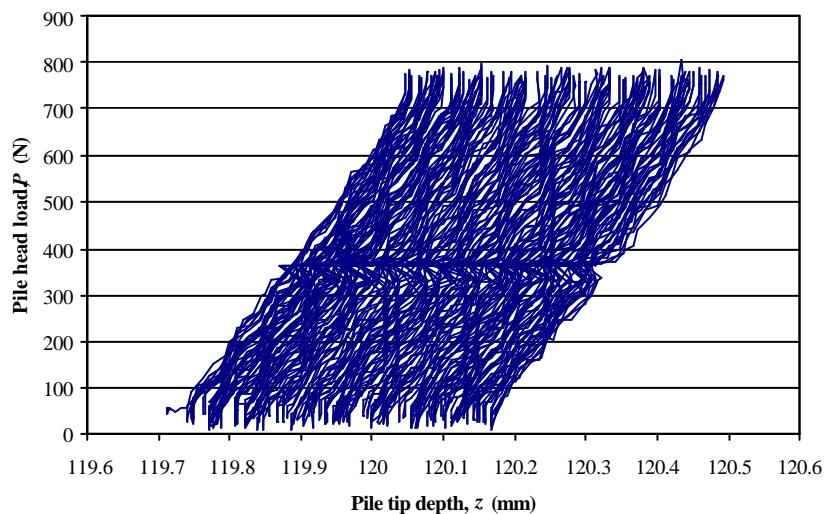


Figure 84 Test T2, Pile head load vs. pile tip depth (load test 3: cyclic compression at L)

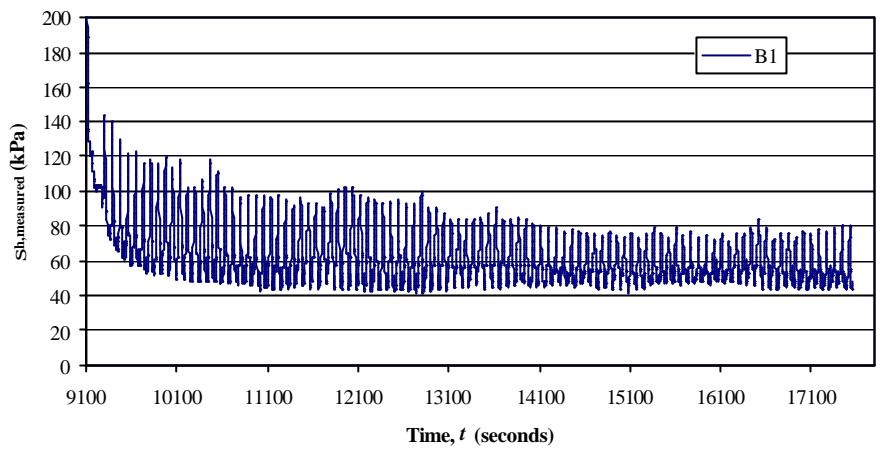


Figure 85 Test T2, B1 pressure cell vs. time (load test 3: cyclic compression at L)

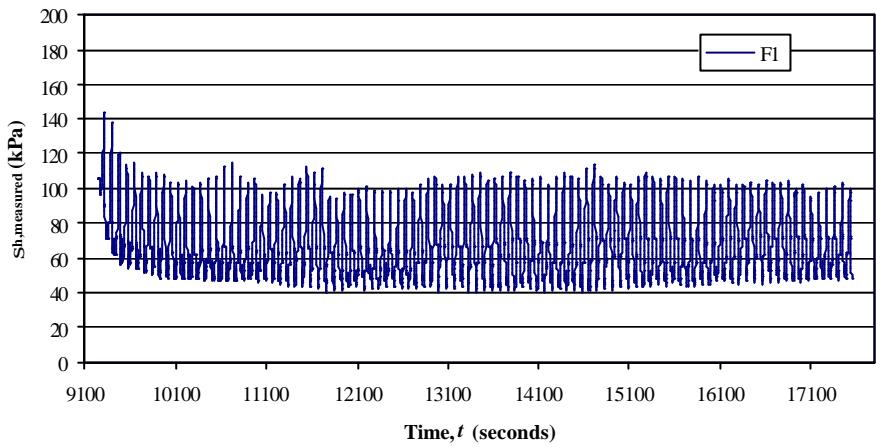


Figure 86 Test T2, F1 pressure cell vs. time (load test 3: cyclic compression at L)

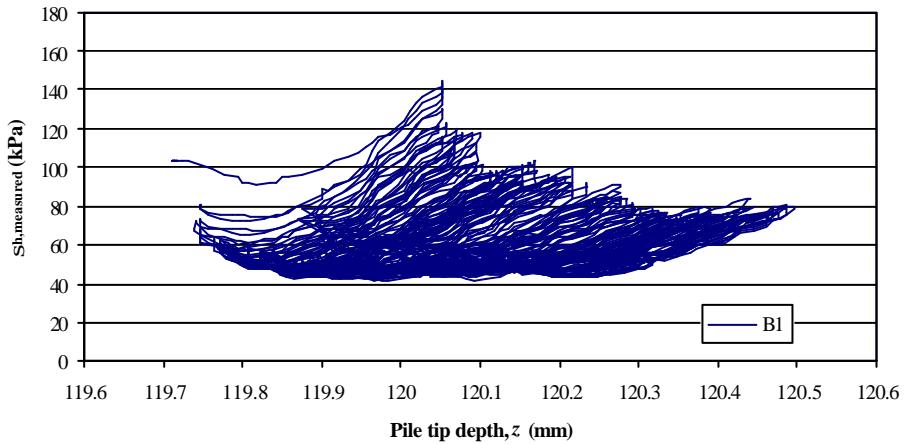


Figure 87 Test T2, B1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

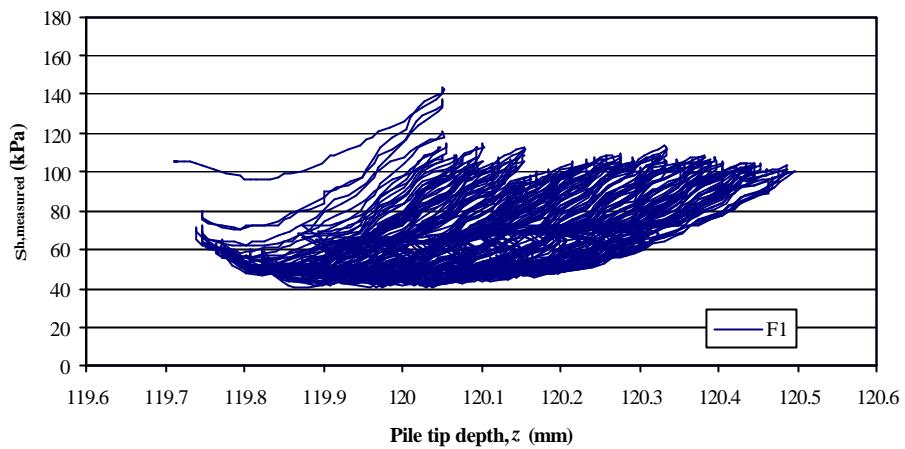


Figure 88 Test T2, F1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

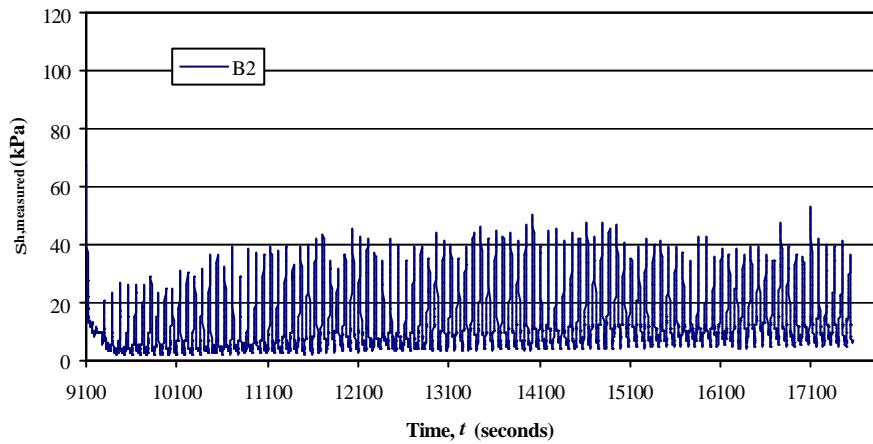


Figure 89 Test T2, B2 pressure cell vs. time (load test 3: cyclic compression at L)

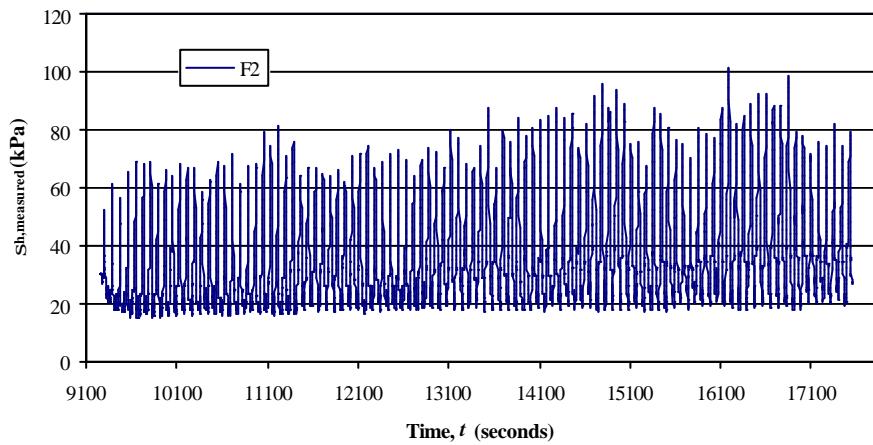


Figure 90 Test T2, F2 pressure cell vs. time (load test 3: cyclic compression at L)

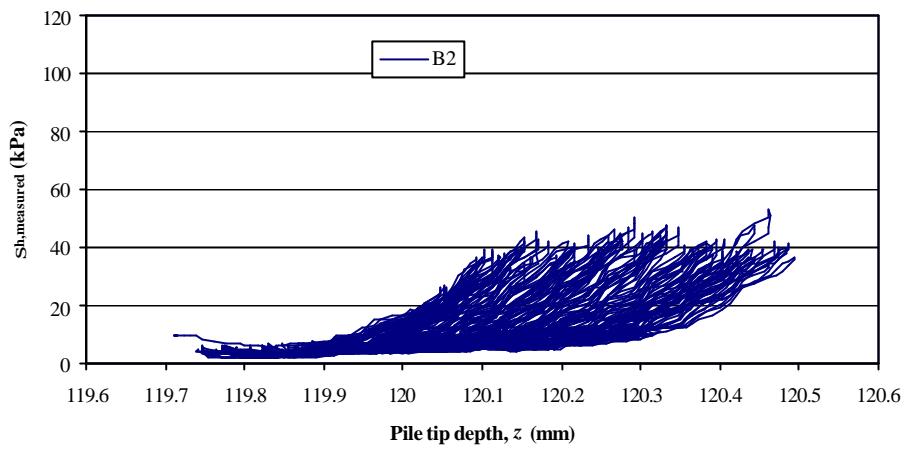


Figure 91 Test T2, B2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

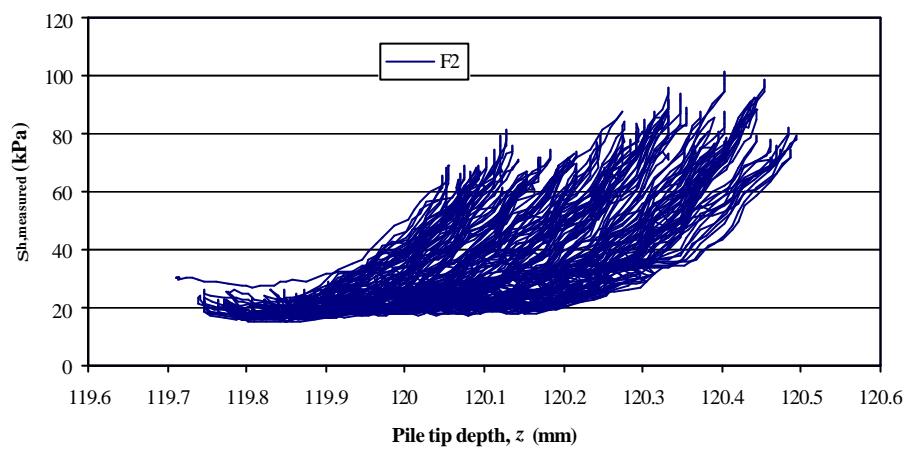


Figure 92 Test T2, F2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

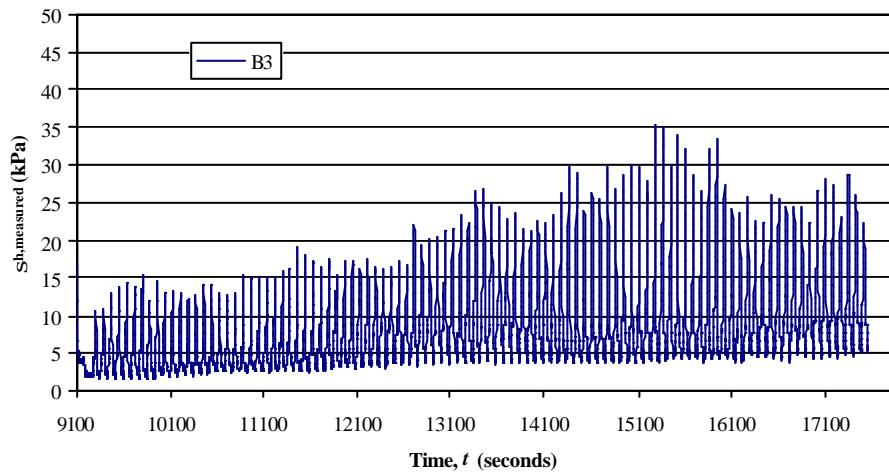


Figure 93 Test T2, B3 pressure cell vs. time (load test 3: cyclic compression at L)

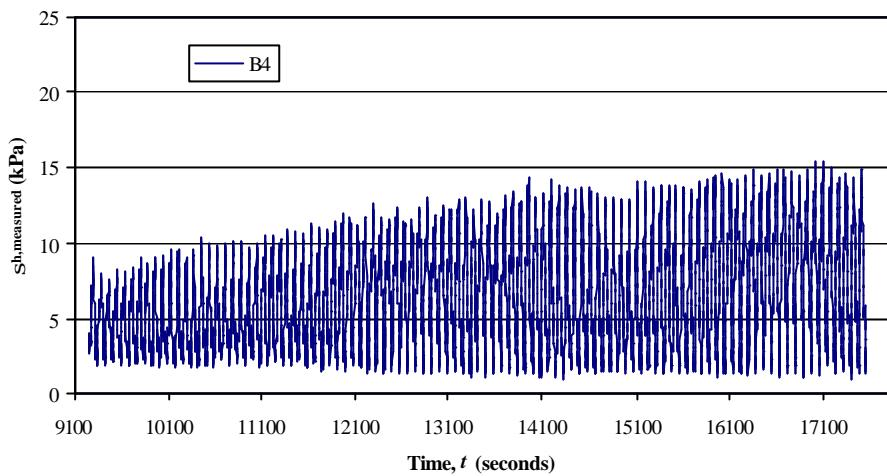


Figure 94 Test T2, B4 pressure cell vs. time (load test 3: cyclic compression at L)

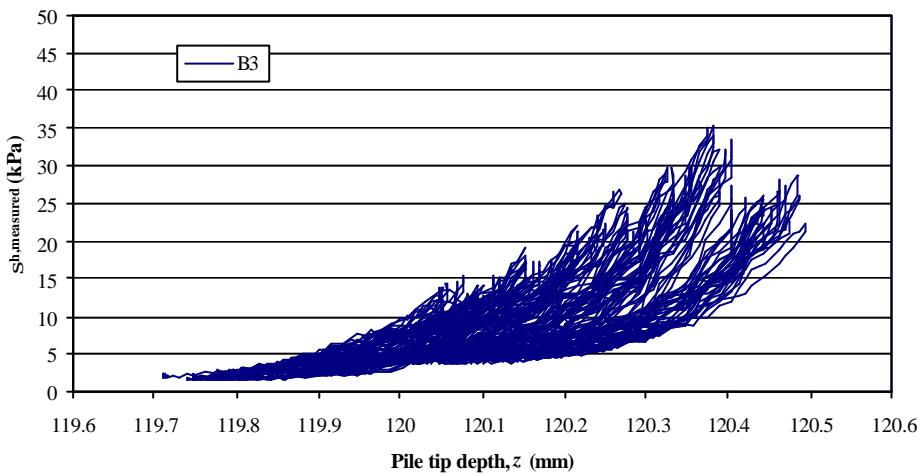


Figure 95 Test T2, B3 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

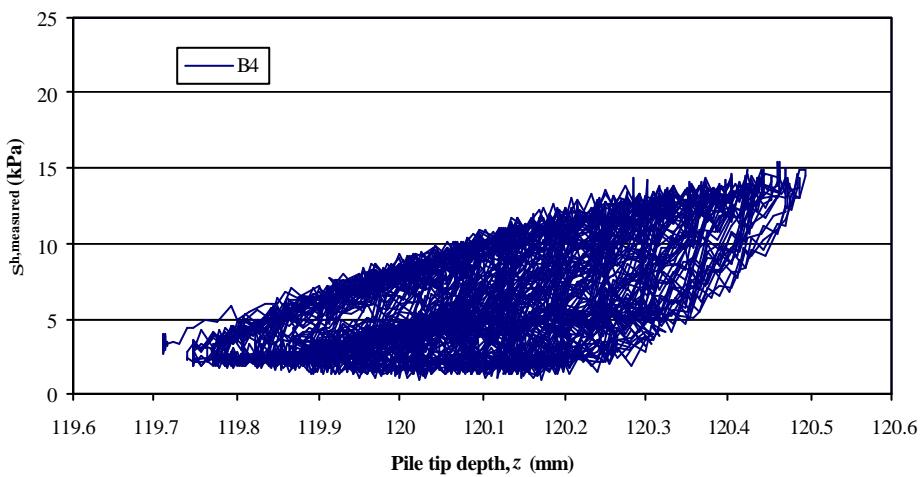


Figure 96 Test T2, B4 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

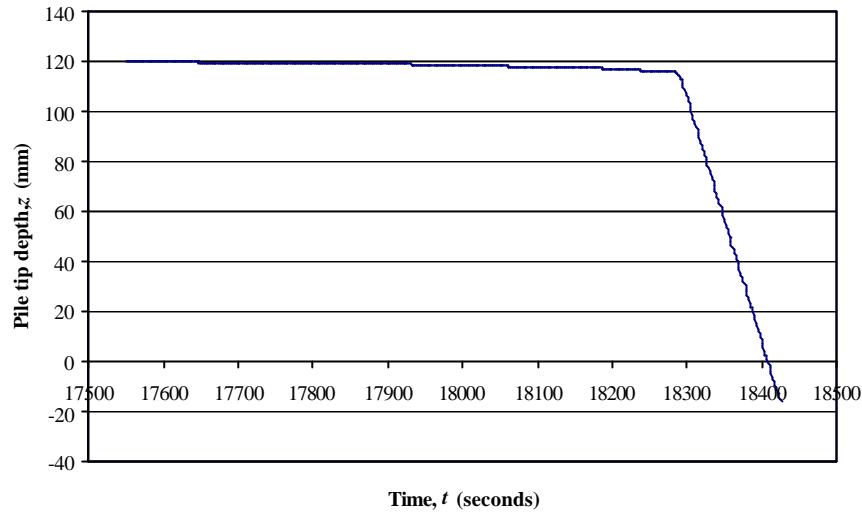


Figure 97 Test T2, Pile tip depth vs. time (load test 4: tension at L)

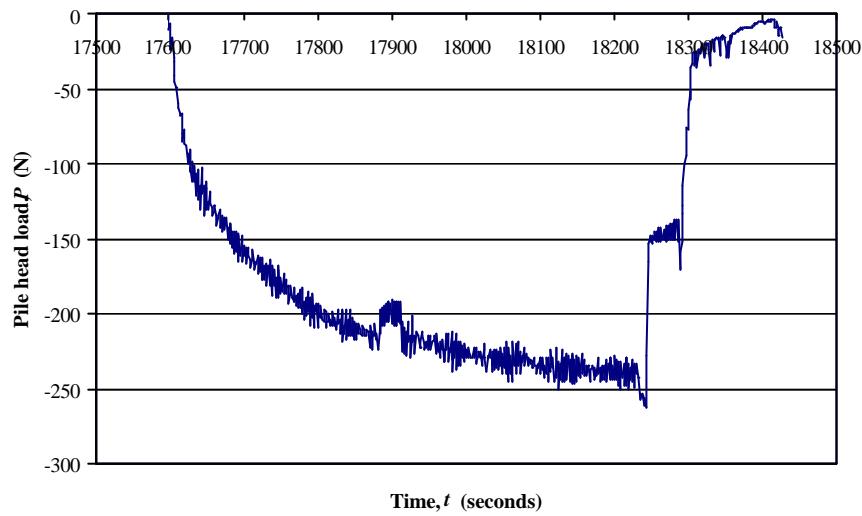


Figure 98 Test T2, Pile head load vs. time (load test 4: tension at L)

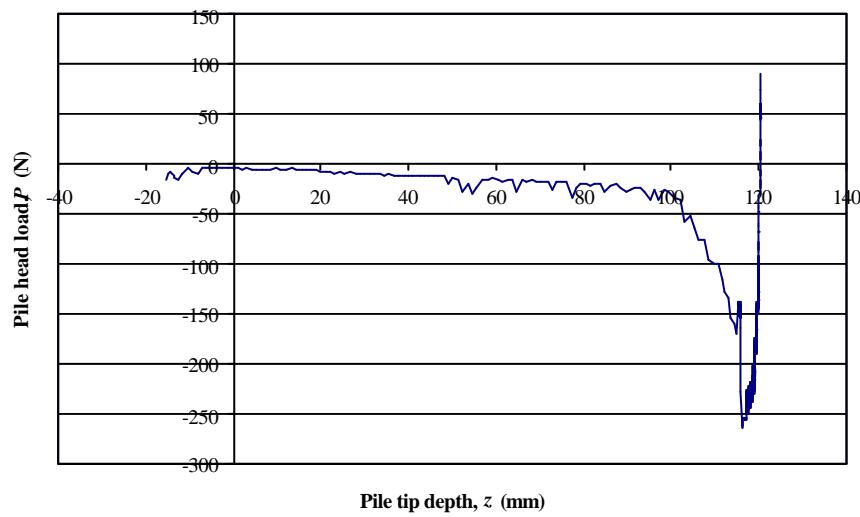


Figure 99 Test T2, Pile head load vs. pile tip depth (load test 4: tension at L)

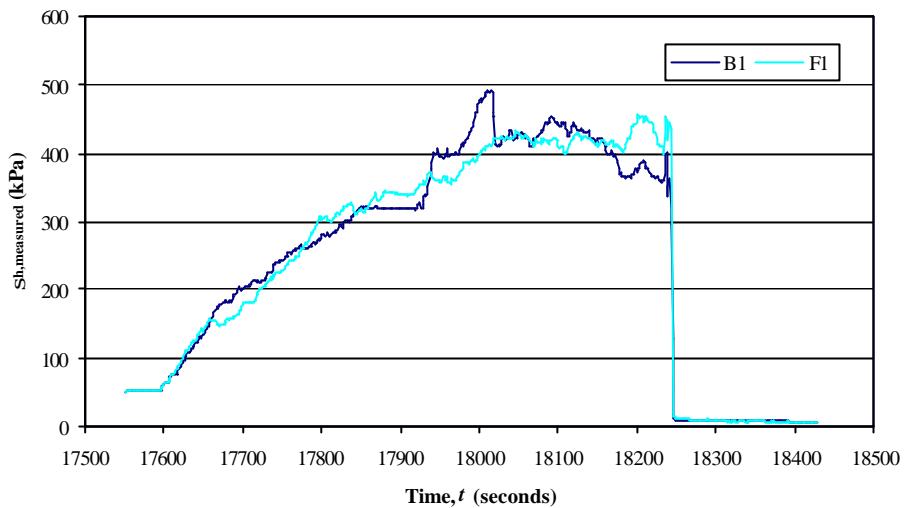


Figure 100 Test T2, B1, F1 pressure cells vs. time (load test 4: tension at L)

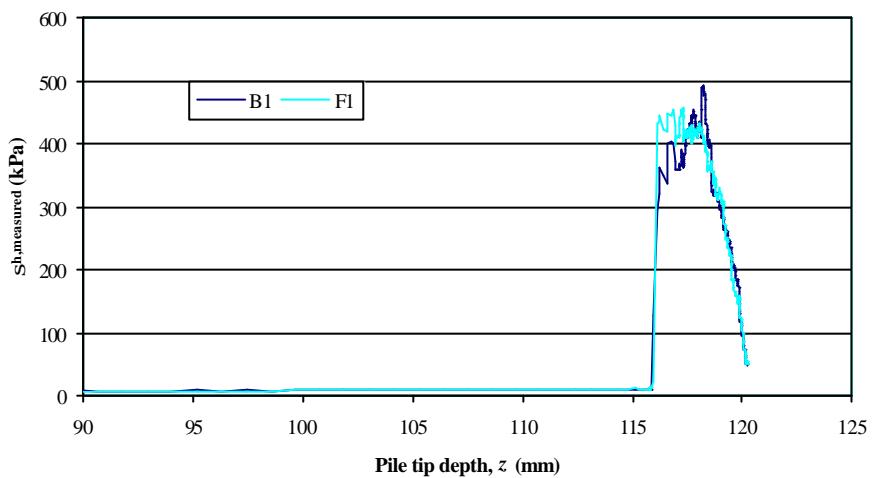


Figure 101 Test T2, B1, F1 pressure cells vs. pile tip depth (load test 4: tension at L)

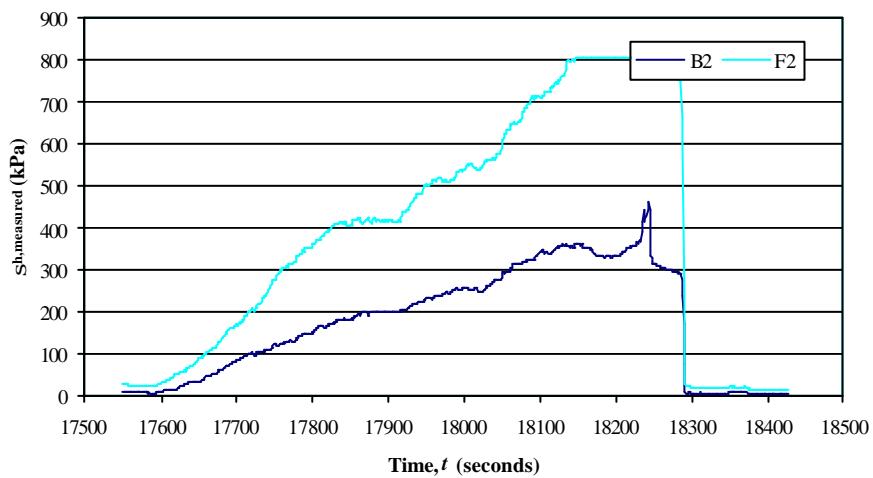


Figure 102 Test T2, B2, F2 pressure cells vs. time (load test 4: tension at L)

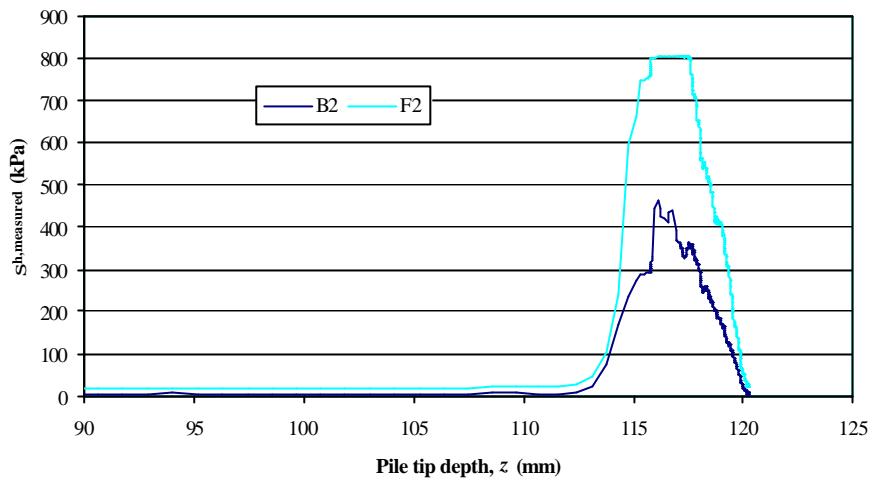


Figure 103 Test T2, B2, F2 pressure cells vs. pile tip depth (load test 4: tension at L)

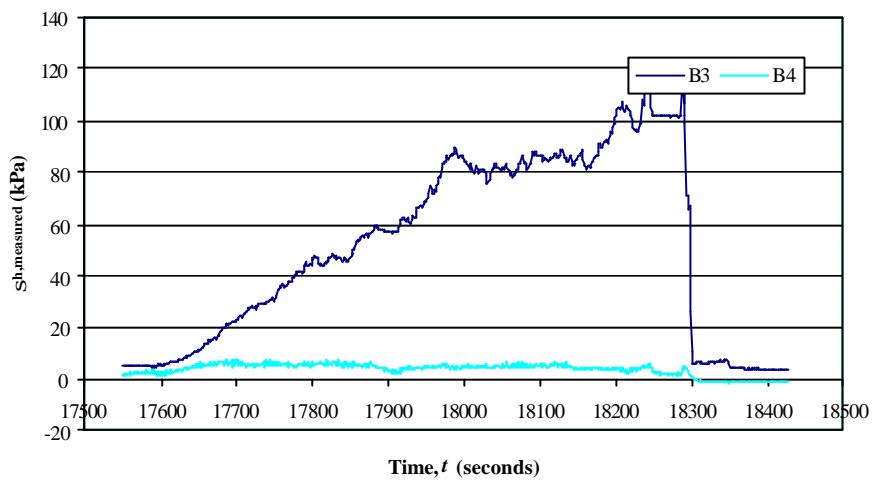


Figure 104 Test T2, B3, B4 pressure cells vs. time (load test 4: tension at L)

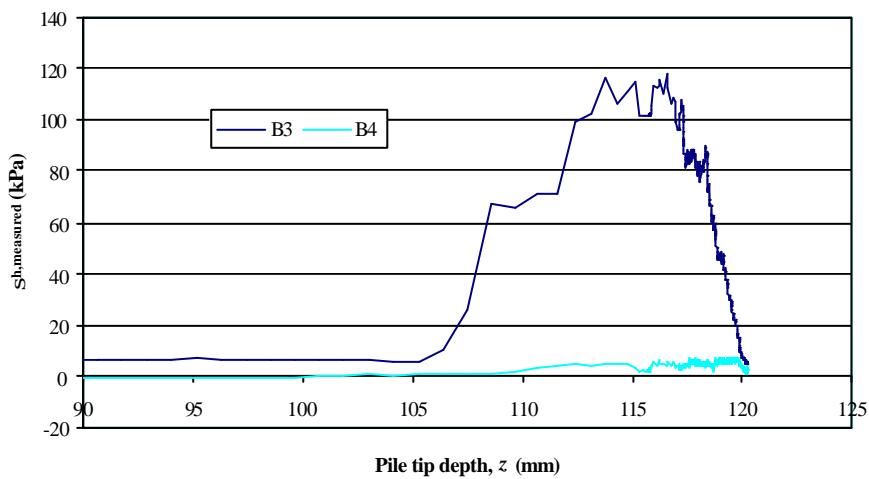


Figure 105 Test T2, B3, B4 pressure cells vs. pile tip depth (load test 4: tension at L)

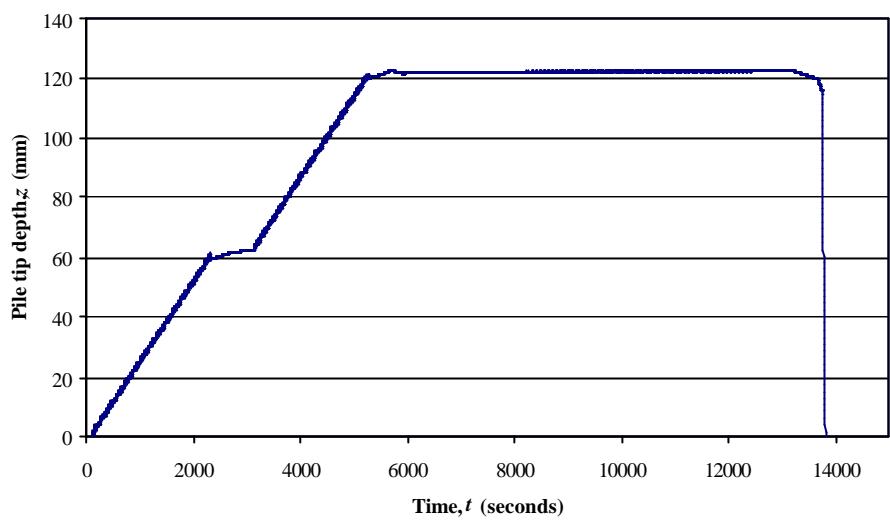


Figure 106 Test T3, Pile tip depth vs. time (entire test)

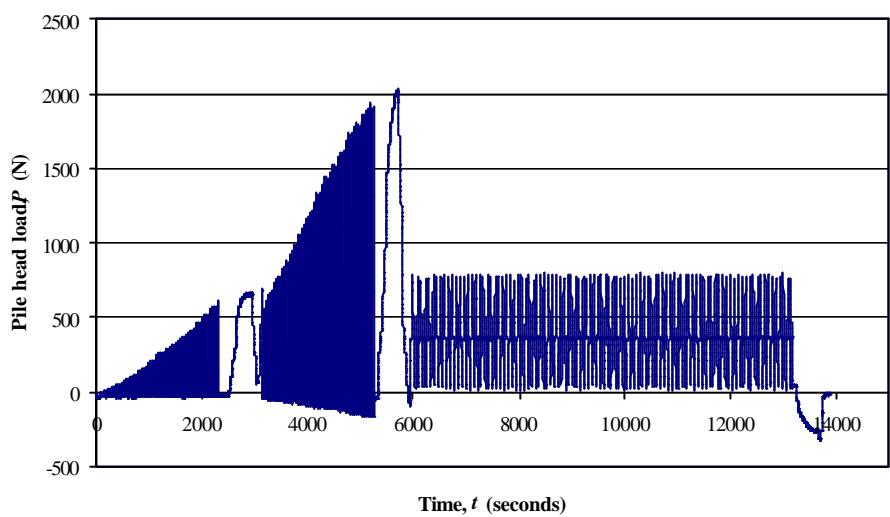


Figure 107 Test T3, Pile head load vs. time (entire test)

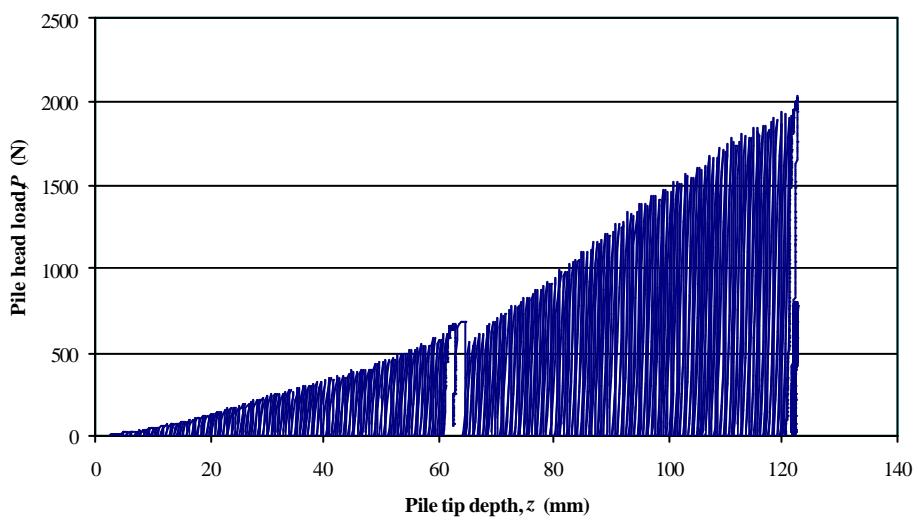


Figure 108 Test T3, Pile head load vs. pile tip depth (entire test)

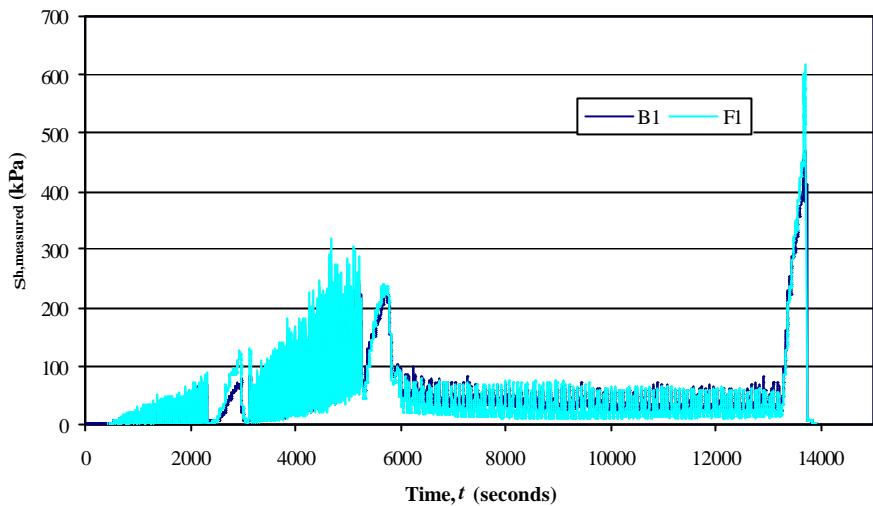


Figure 109 Test T3, B1, F1 pressure cells vs. time (entire test)

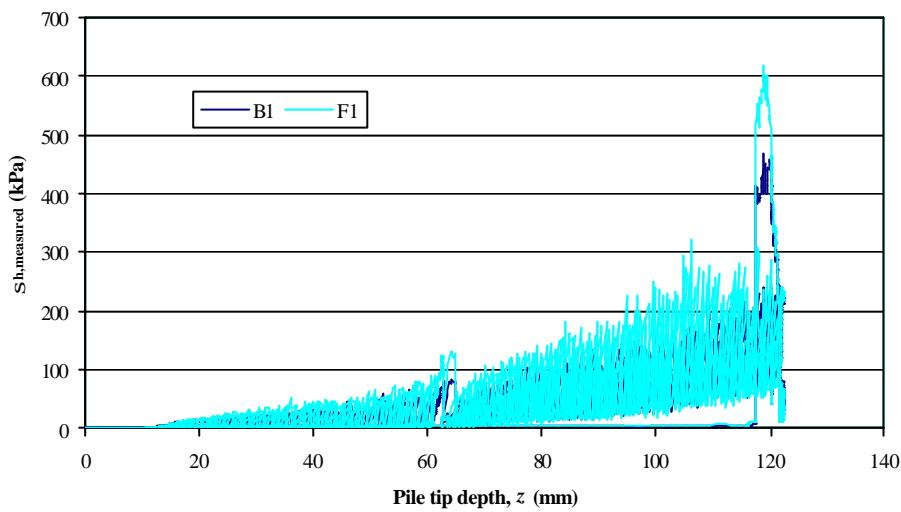


Figure 110 Test T3, B1, F1 pressure cells vs. pile tip depth (entire test)

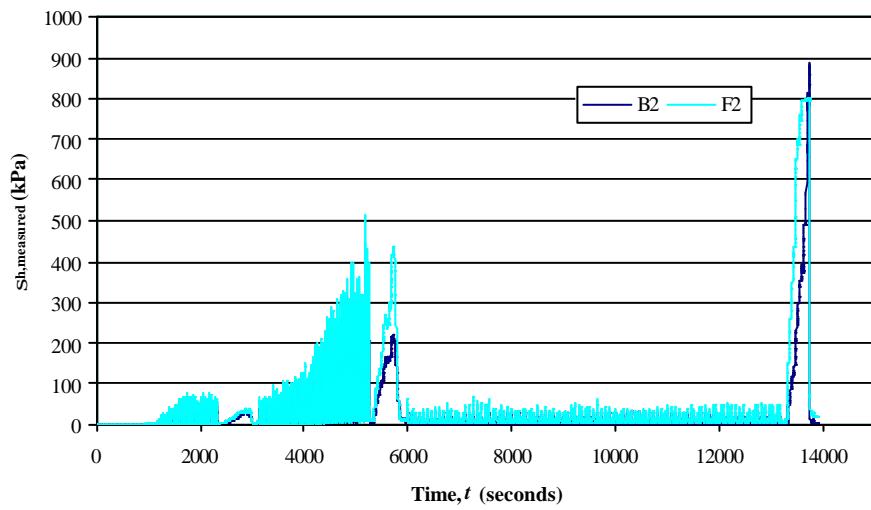


Figure 111 Test T3, B2, F2 pressure cells vs. time (entire test)

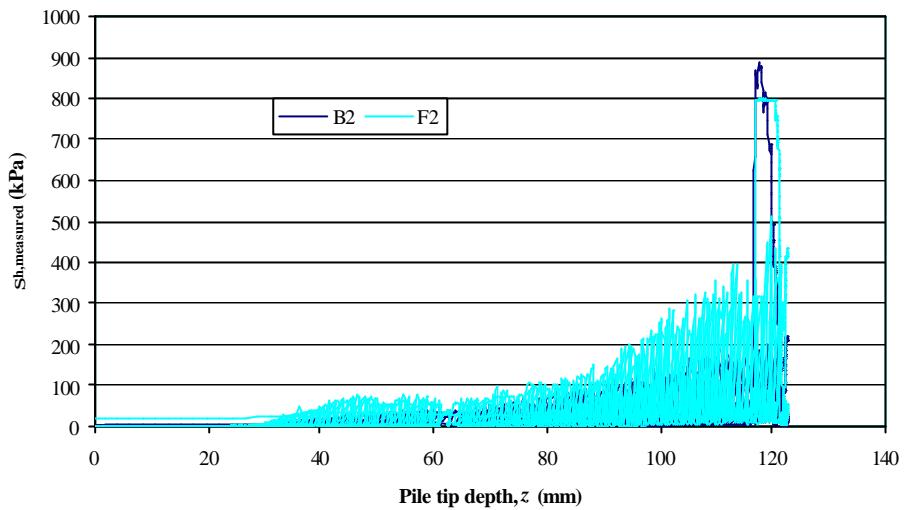


Figure 112 Test T3, B2, F2 pressure cells vs. pile tip depth (entire test)

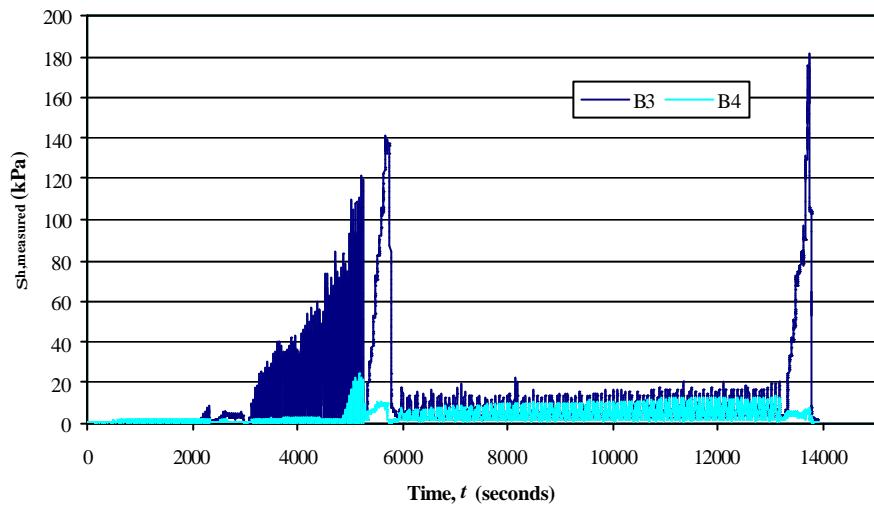


Figure 113 Test T3, B3, B4 pressure cells vs. time (entire test)

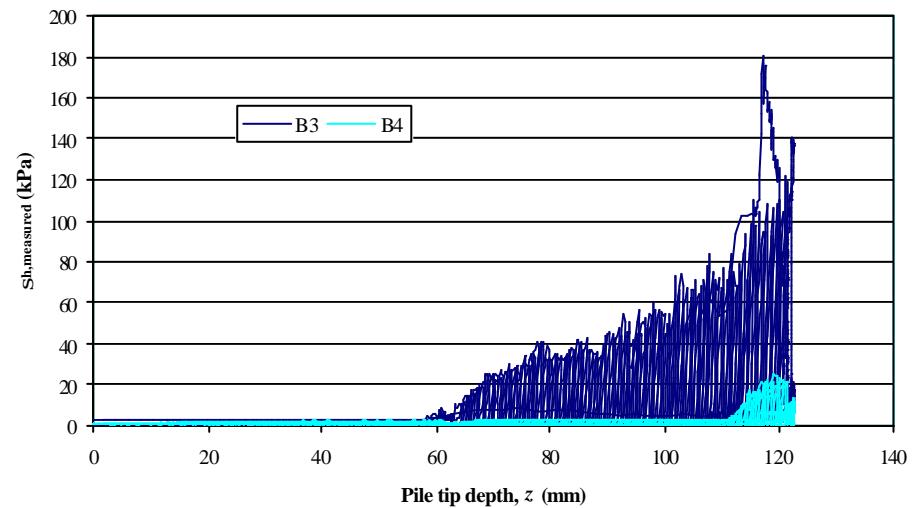


Figure 114 Test T3, B3, B4 pressure cells vs. pile tip depth (entire test)

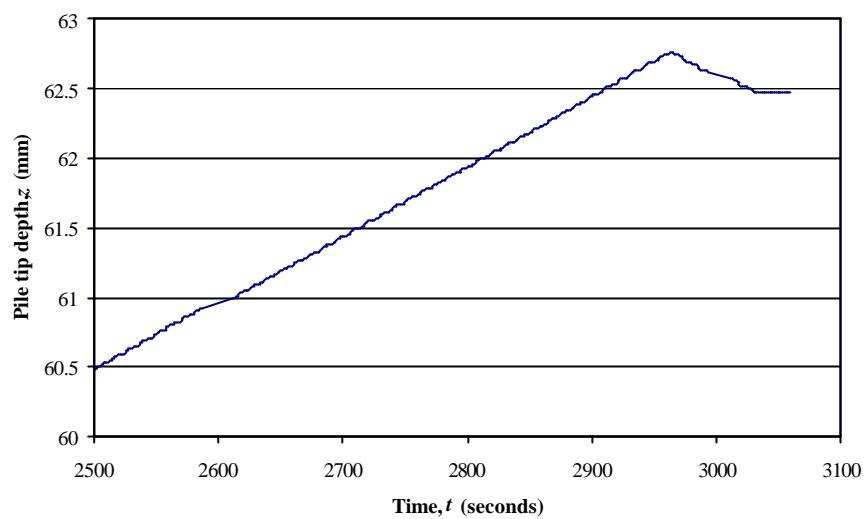


Figure 115 Test T3, Pile tip depth vs. time (load test 1: compression at L/2)

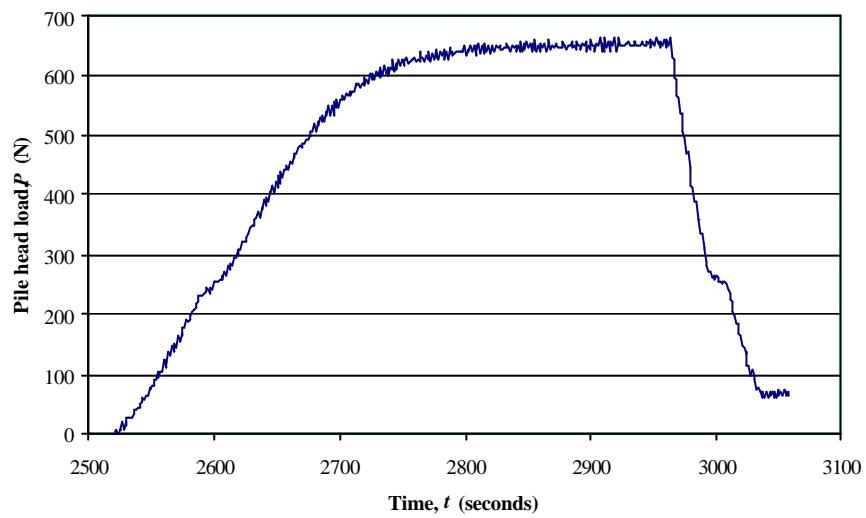


Figure 116 Test T3, Pile head load vs. time (load test 1: compression at L/2)

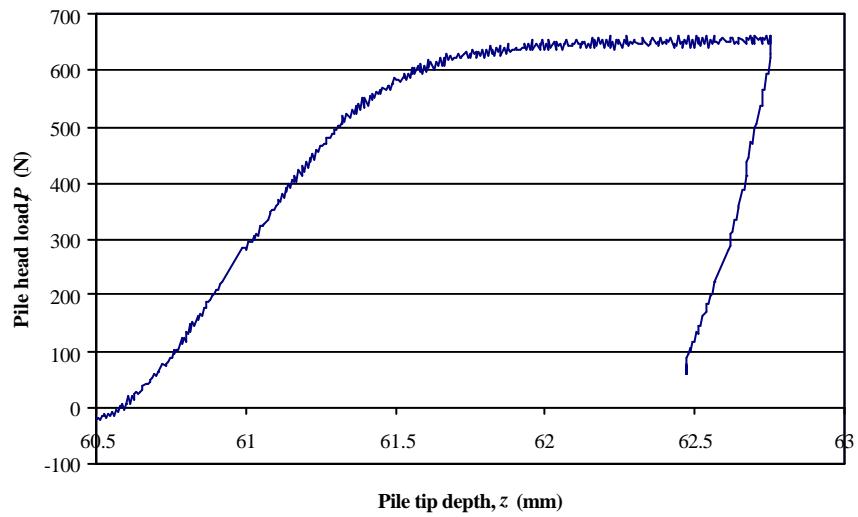


Figure 117 Test T3, Pile head load vs. pile tip depth (load test 1: compression at L/2)

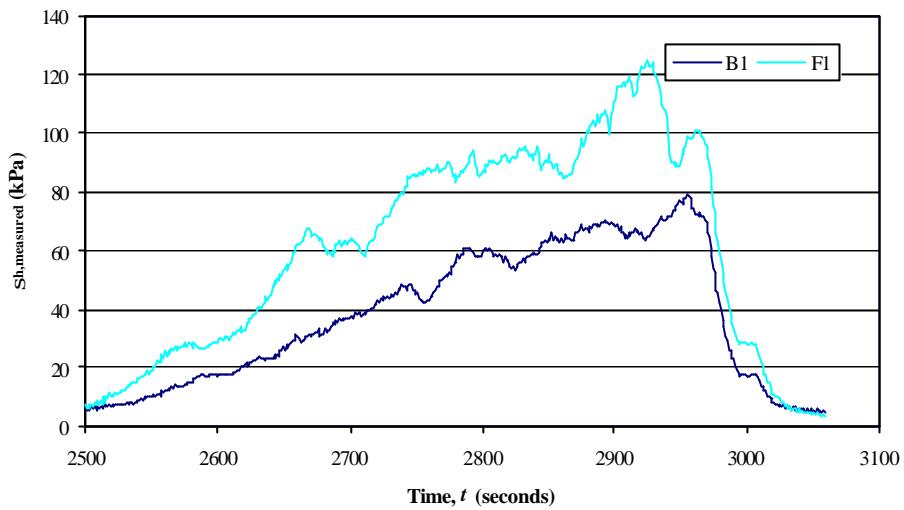


Figure 118 Test T3, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

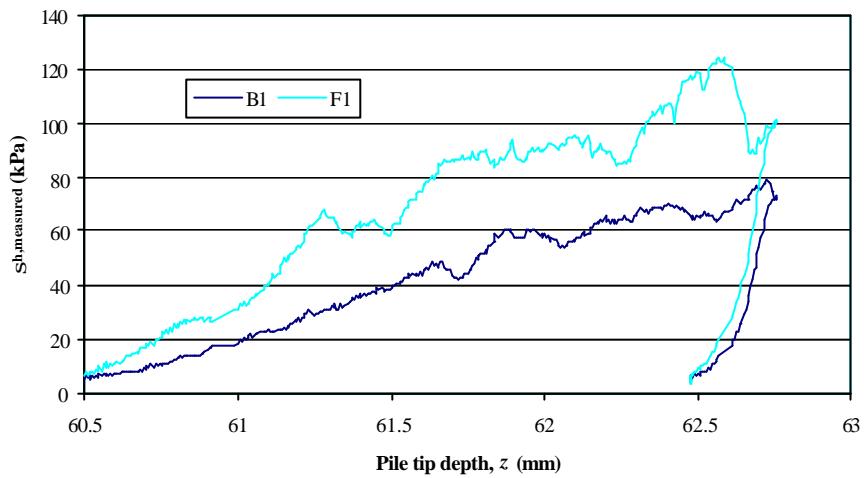


Figure 119 Test T3, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

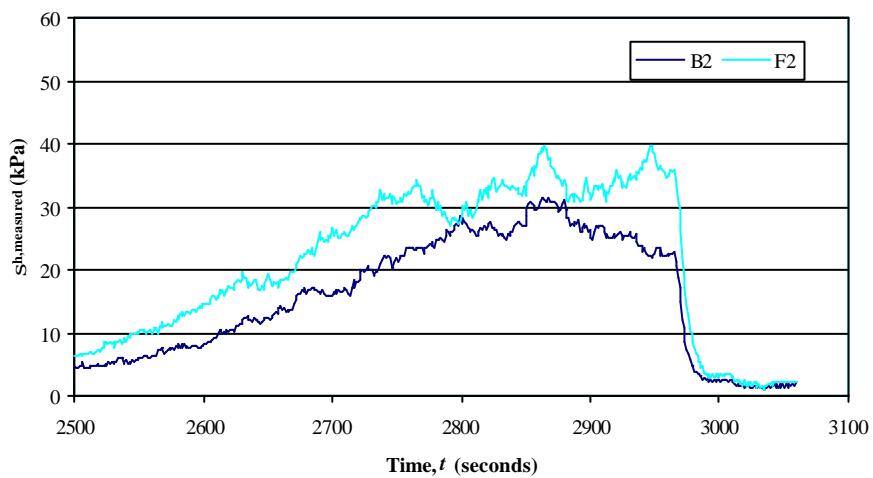


Figure 120 Test T3, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

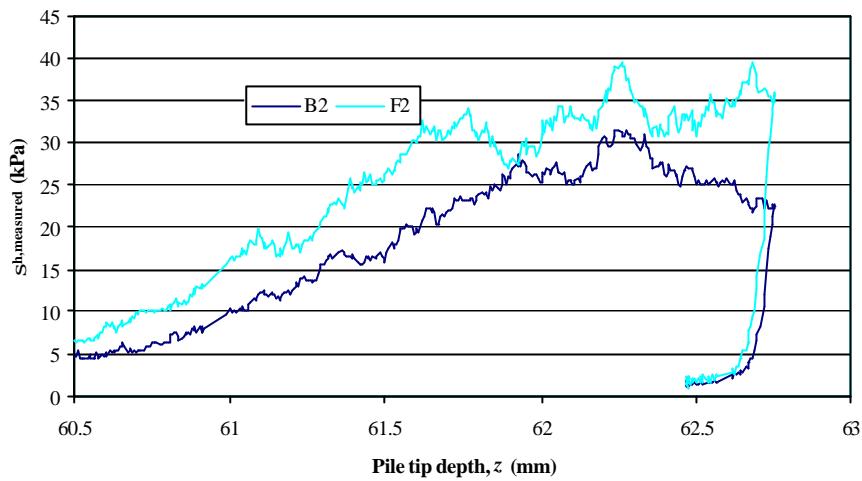


Figure 121 Test T3, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

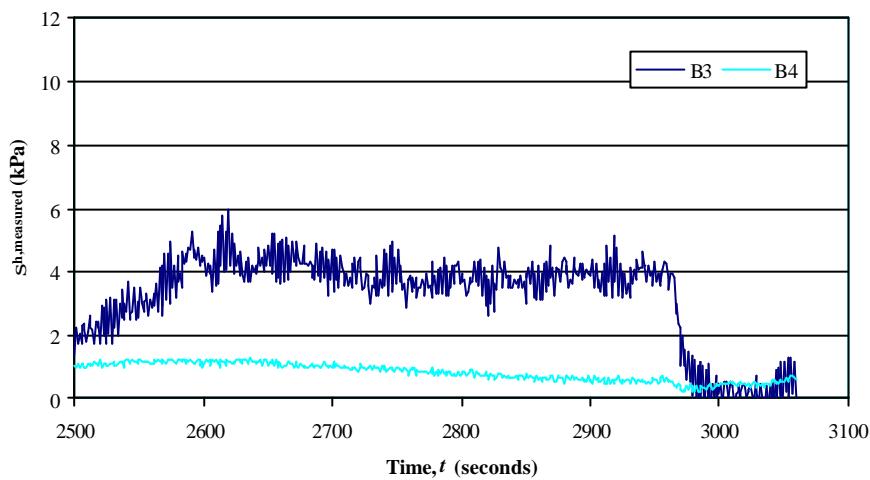


Figure 122 Test T3, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

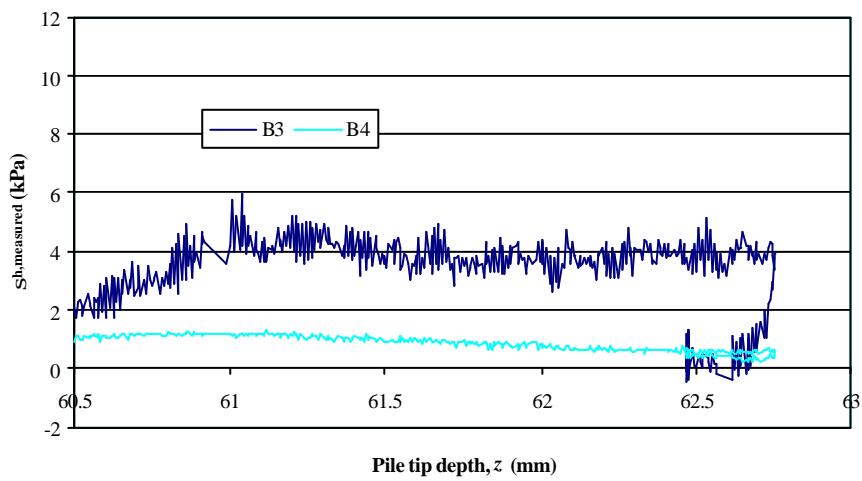


Figure 123 Test T3, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

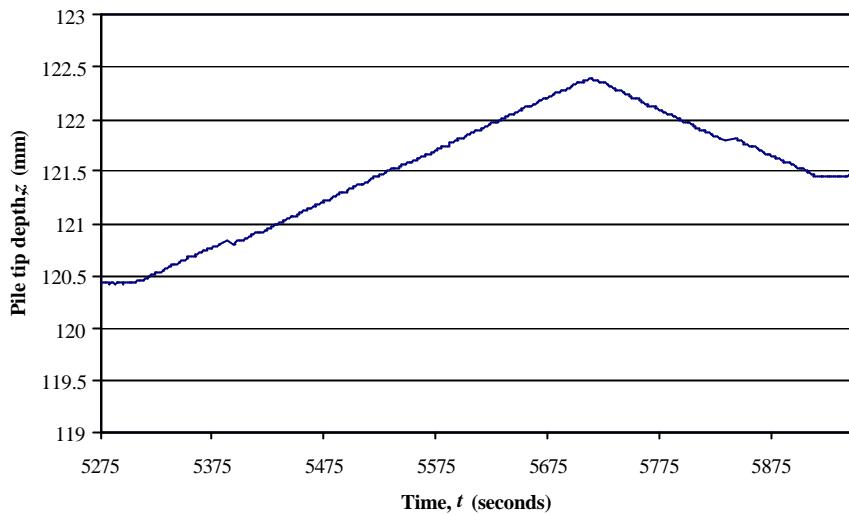


Figure 124 Test T3, Pile tip depth vs. time (load test 2: compression at L)

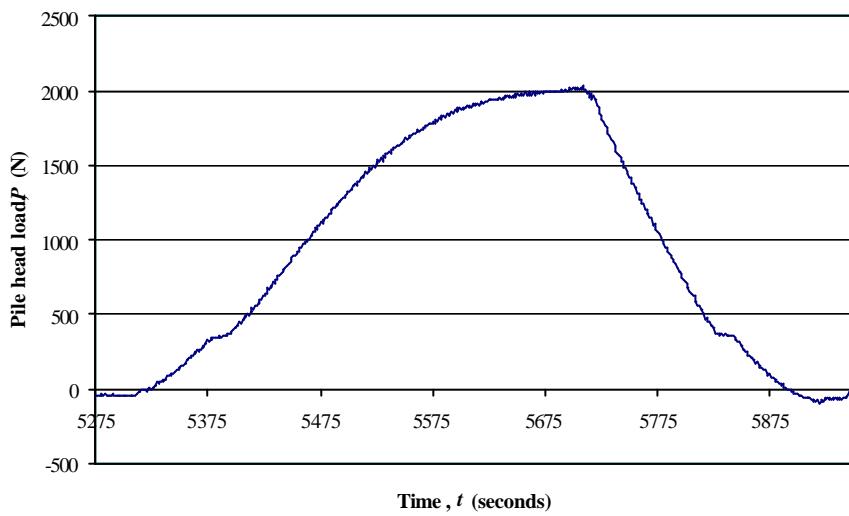


Figure 125 Test T3, Pile head load vs. time (load test 2: compression at L)

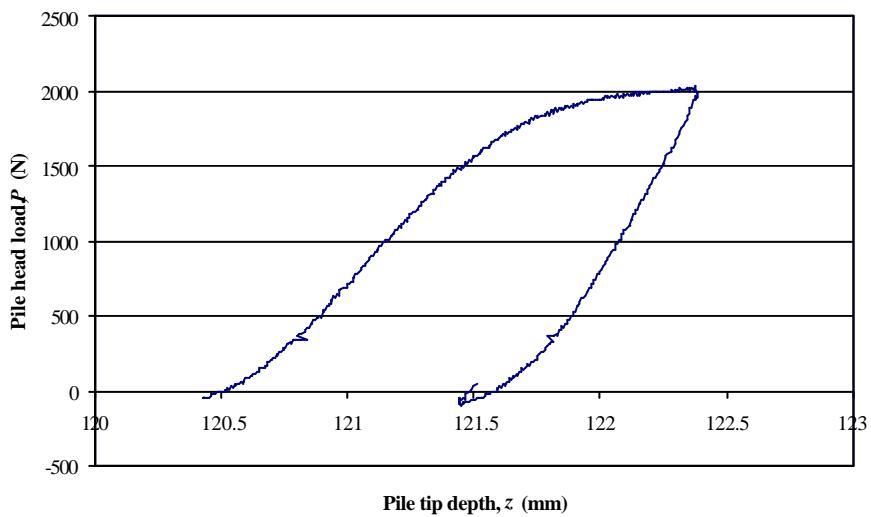


Figure 126 Test T3, Pile head load vs. pile tip depth (load test 2: compression at L)

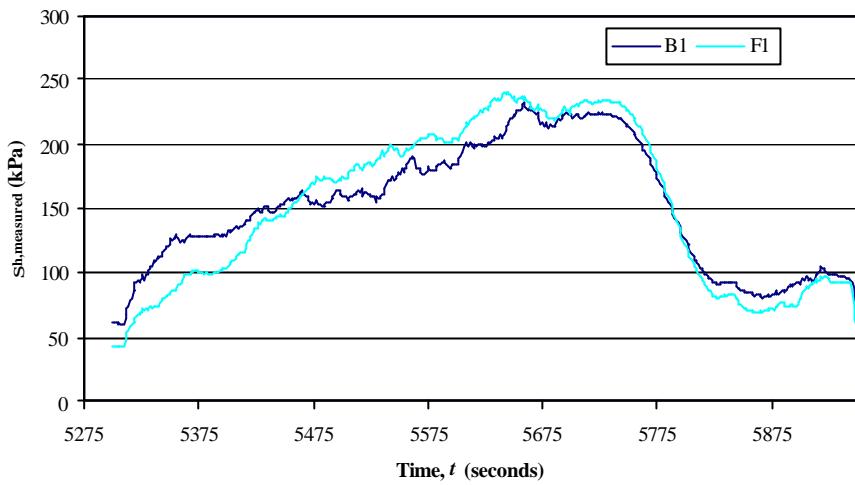


Figure 127 Test T3, B1, F1 pressure cells vs. time (load test 2: compression at L)

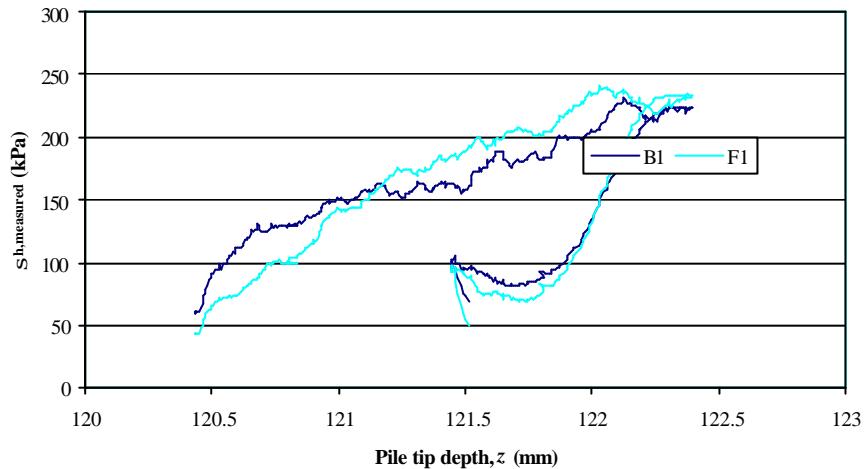


Figure 128 Test T3, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

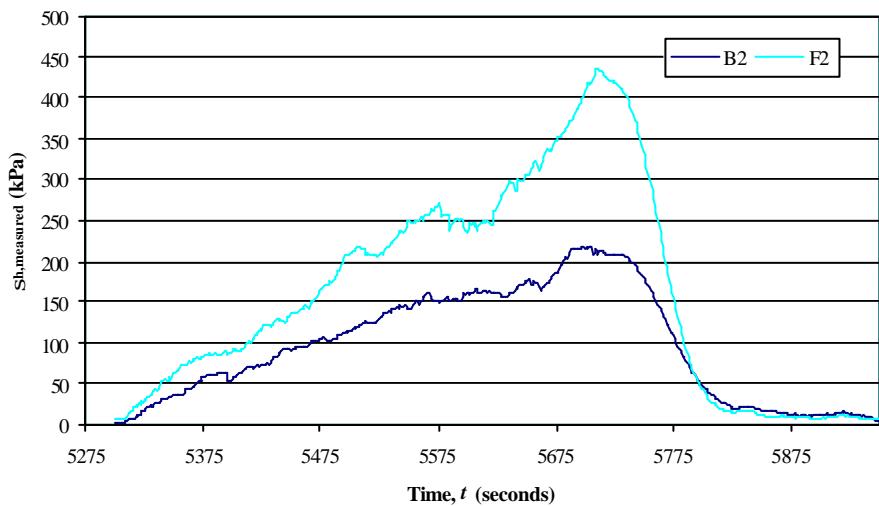


Figure 129 Test T3, B2, F2 pressure cells vs. time (load test 2: compression at L)

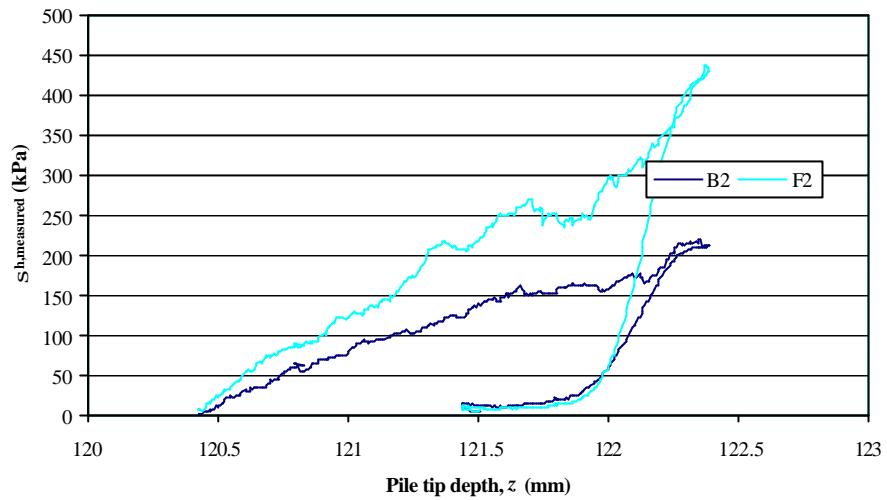


Figure 130 Test T3, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

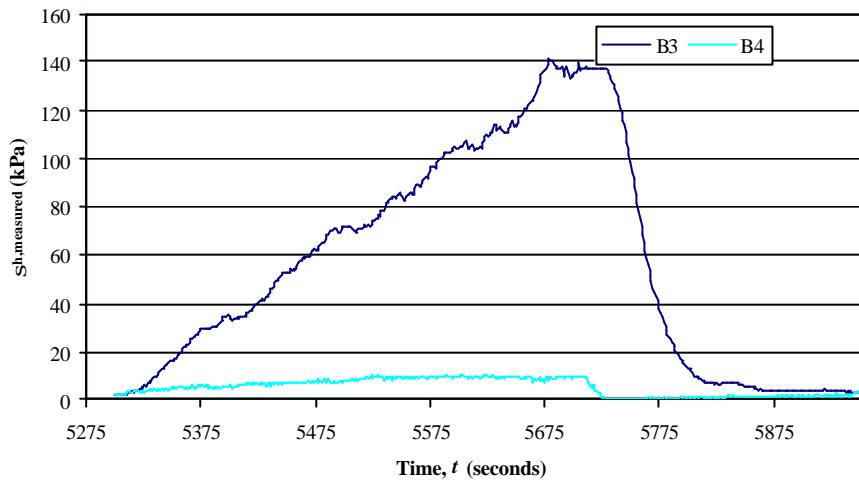


Figure 131 Test T3, B3, B4 pressure cells vs. time (load test 2: compression at L)

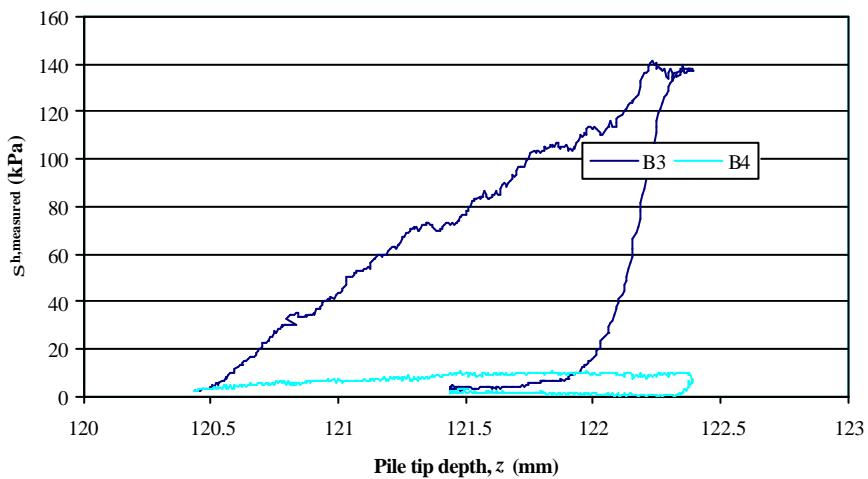


Figure 132 Test T3, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

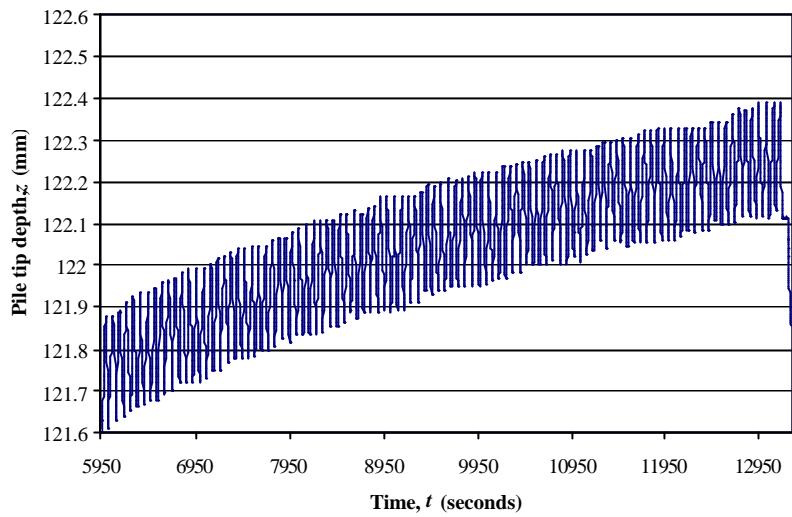


Figure 133 Test T3, Pile tip depth vs. time (load test 3: cyclic compression at L)

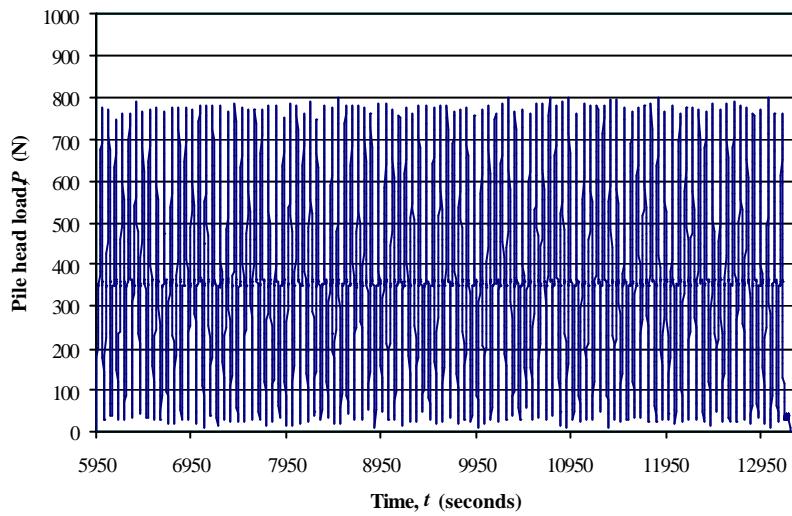


Figure 134 Test T3, Pile head load vs. time (load test 3: cyclic compression at L)

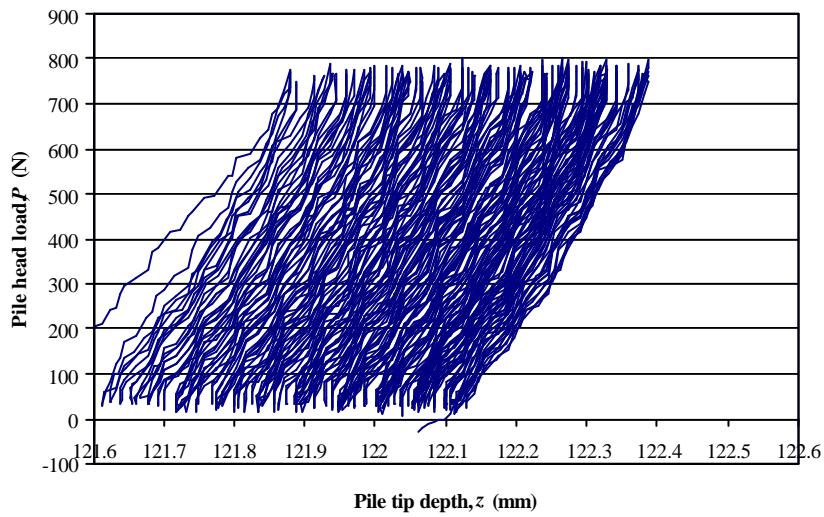


Figure 135 Test T3, Pile head load vs. pile tip depth (load test 3: cyclic compression at L)

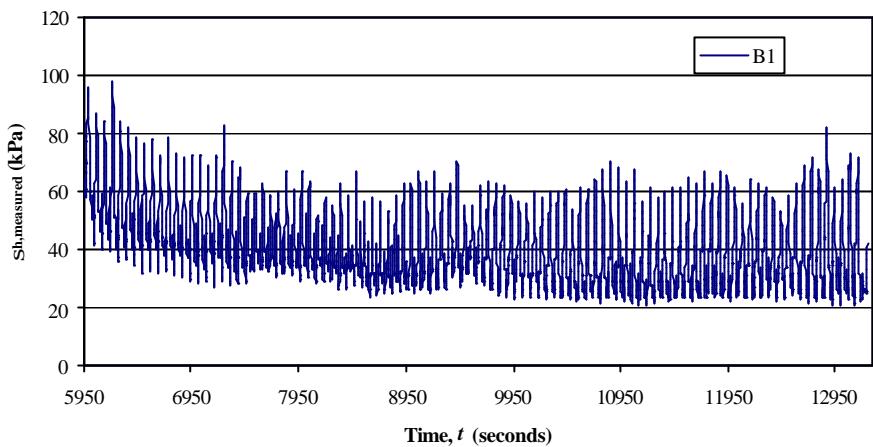


Figure 136 Test T3, B1 pressure cell vs. time (load test 3: cyclic compression at L)

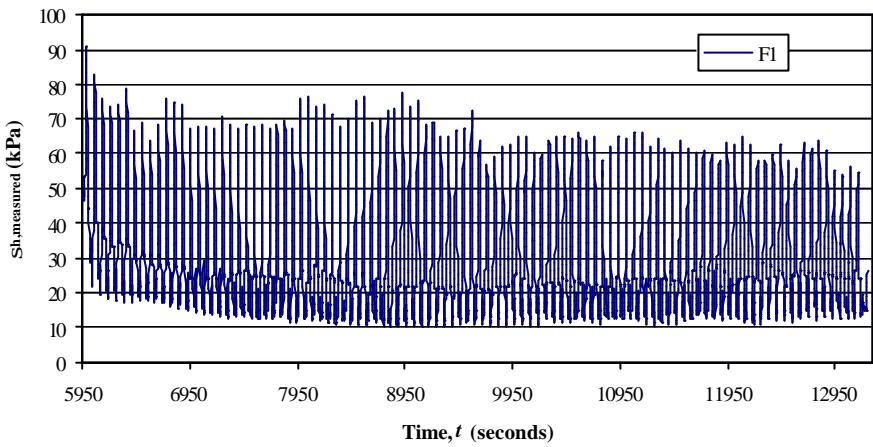


Figure 137 Test T3, F1 pressure cell vs. time (load test 3: cyclic compression at L)

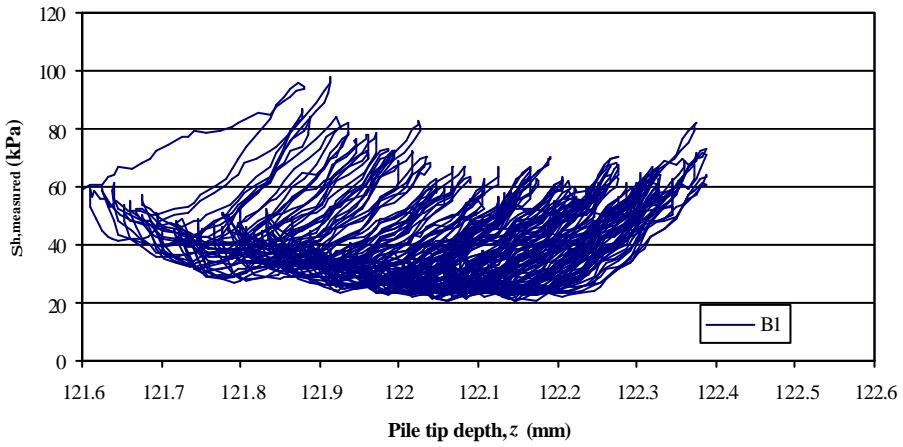


Figure 138 Test T3, B1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

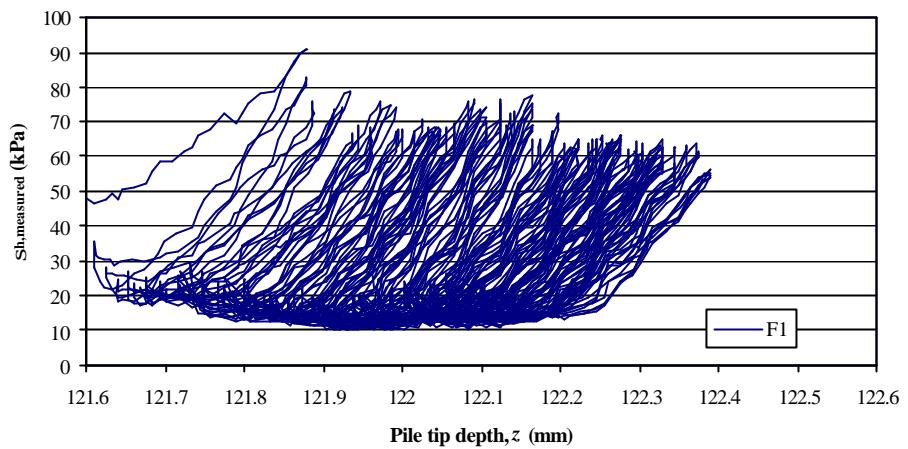


Figure 139 Test T3, F1 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

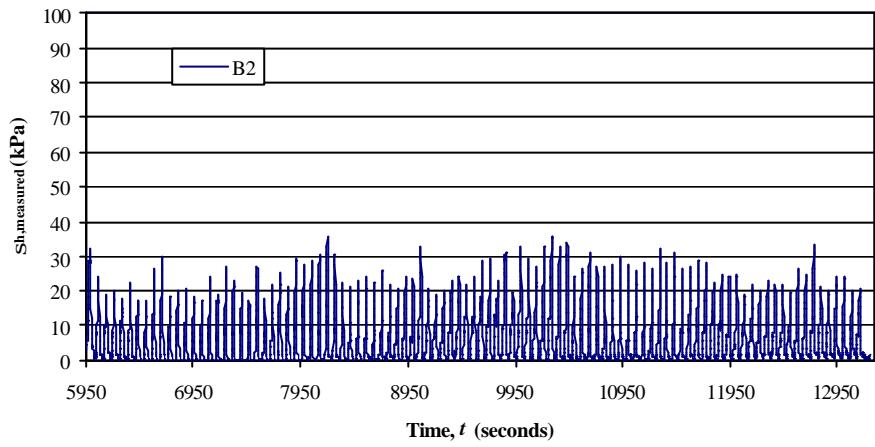


Figure 140 Test T3, B2 pressure cell vs. time (load test 3: cyclic compression at L)

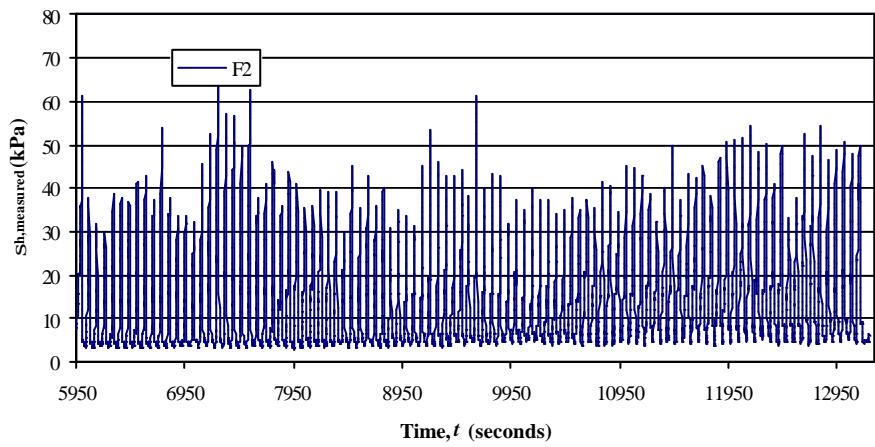


Figure 141 Test T3, F2 pressure cell vs. time (load test 3: cyclic compression at L)

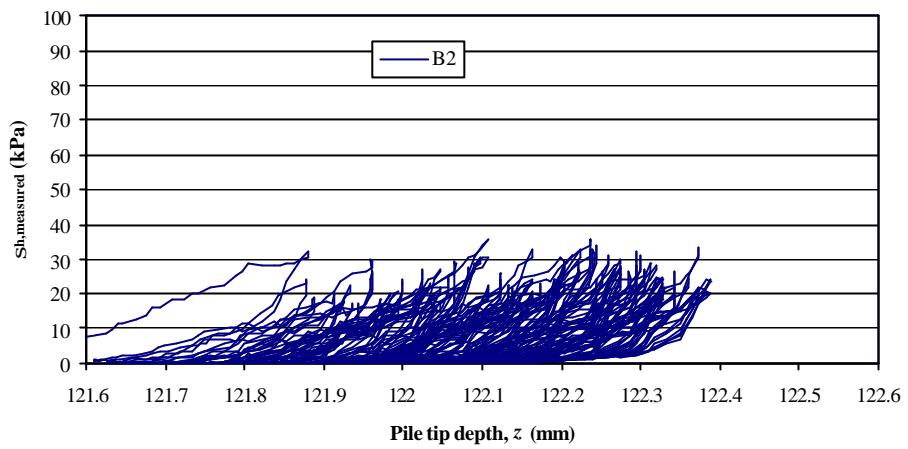


Figure 142 Test T3, B2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

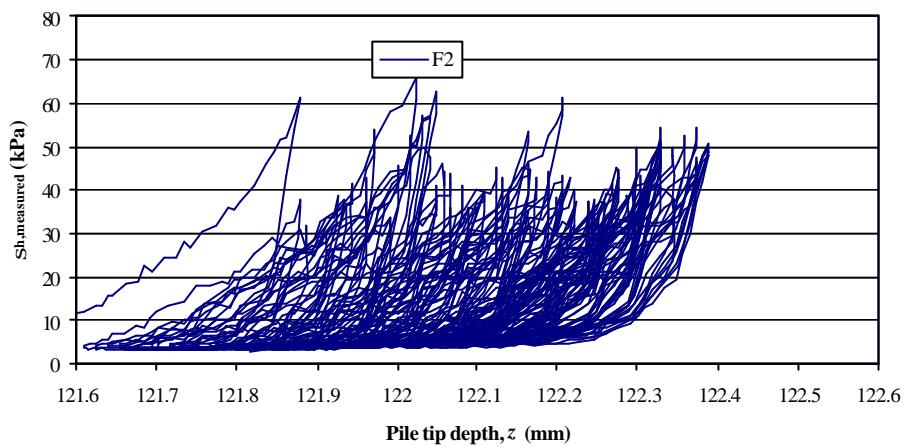


Figure 143 Test T3, F2 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

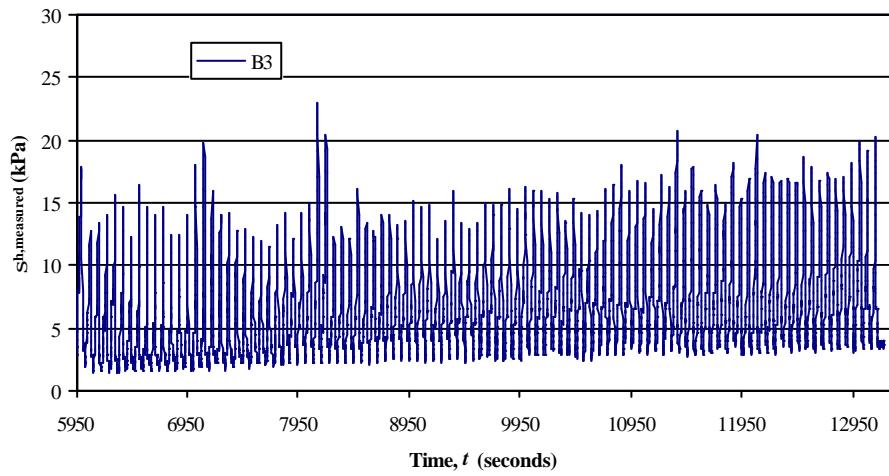


Figure 144 Test T3, B3 pressure cell vs. time (load test 3: cyclic compression at L)

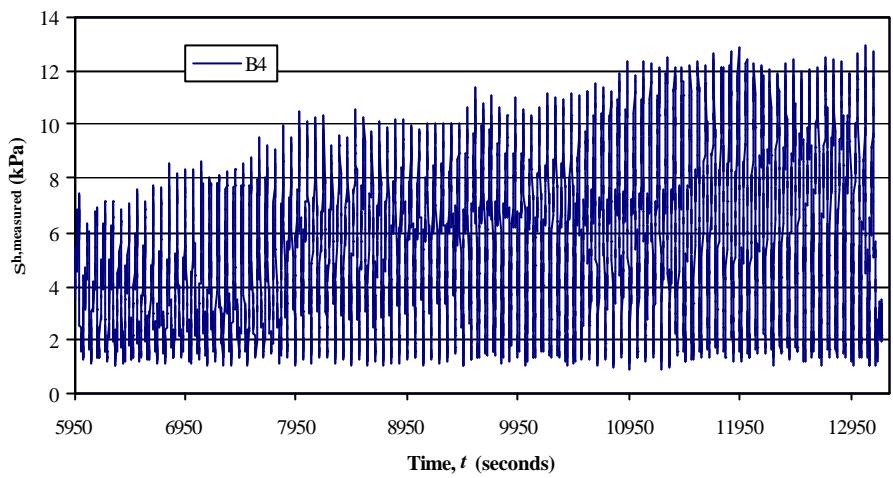


Figure 145 Test T3, B4 pressure cell vs. time (load test 3: cyclic compression at L)

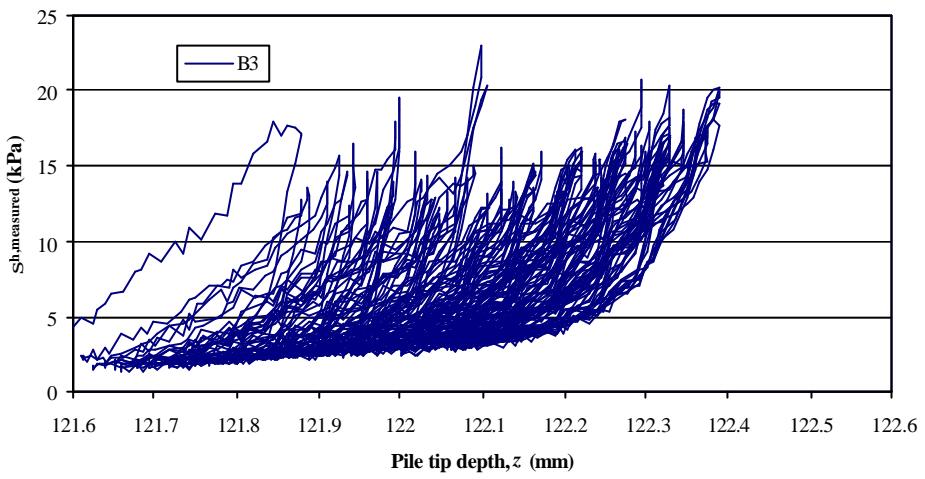


Figure 146 Test T3, B3 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)

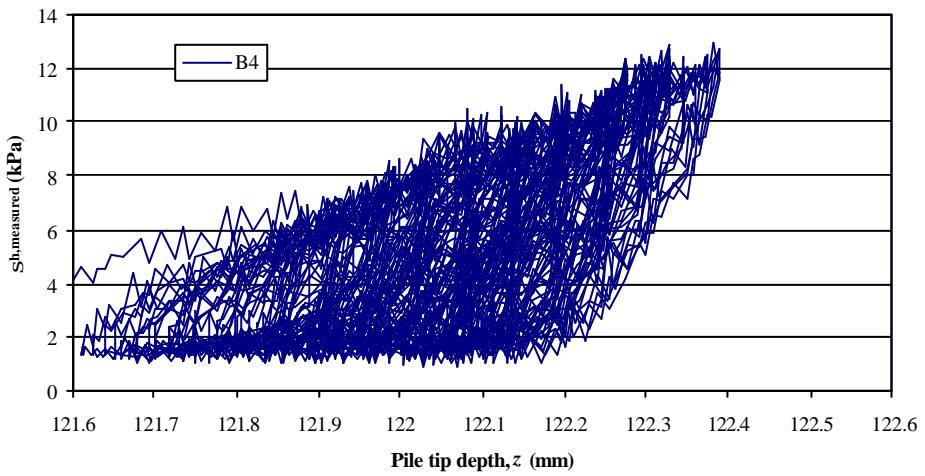


Figure 147 Test T3, B4 pressure cell vs. pile tip depth (load test 3: cyclic compression at L)



Figure 148 Test T3, Pile tip depth vs. time (load test 4: tension at L)

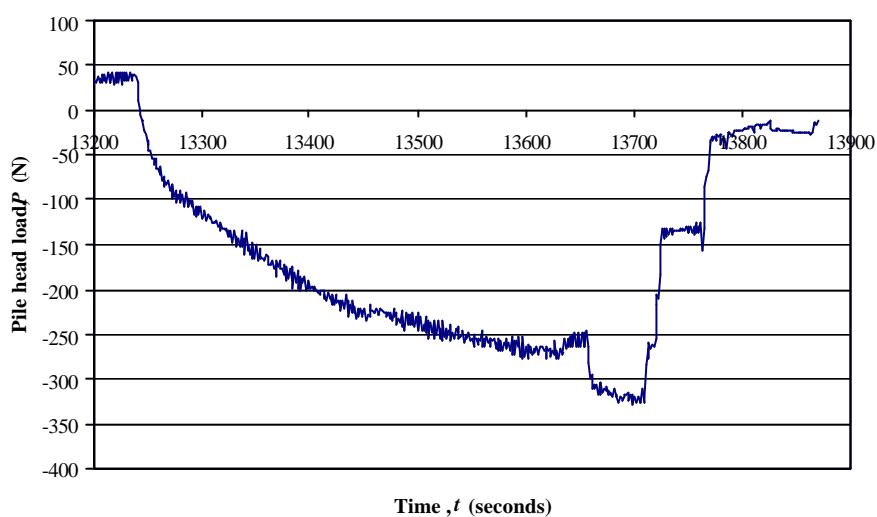


Figure 149 Test T3, Pile head load vs. time (load test 4: tension at L)

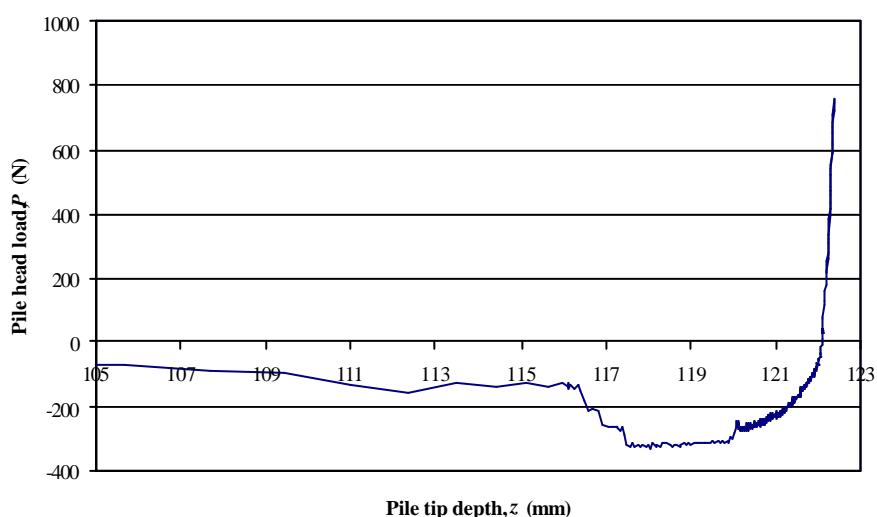


Figure 150 Test T3, Pile head load vs. pile tip depth (load test 4: tension at L)

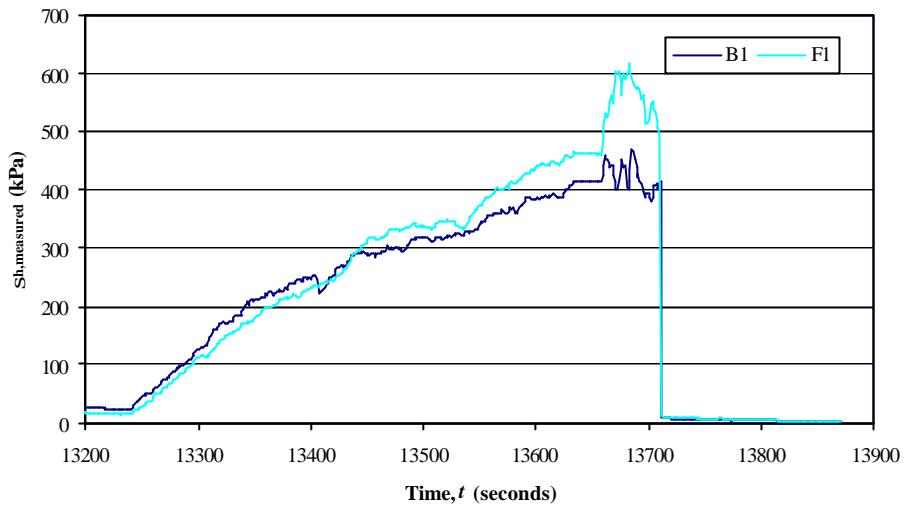


Figure 151 Test T3, B1, F1 pressure cells vs. time (load test 4: tension at L)

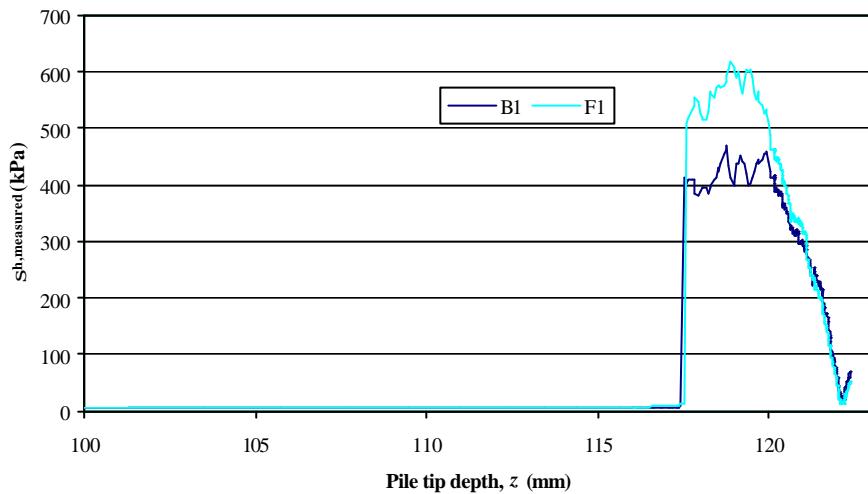


Figure 152 Test T3, B1, F1 pressure cells vs. pile tip depth (load test 4: tension at L)

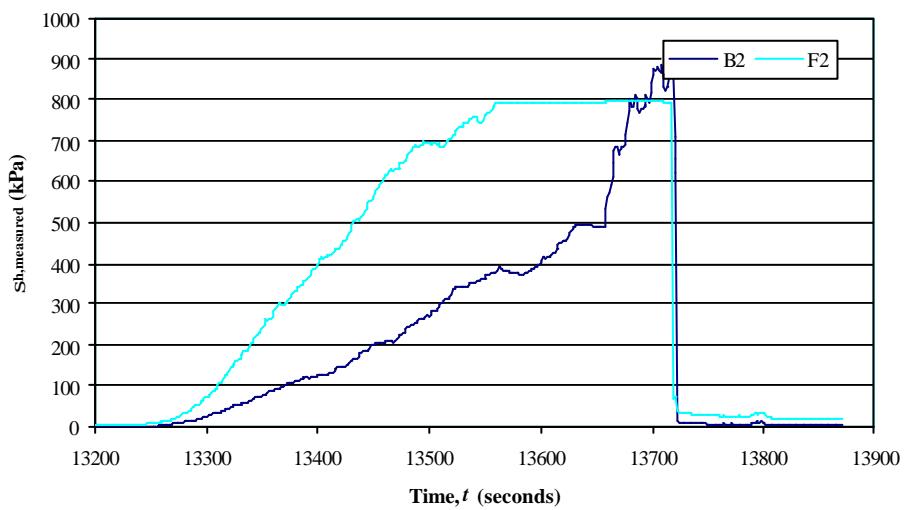


Figure 153 Test T3, B2, F2 pressure cells vs. time (load test 4: tension at L)

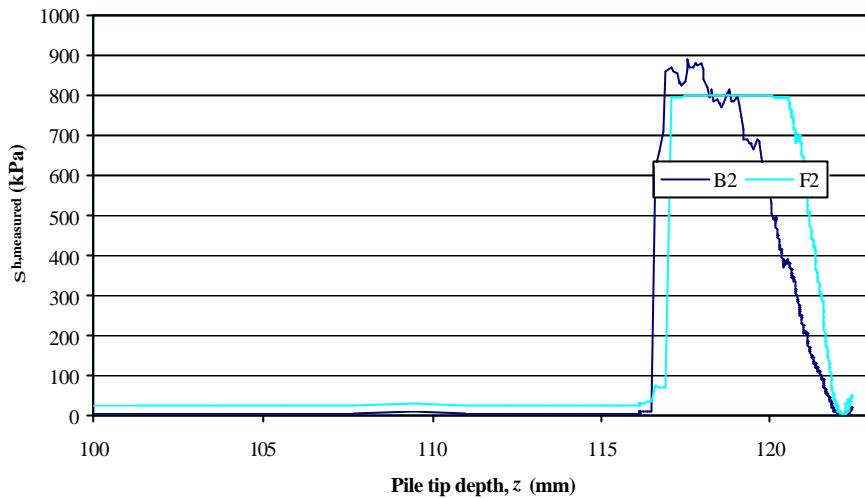


Figure 154 Test T3, B2, F2 pressure cells vs. pile tip depth (load test 4: tension at L)

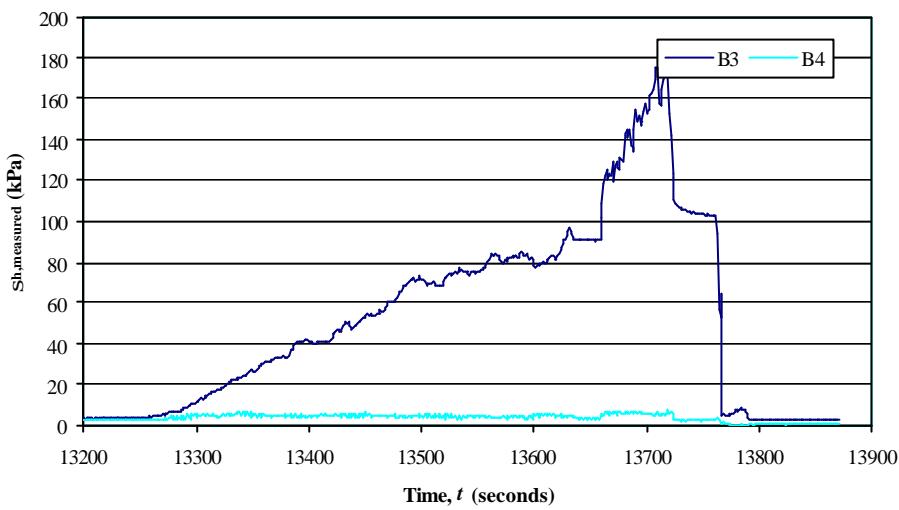


Figure 155 Test T3, B3, B4 pressure cells vs. time (load test 4: tension at L)

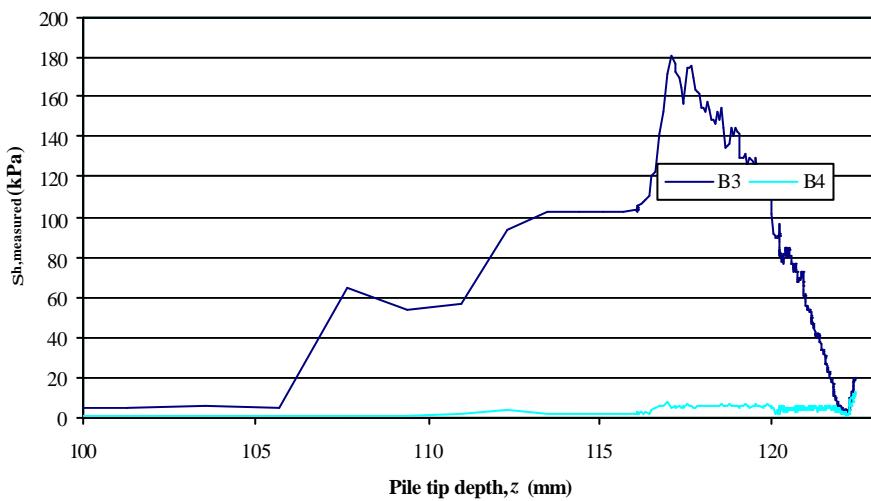


Figure 156 Test T3, B3, B4 pressure cells vs. pile tip depth (load test 4: tension at L)

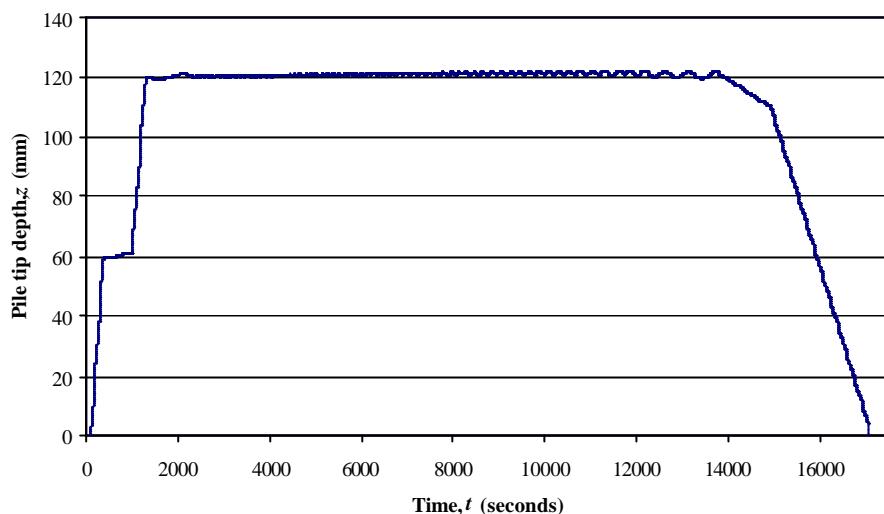


Figure 157 Test T4, Pile tip depth vs. time (entire test)

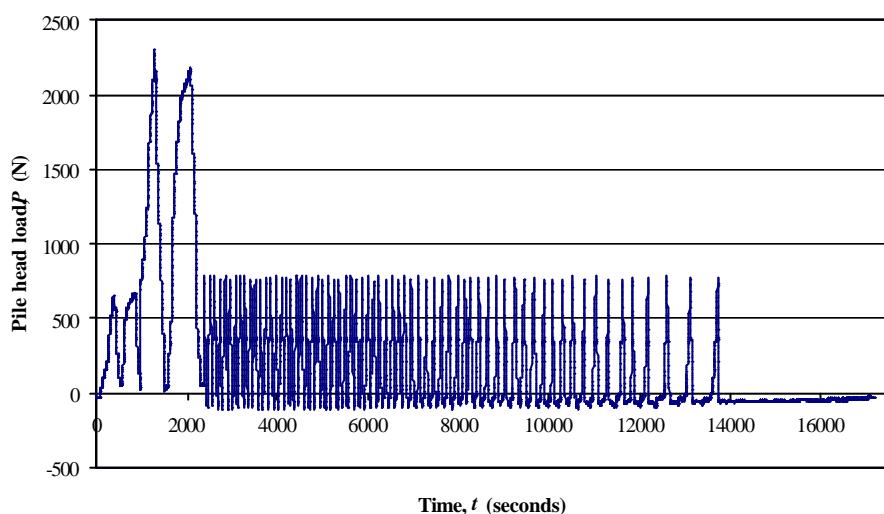


Figure 158 Test T4, Pile head load vs. time (entire test)

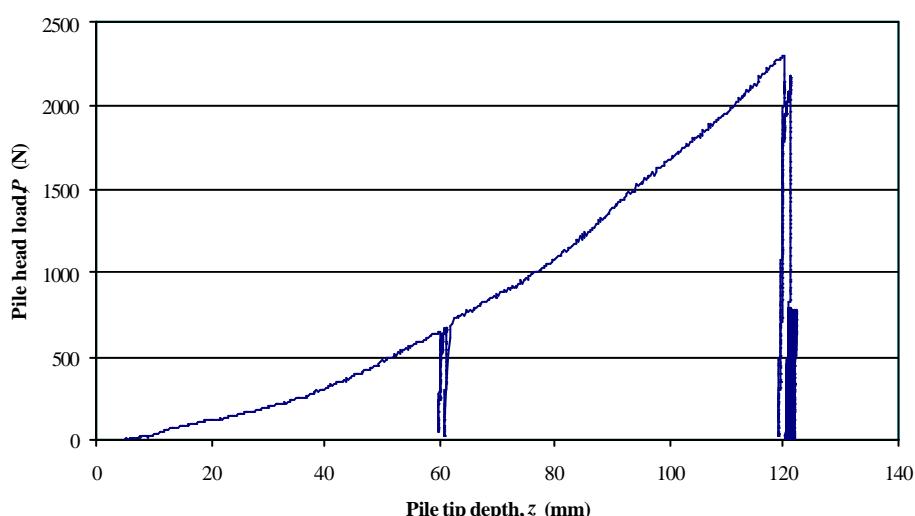


Figure 159 Test T4, Pile head load vs. pile tip depth (entire test)

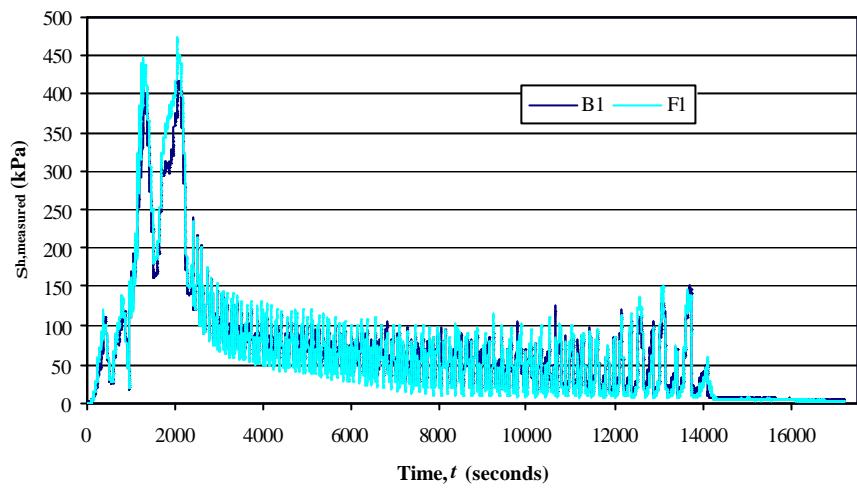


Figure 160 Test T4, B1, F1 pressure cells vs. time (entire test)

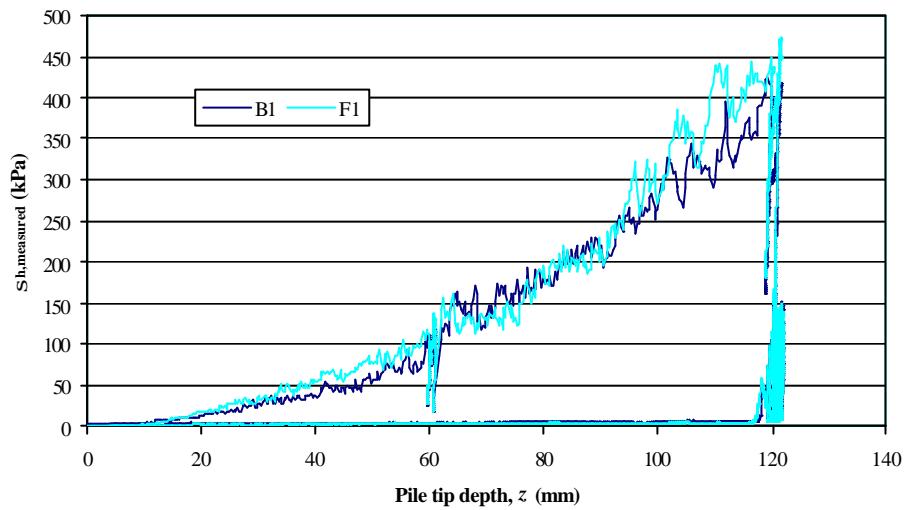


Figure 161 Test T4, B1, F1 pressure cells vs. pile tip depth (entire test)

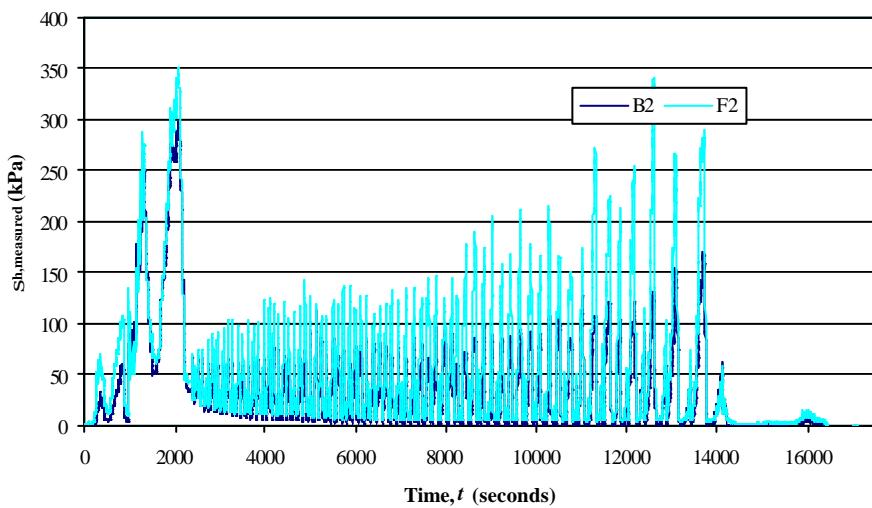


Figure 162 Test T4, B2, F2 pressure cells vs. time (entire test)

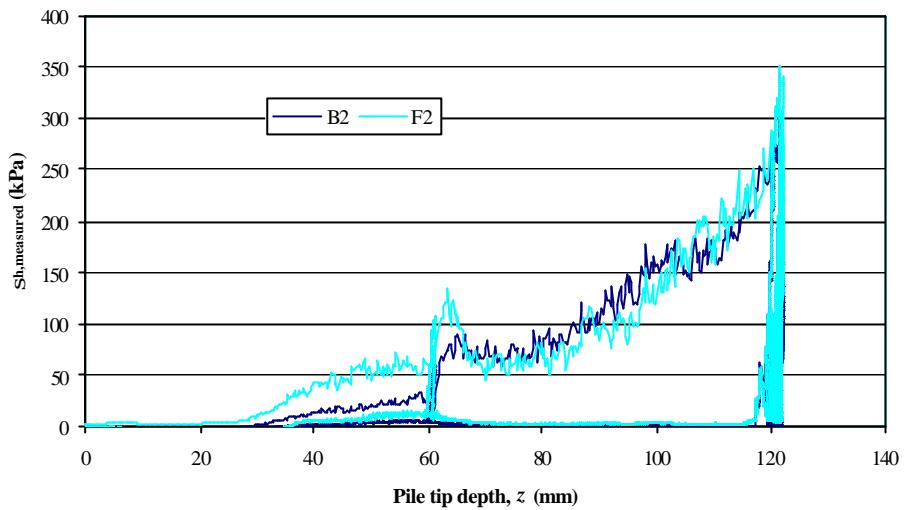


Figure 163 Test T4, B2, F2 pressure cells vs. pile tip depth (entire test)

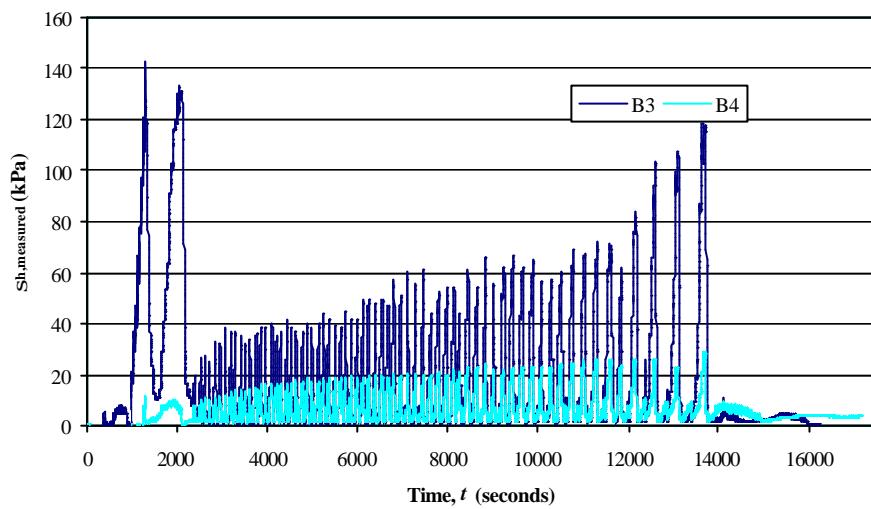


Figure 164 Test T4, B3, B4 pressure cells vs. time (entire test)

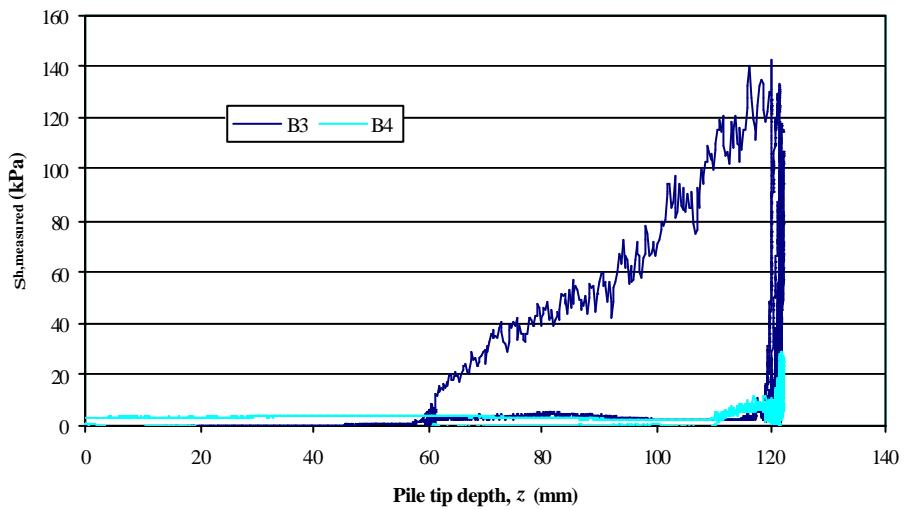


Figure 165 Test T4, B3, B4 pressure cells vs. pile tip depth (entire test)

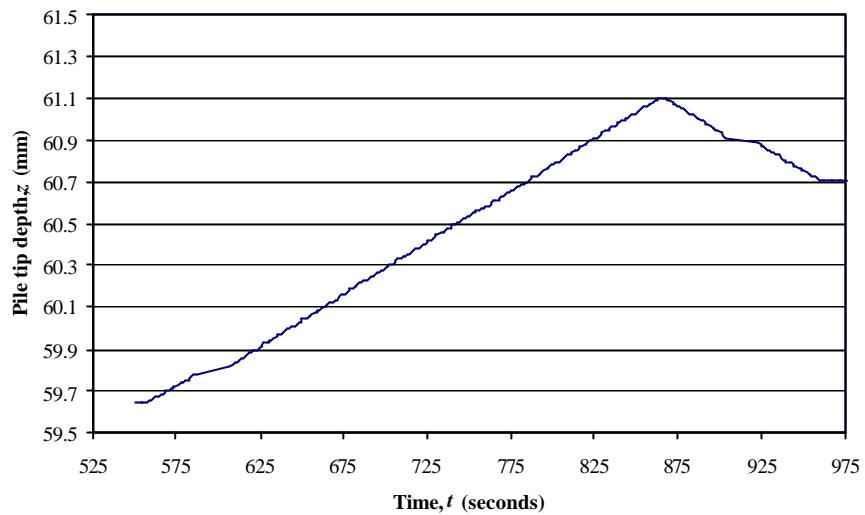


Figure 166 Test T4, Pile tip depth vs. time (load test 1: compression at L/2)

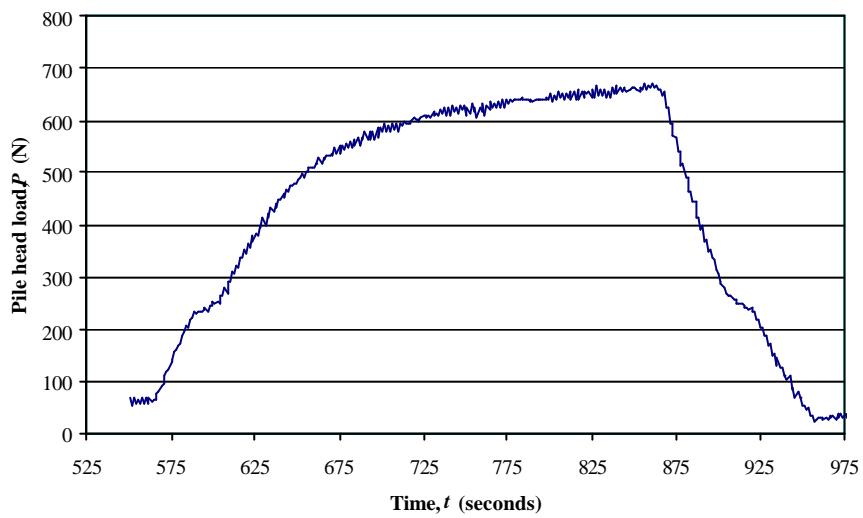


Figure 167 Test T4, Pile head load vs. time (load test 1: compression at L/2)

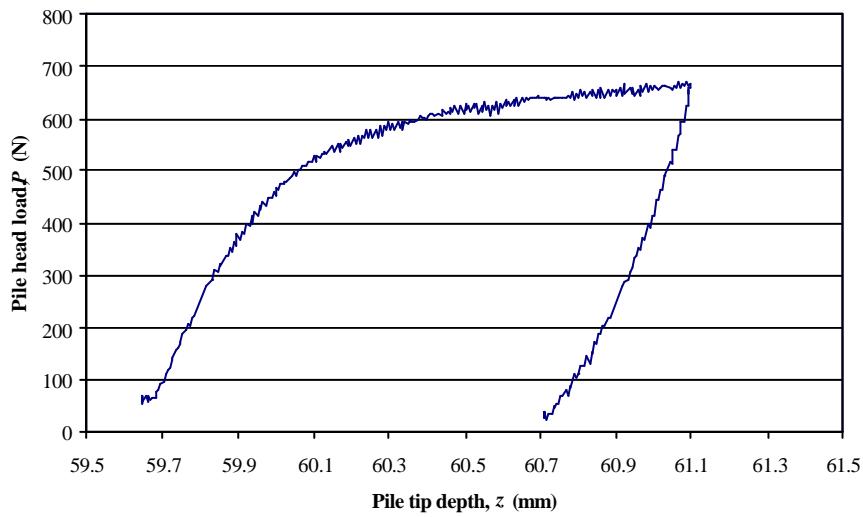


Figure 168 Test T4, Pile head load vs. pile tip depth (load test 1: compression at L/2)

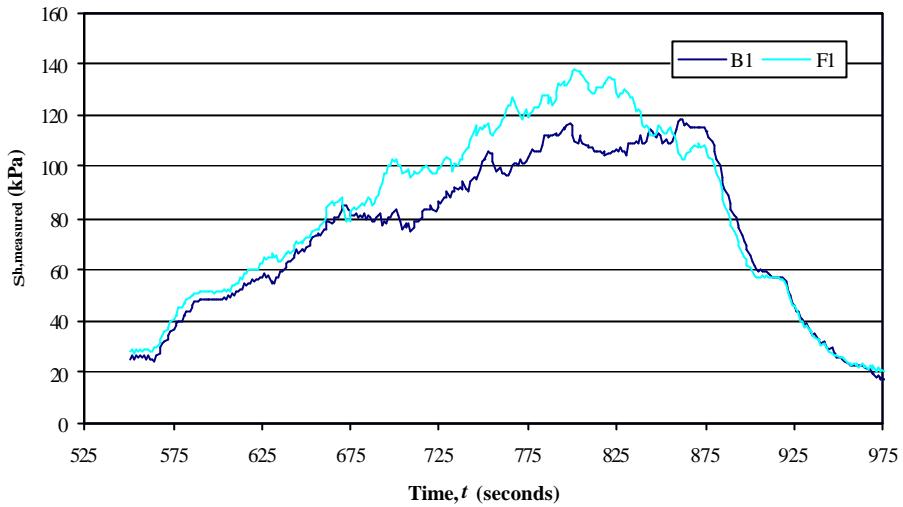


Figure 169 Test T4, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

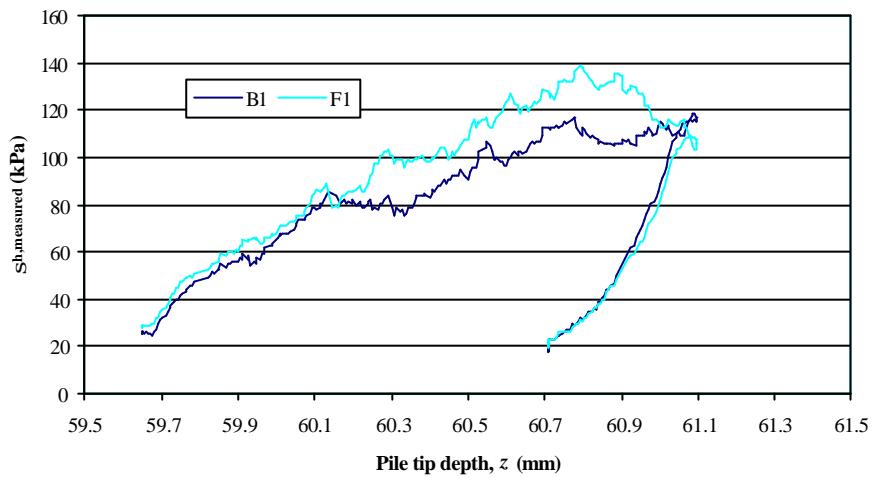


Figure 170 Test T4, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

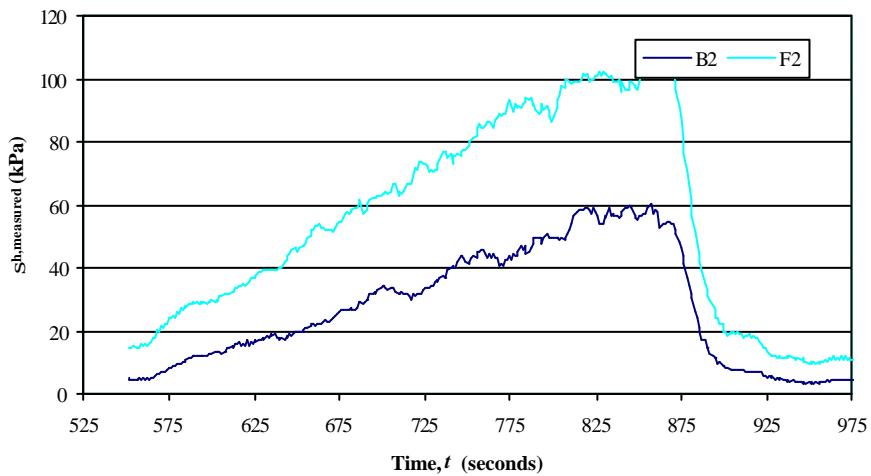


Figure 171 Test T4, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

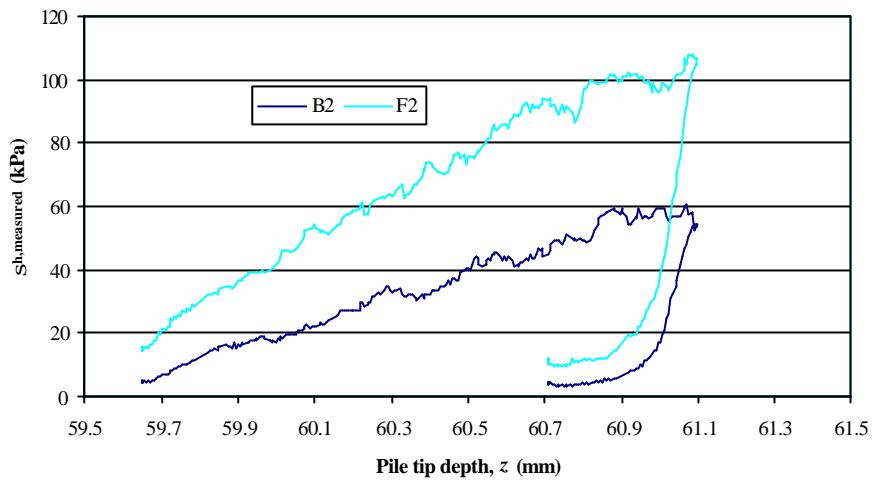


Figure 172 Test T4, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

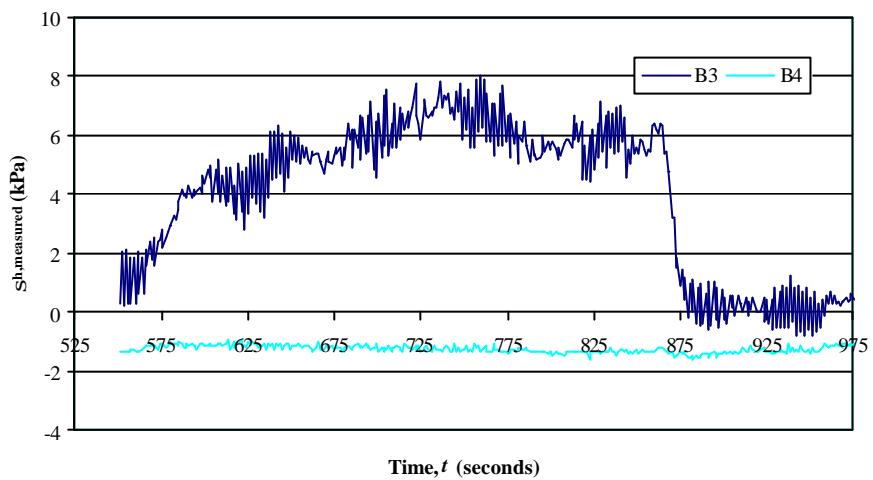


Figure 173 Test T4, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

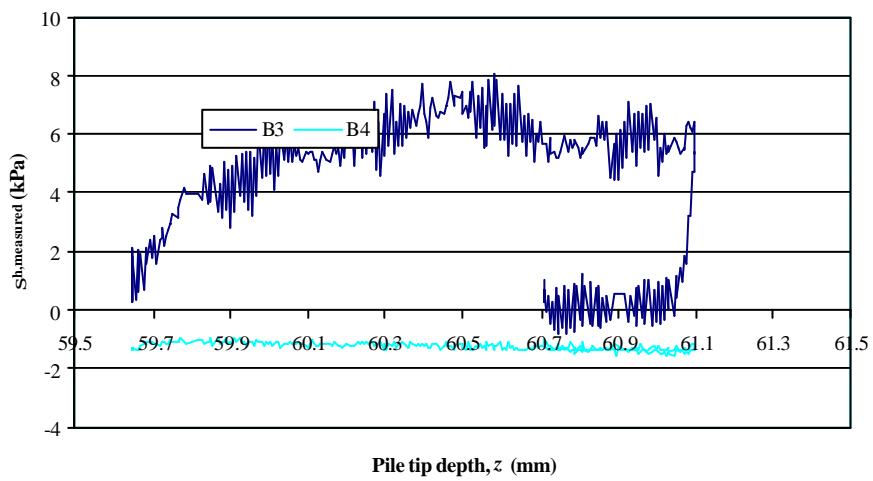


Figure 174 Test T4, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

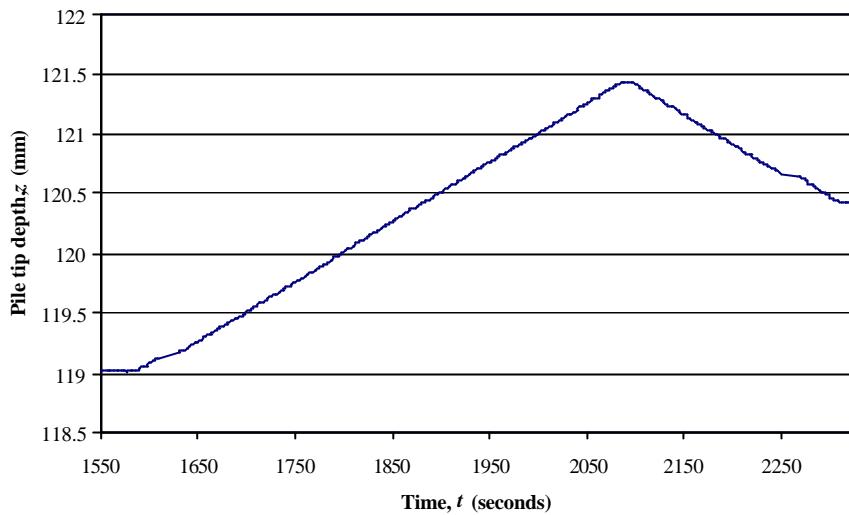


Figure 175 Test T4, Pile tip depth vs. time (load test 2: compression at L)

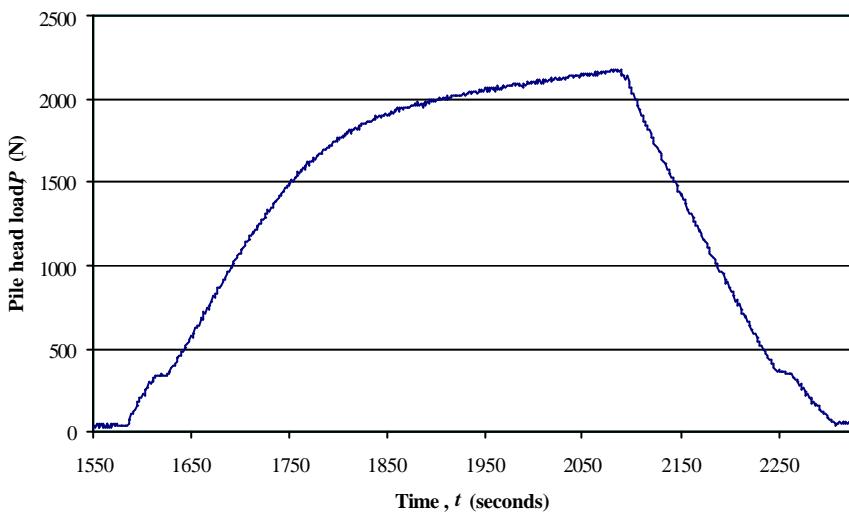


Figure 176 Test T4, Pile head load vs. time (load test 2: compression at L)

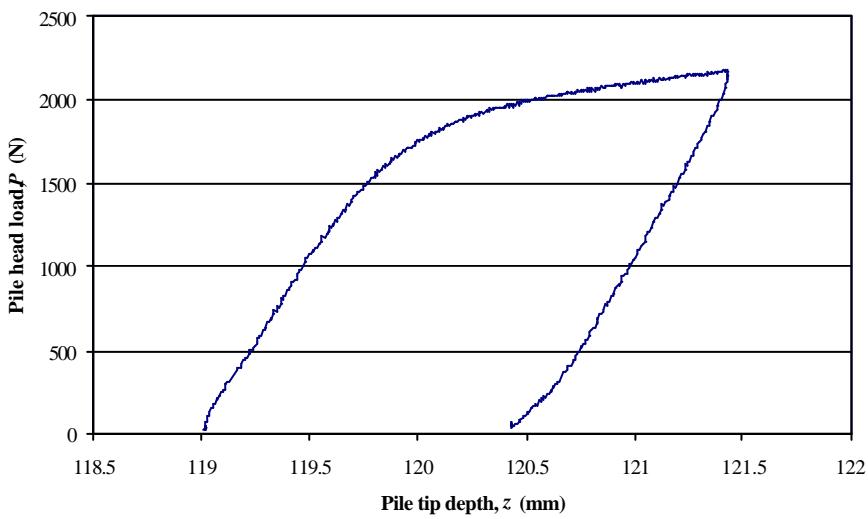


Figure 177 Test T4, Pile head load vs. pile tip depth (load test 2: compression at L)

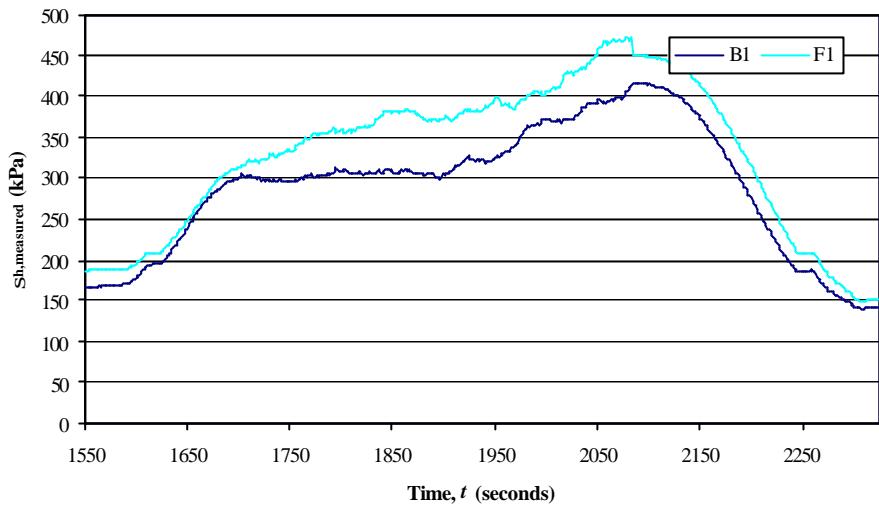


Figure 178 Test T4, B1, F1 pressure cells vs. time (load test 2: compression at L)

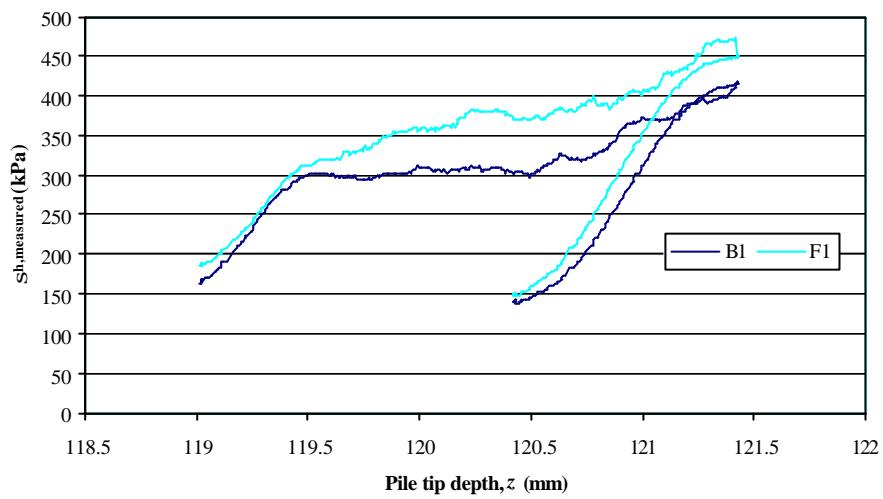


Figure 179 Test T4, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

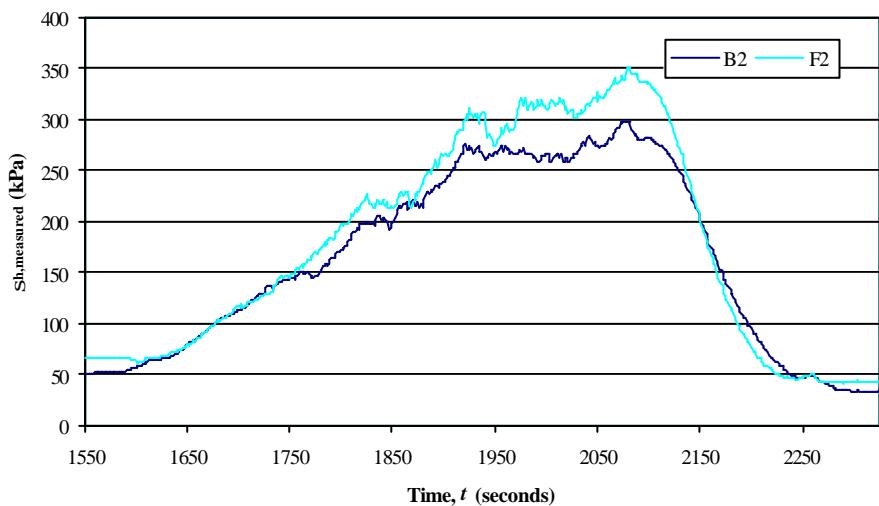


Figure 180 Test T4, B2, F2 pressure cells vs. time (load test 2: compression at L)

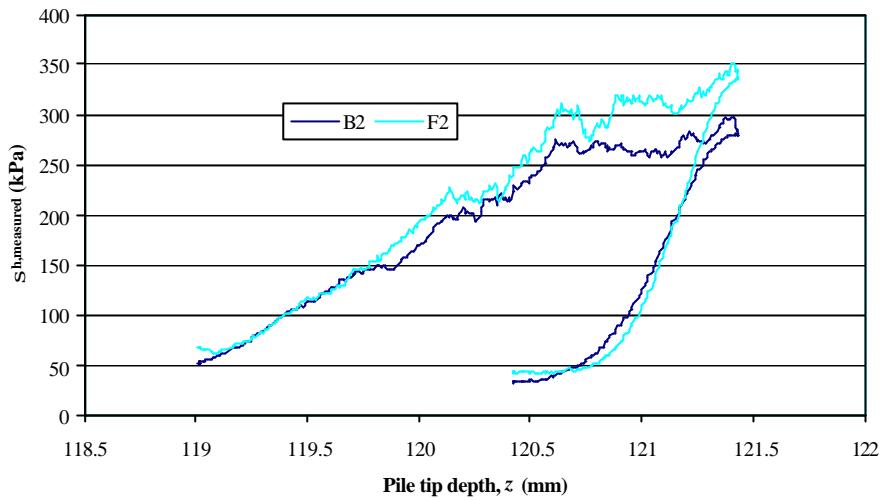


Figure 181 Test T4, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

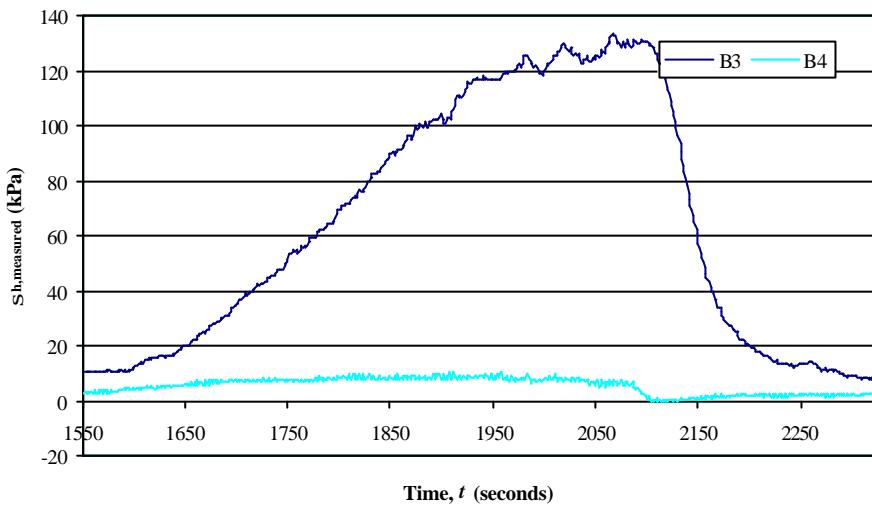


Figure 182 Test T4, B3, B4 pressure cells vs. time (load test 2: compression at L)

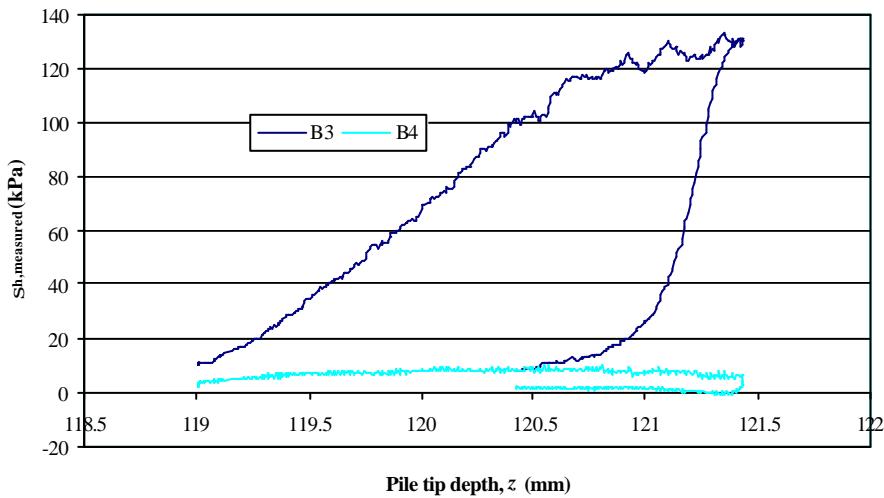


Figure 183 Test T4, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

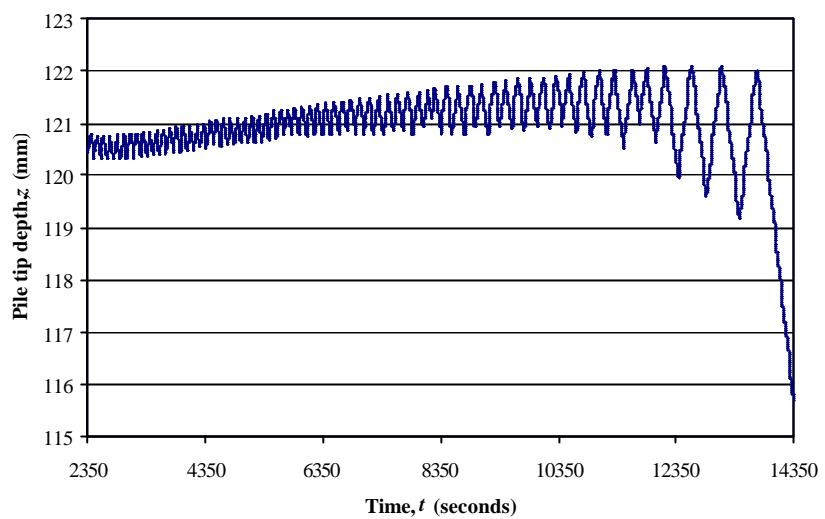


Figure 184 Test T4, Pile tip depth vs. time (load test 3: compression/tension at L)

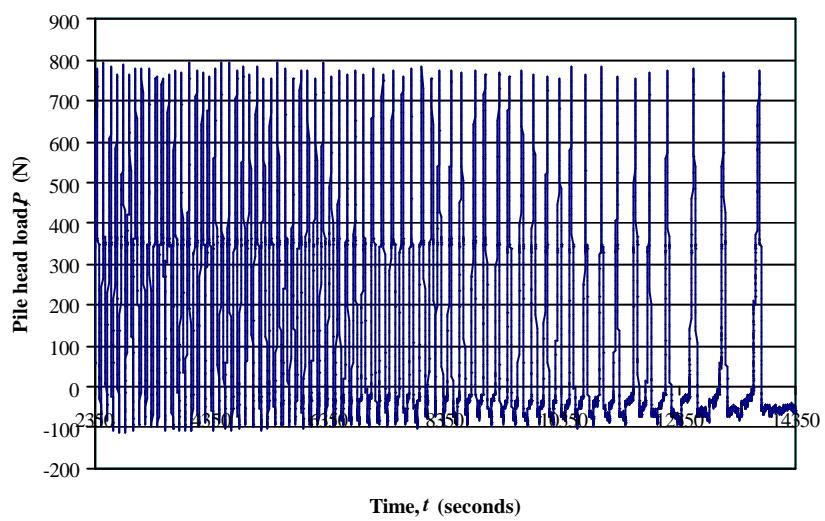


Figure 185 Test T4, Pile head load vs. time (load test 3: compression/tension at L)

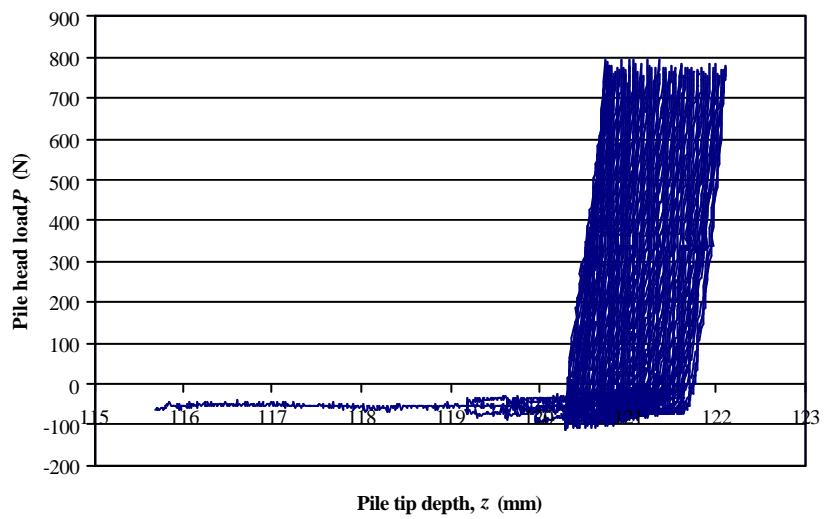


Figure 186 Test T4, Pile head load vs. pile tip depth (load test 3: comp reession/tension at L)

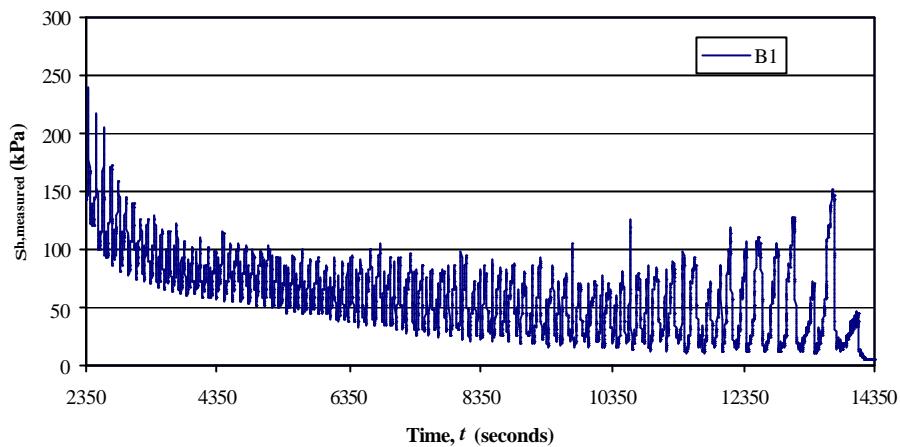


Figure 187 Test T4, B1 pressure cell vs. time (load test 3: compression/tension at L)

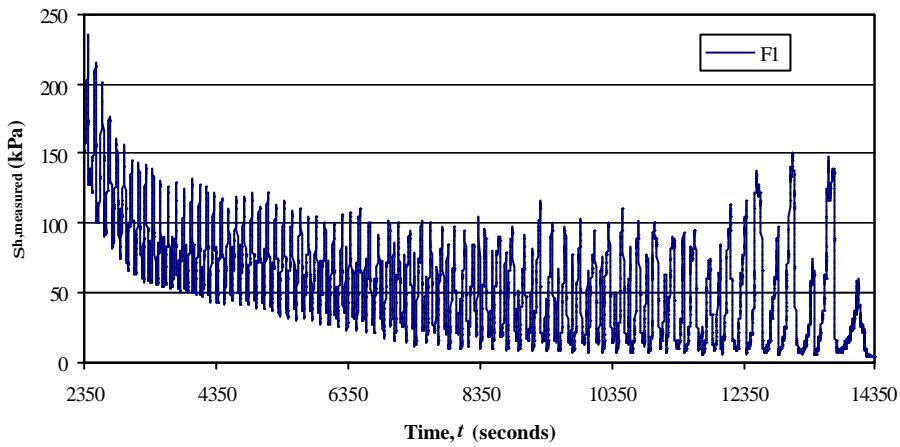


Figure 188 Test T4, F1 pressure cell vs. time (load test 3: compression/tension at L)

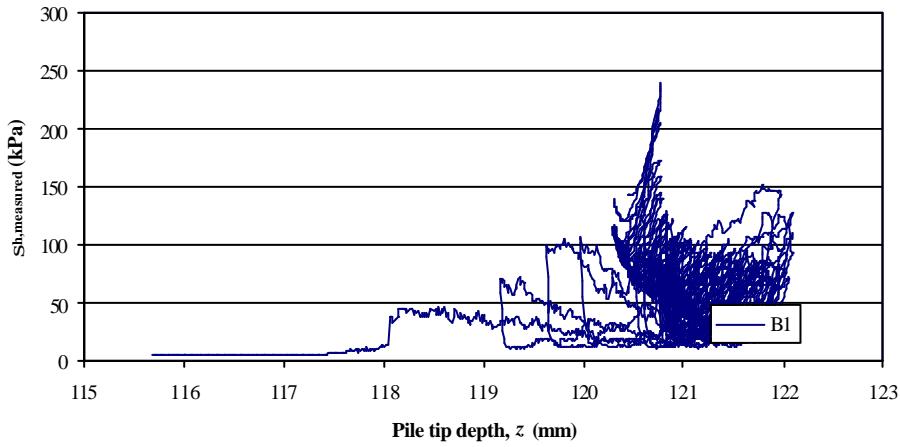


Figure 189 Test T4, B1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

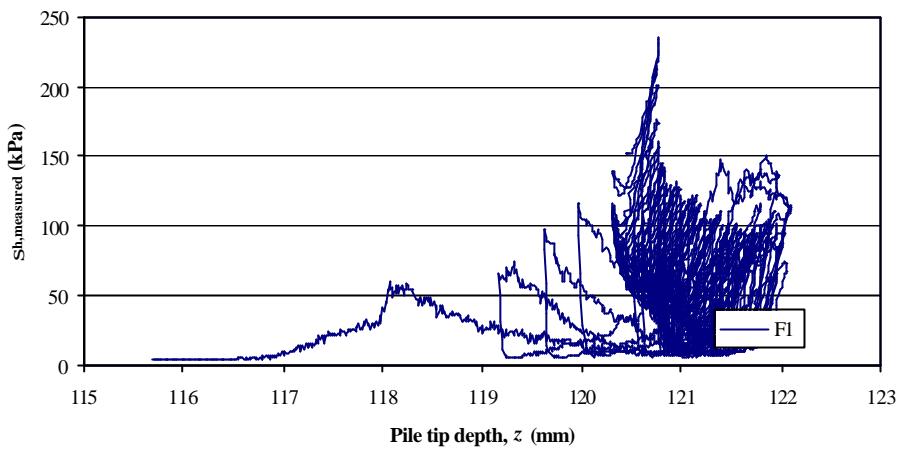


Figure 190 Test T4, F1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

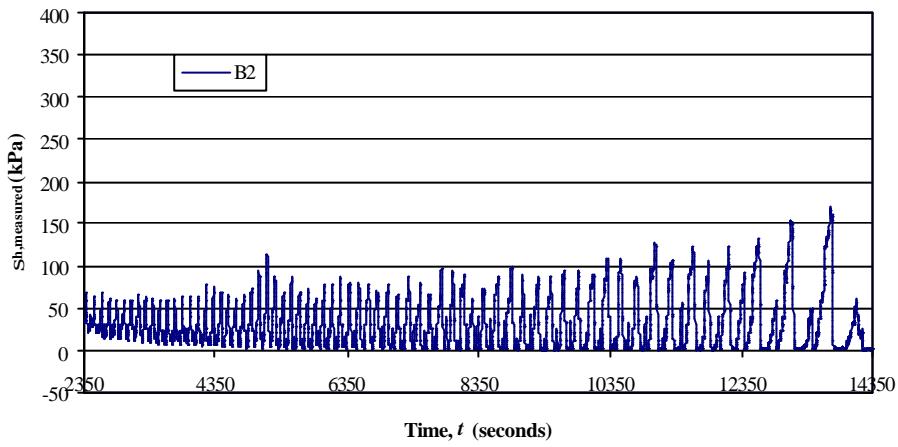


Figure 191 Test T4, B2 pressure cell vs. time (load test 3: compression/tension at L)

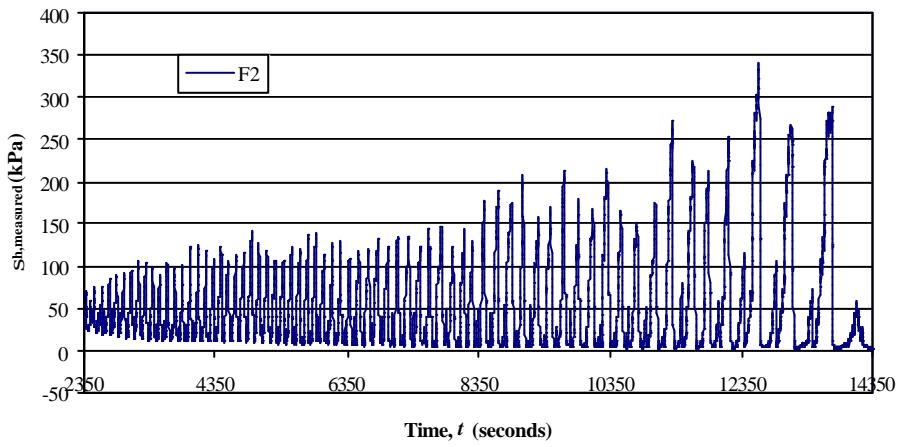


Figure 192 Test T4, F2 pressure cell vs. time (load test 3: compression/tension at L)

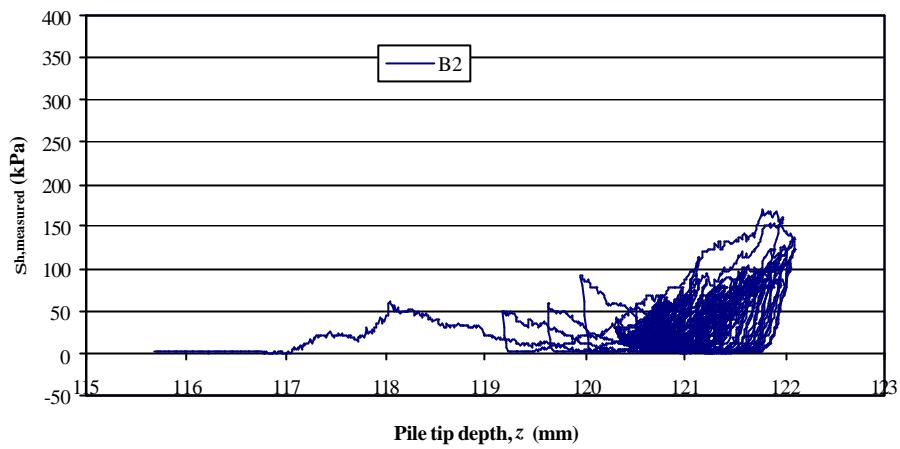


Figure 193 Test T4, B2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

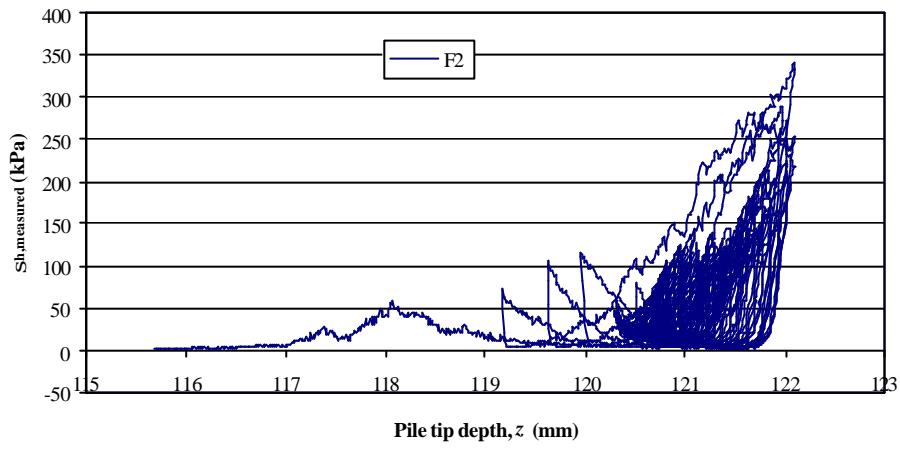


Figure 194 Test T4, F2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

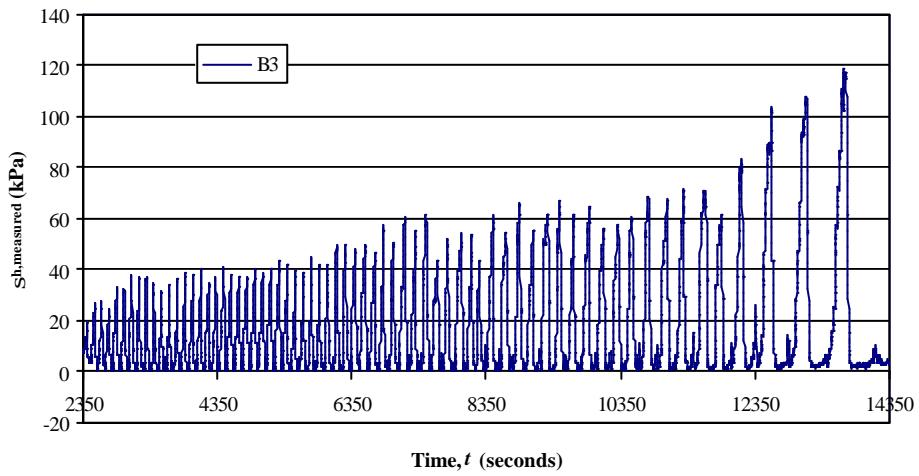


Figure 195 Test T4, B3 pressure cell vs. time (load test 3: compression/tension at L)

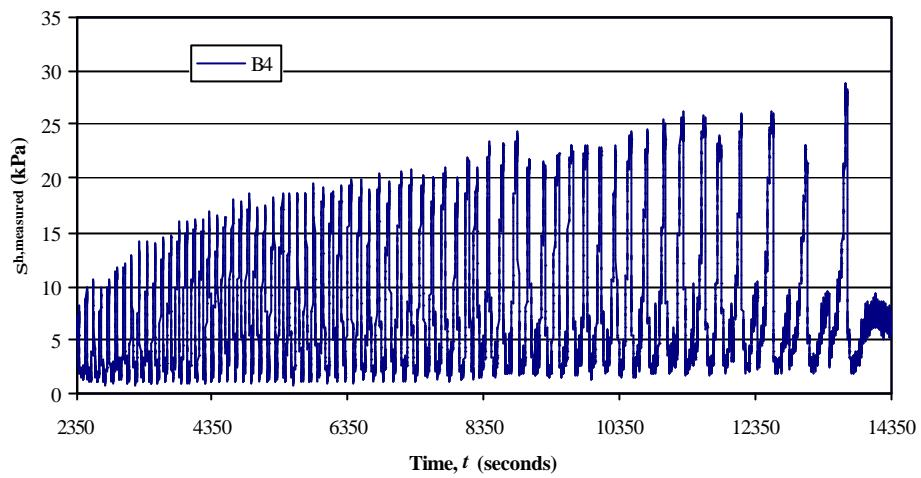


Figure 196 Test T4, B4 pressure cell vs. time (load test 3: compression/tension at L)

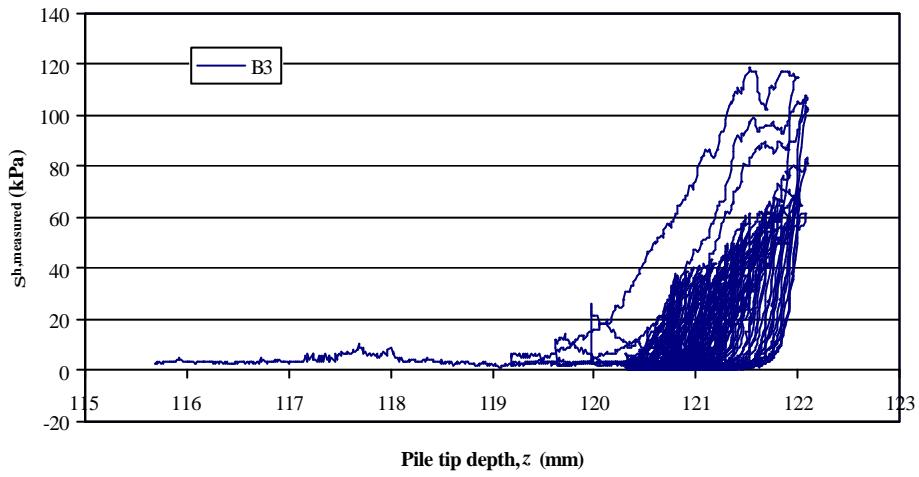


Figure 197 Test T4, B3 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

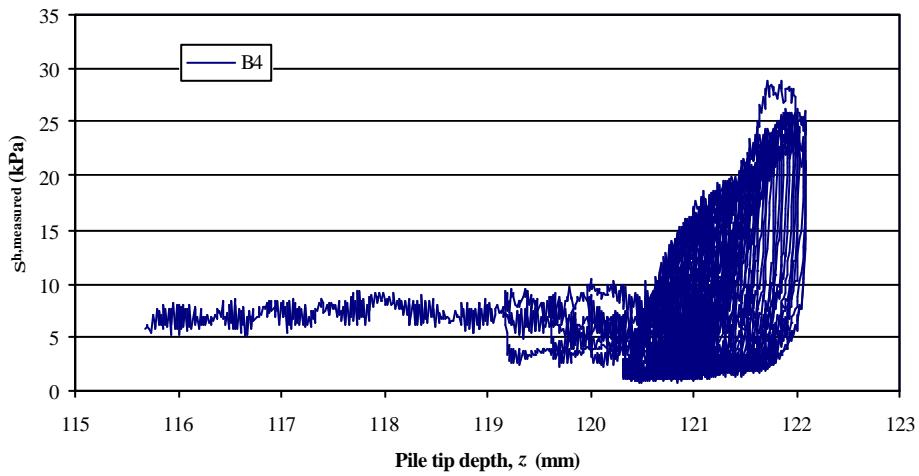


Figure 198 Test T4, B4 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

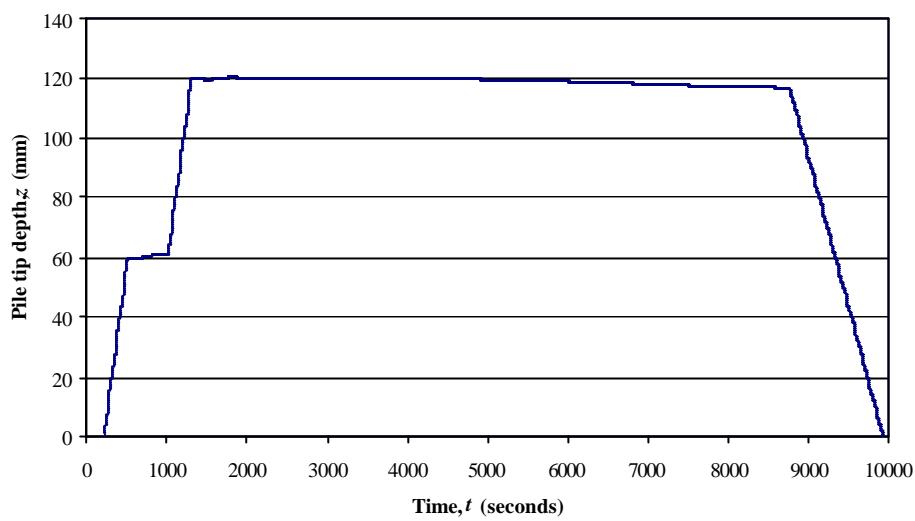


Figure 199 Test T5, Pile tip depth vs. time (entire test)

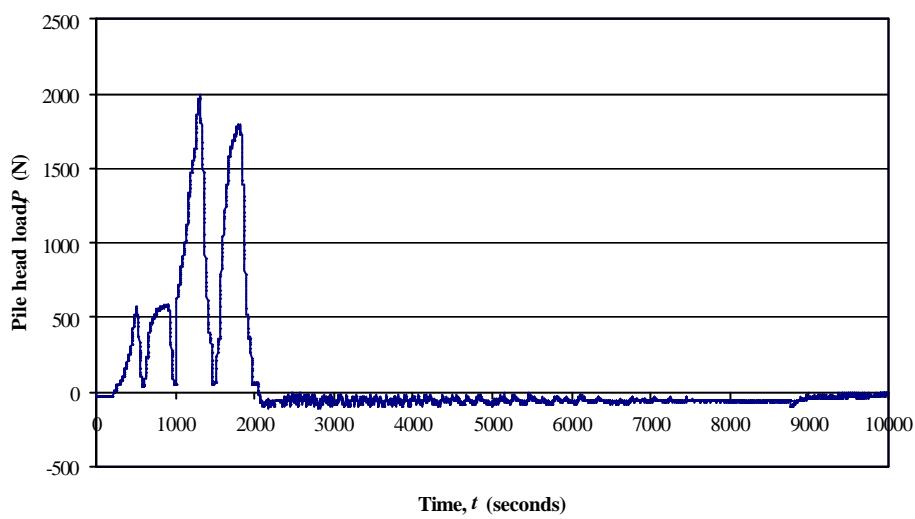


Figure 200 Test T5, Pile head load vs. time (entire test)

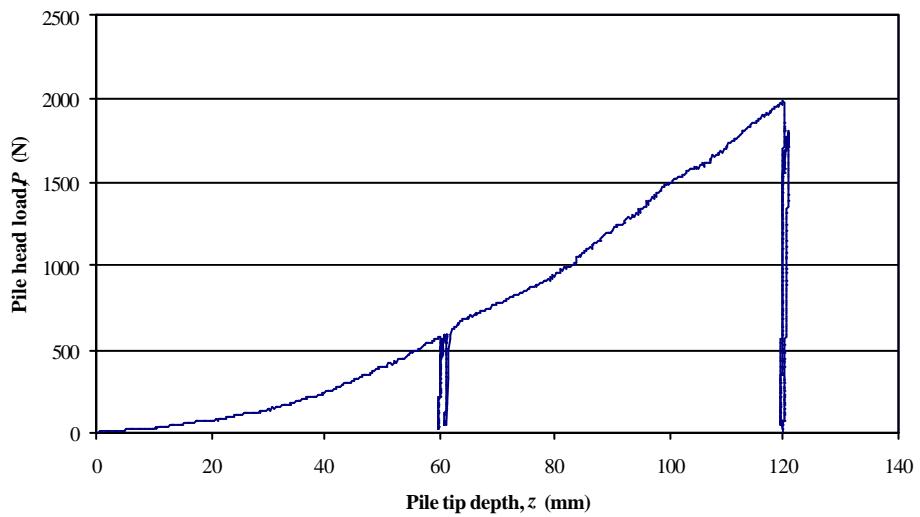


Figure 201 Test T5, Pile head load vs. pile tip depth (entire test)

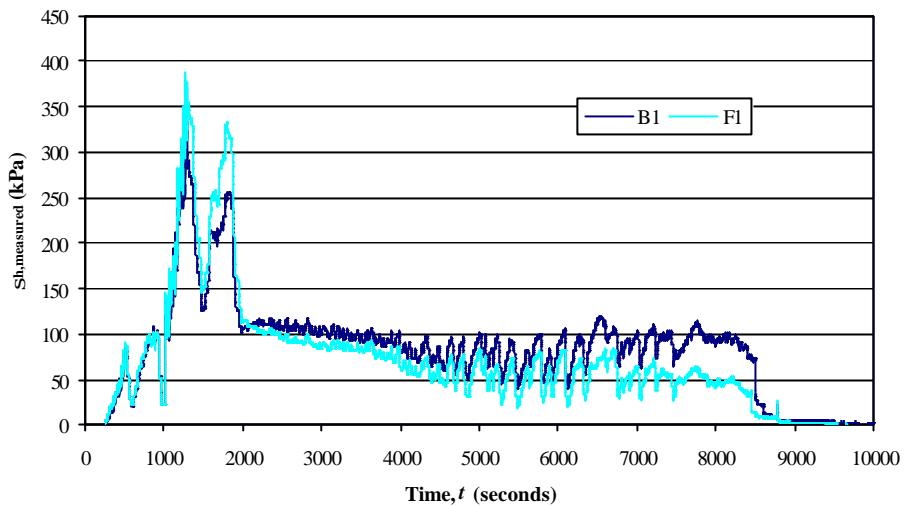


Figure 202 Test T5, B1, F1 pressure cells vs. time (entire test)

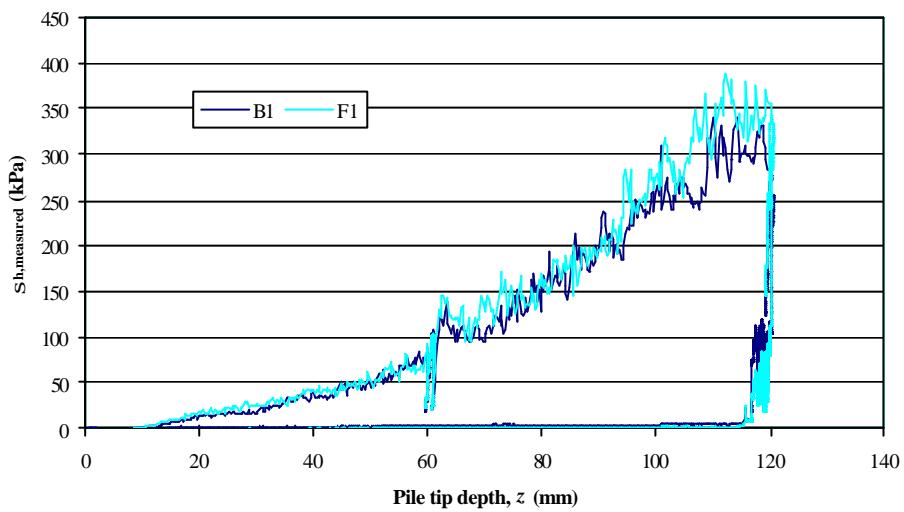


Figure 203 Test T5, B1, F1 pressure cells vs. pile tip depth (entire test)

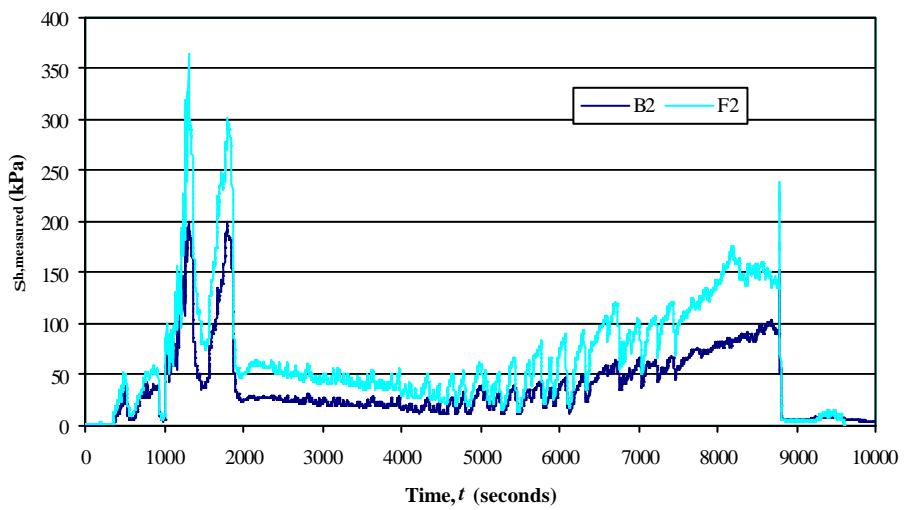


Figure 204 Test T5, B2, F2 pressure cells vs. time (entire test)

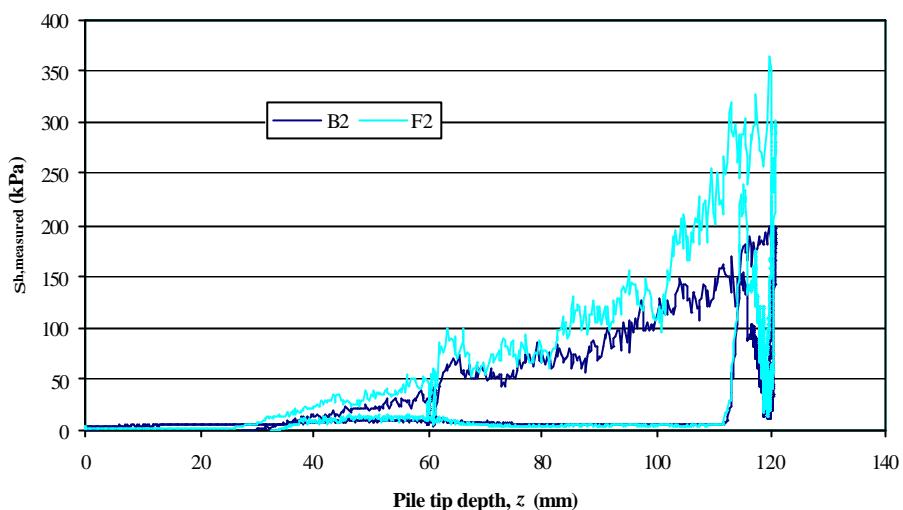


Figure 205 Test T5, B2, F2 pressure cells vs. pile tip depth (entire test)

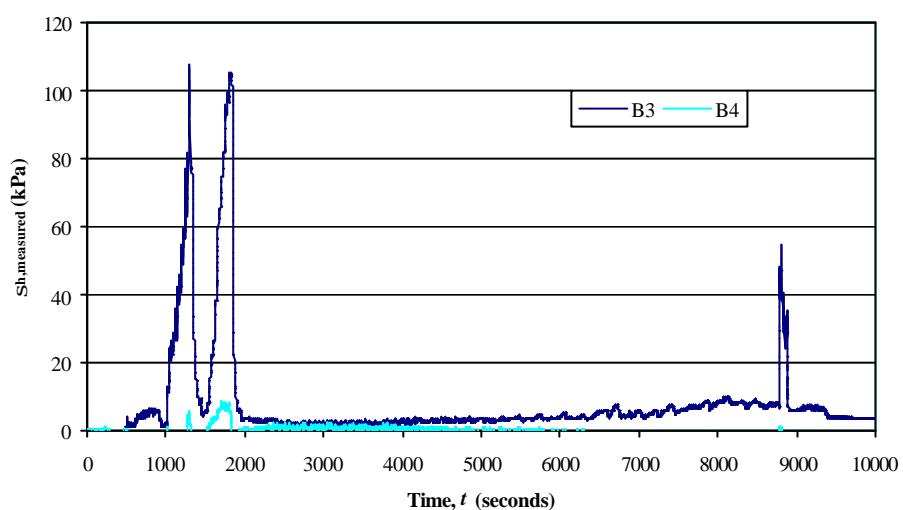


Figure 206 Test T5, B3, B4 pressure cells vs. time (entire test)

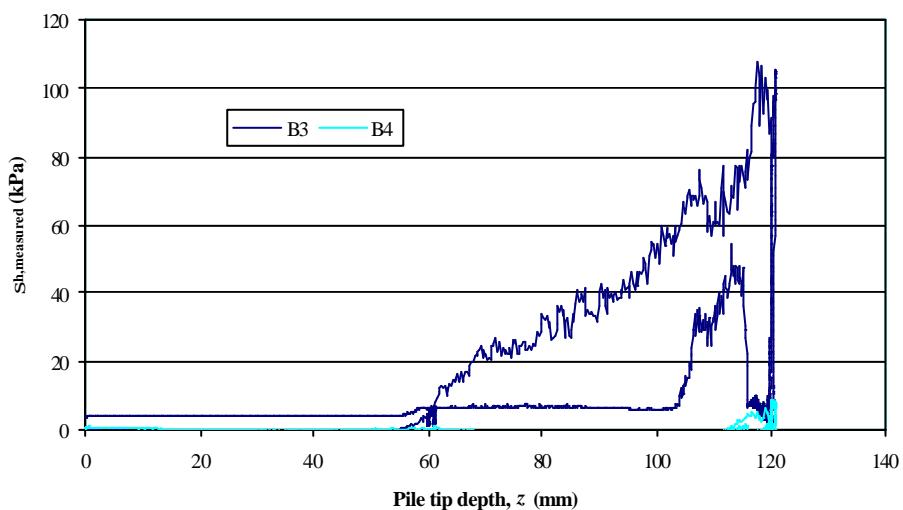


Figure 207 Test T5, B3, B4 pressure cells vs. pile tip depth (entire test)

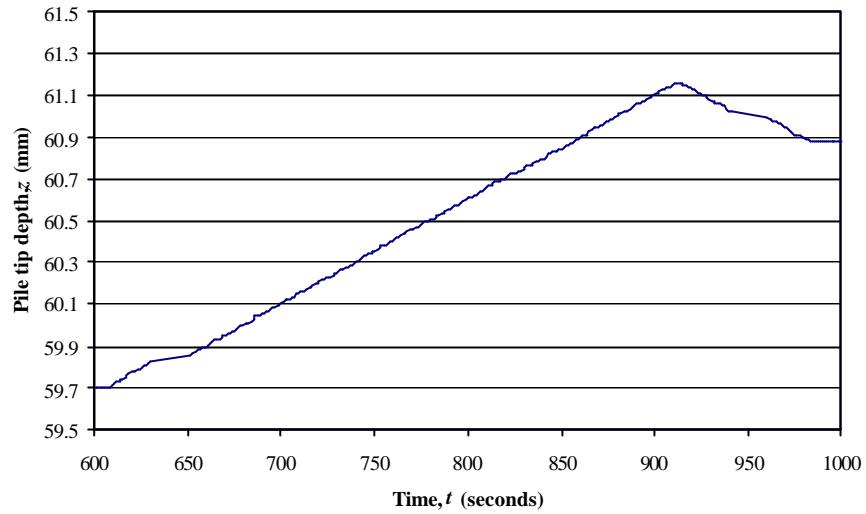


Figure 208 Test T5, Pile tip depth vs. time (load test 1: compression at L/2)

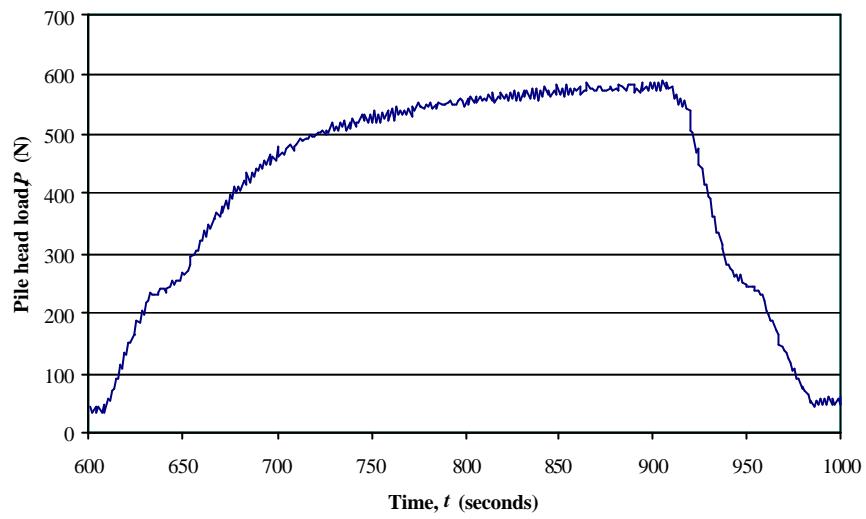


Figure 209 Test T5, Pile head load vs. time (load test 1: compression at L/2)

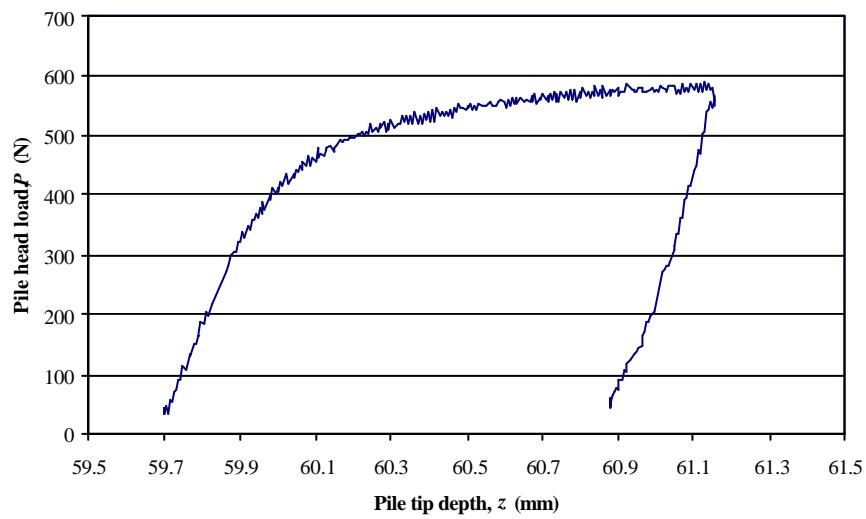


Figure 210 Test T5, Pile head load vs. pile tip depth (load test 1: compression at L/2)

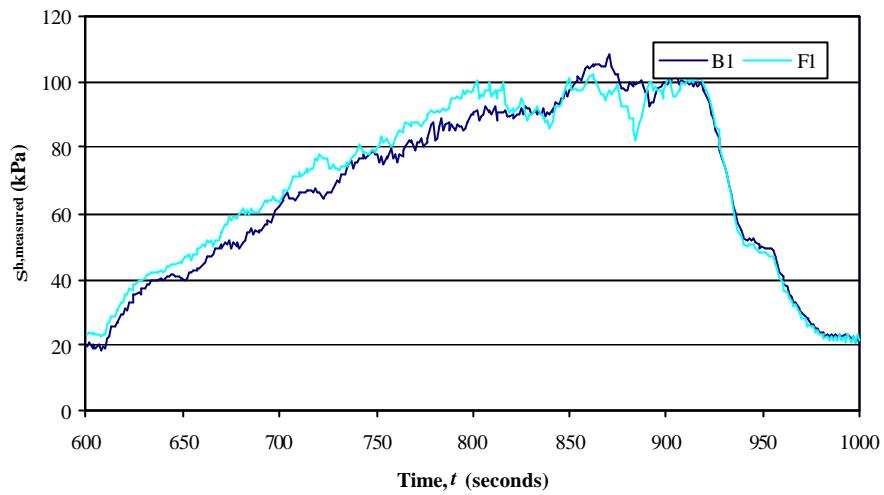


Figure 211 Test T5, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

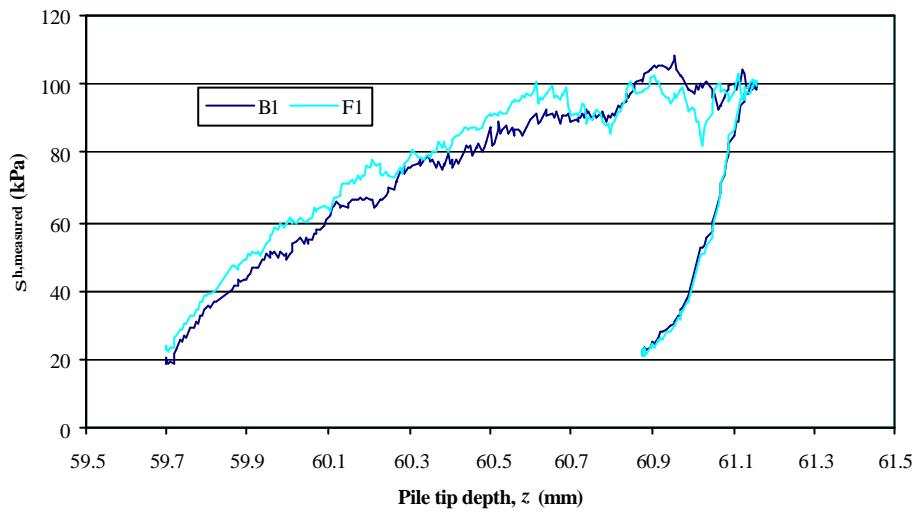


Figure 212 Test T5, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

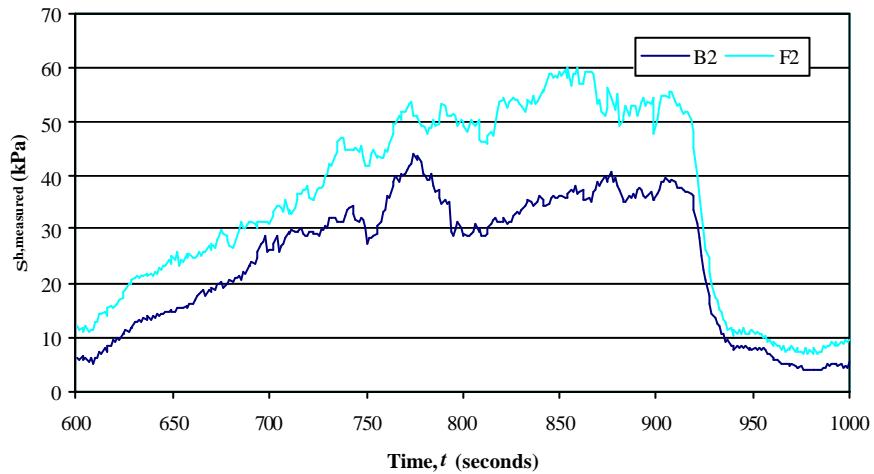


Figure 213 Test T5, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

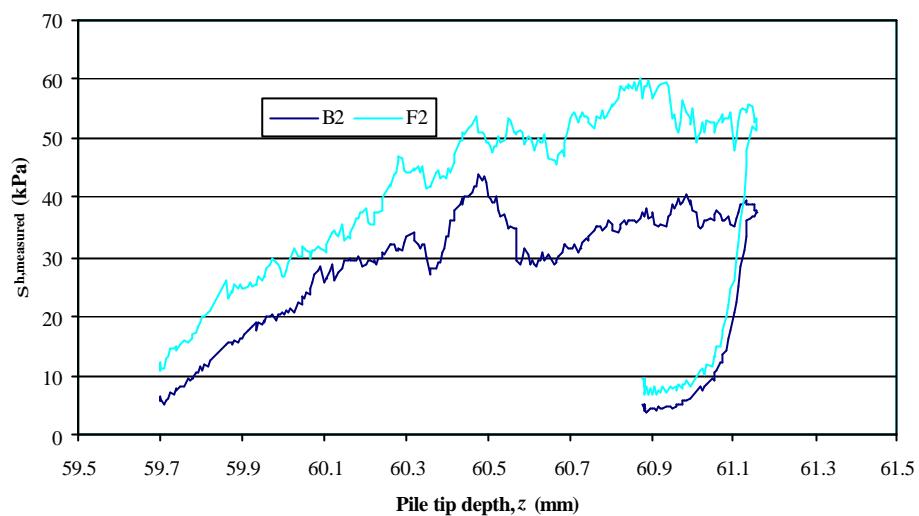


Figure 214 Test T5, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

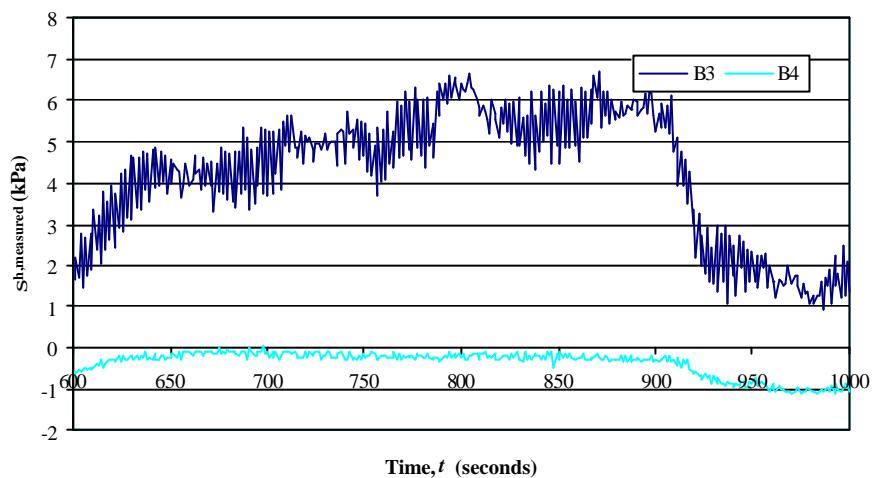


Figure 215 Test T5, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

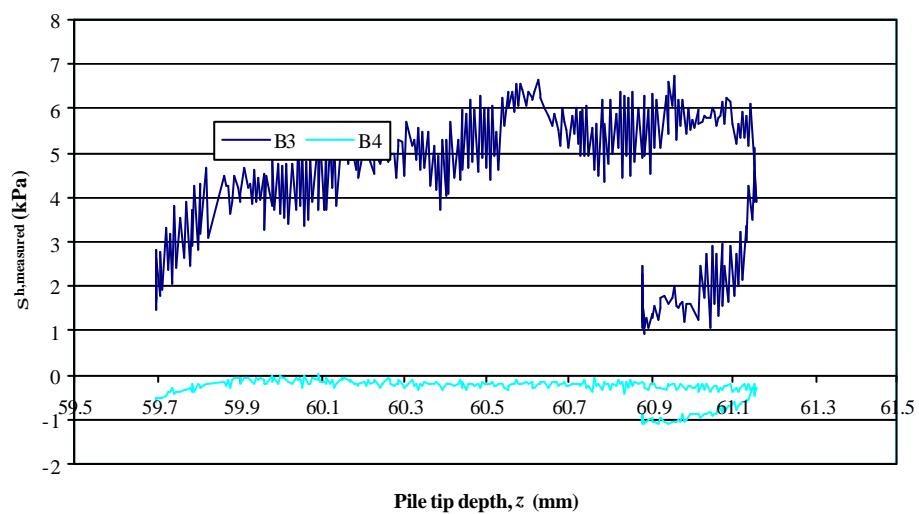


Figure 216 Test T5, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

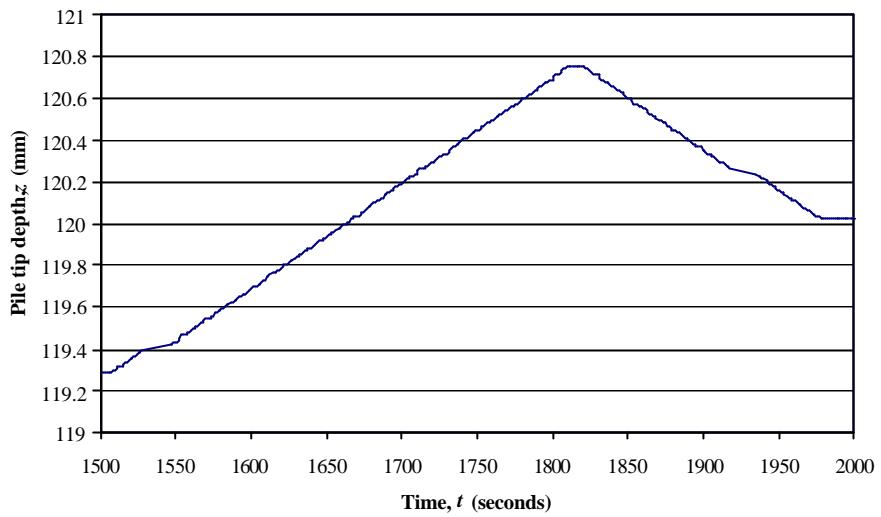


Figure 217 Test T5, Pile tip depth vs. time (load test 2: compression at L)

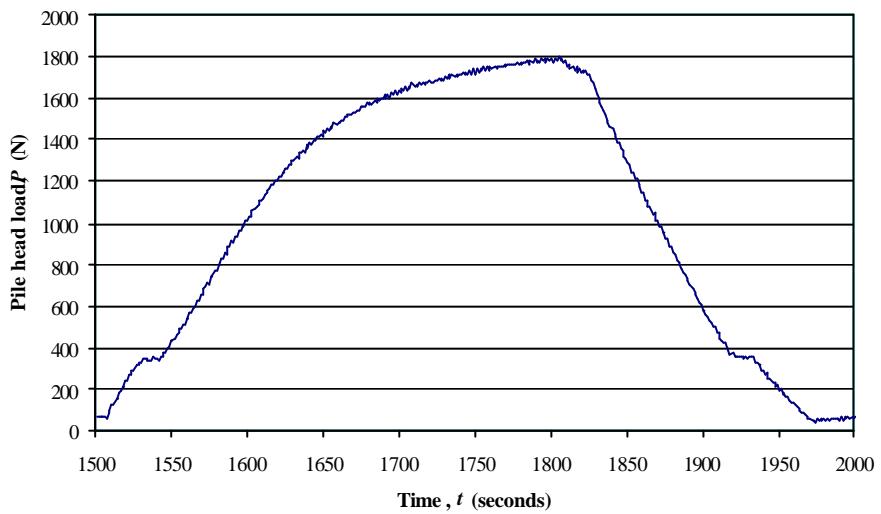


Figure 218 Test T5, Pile head load vs. time (load test 2: compression at L)

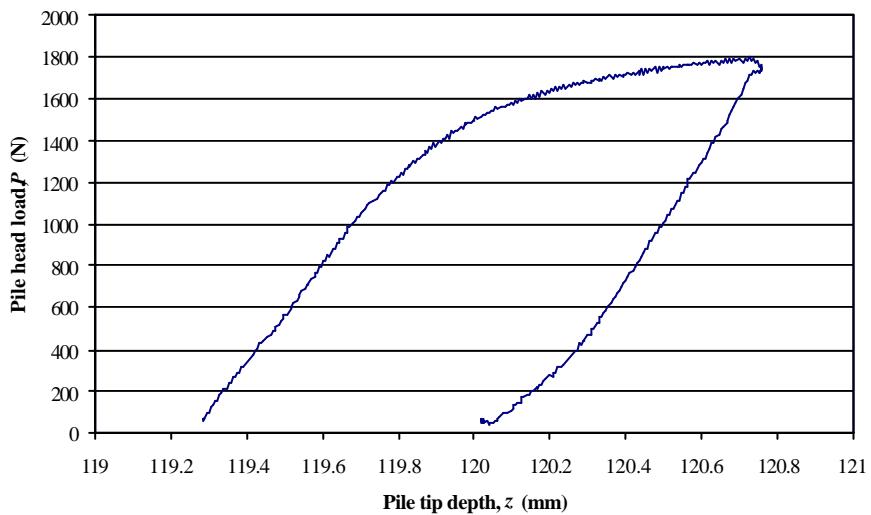


Figure 219 Test T5, Pile head load vs. pile tip depth (load test 2: compression at L)

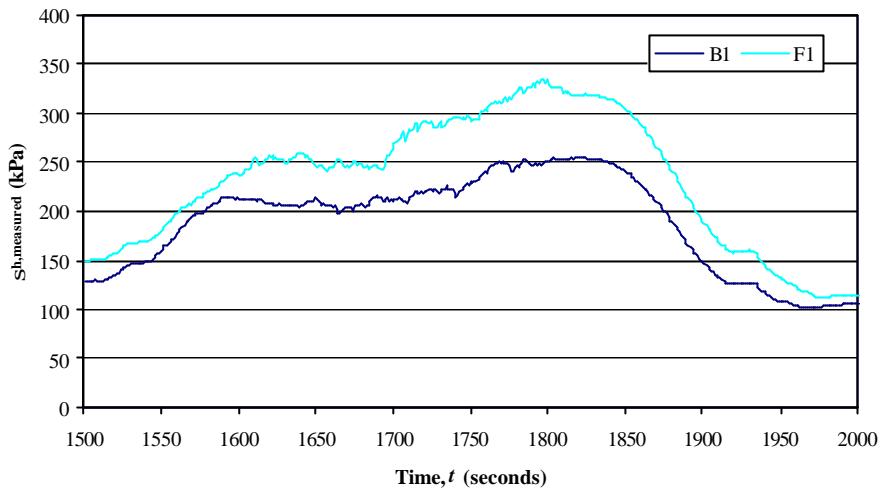


Figure 220 Test T5, B1, F1 pressure cells vs. time (load test 2: compression at L)

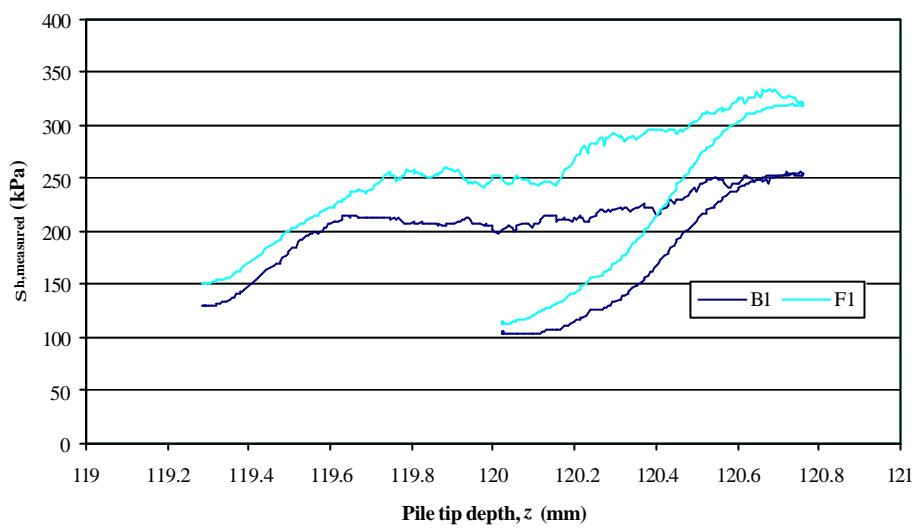


Figure 221 Test T5, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

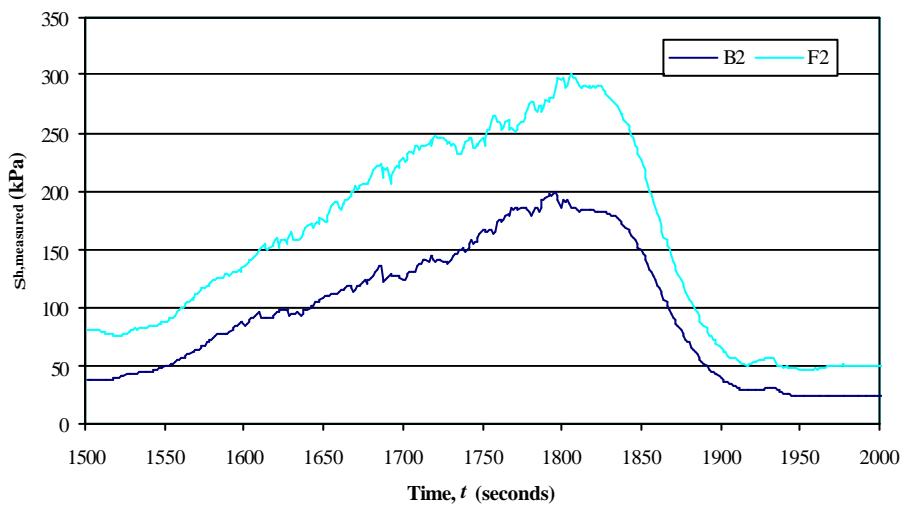


Figure 222 Test T5, B2, F2 pressure cells vs. time (load test 2: compression at L)

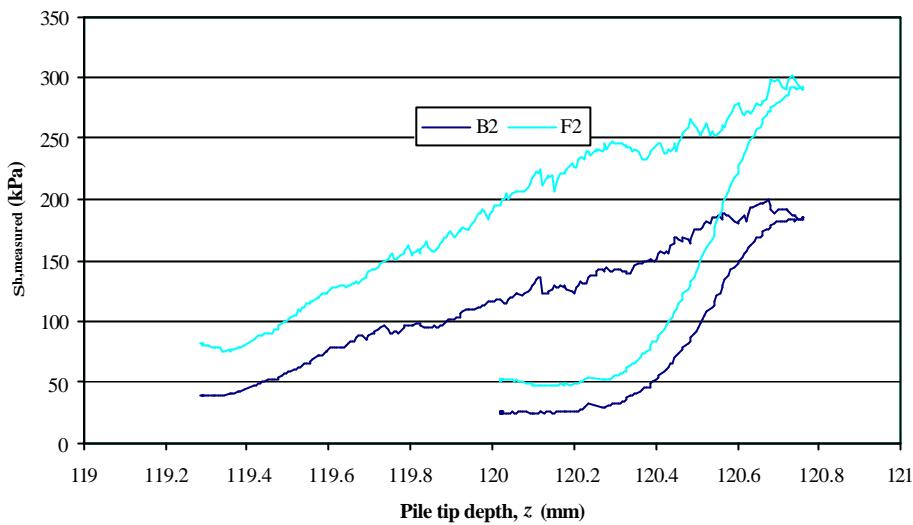


Figure 223 Test T5, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

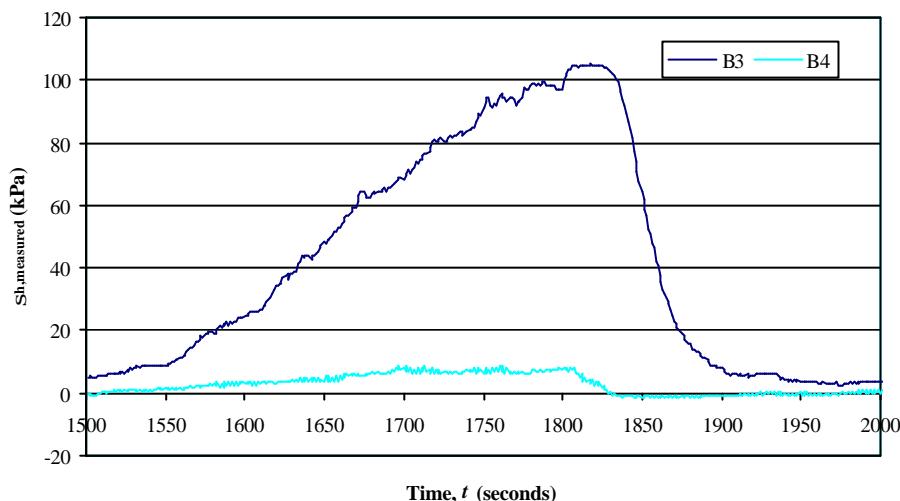


Figure 224 Test T5, B3, B4 pressure cells vs. time (load test 2: compression at L)

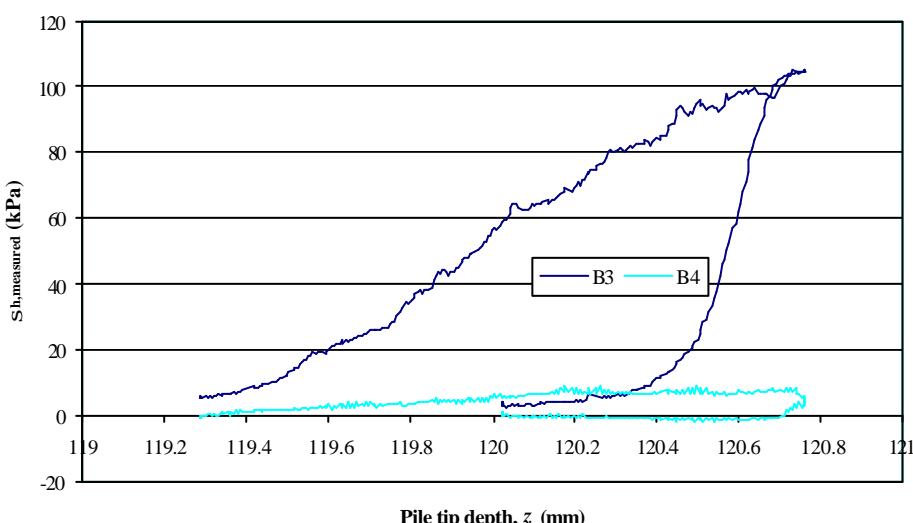


Figure 225 Test T5, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

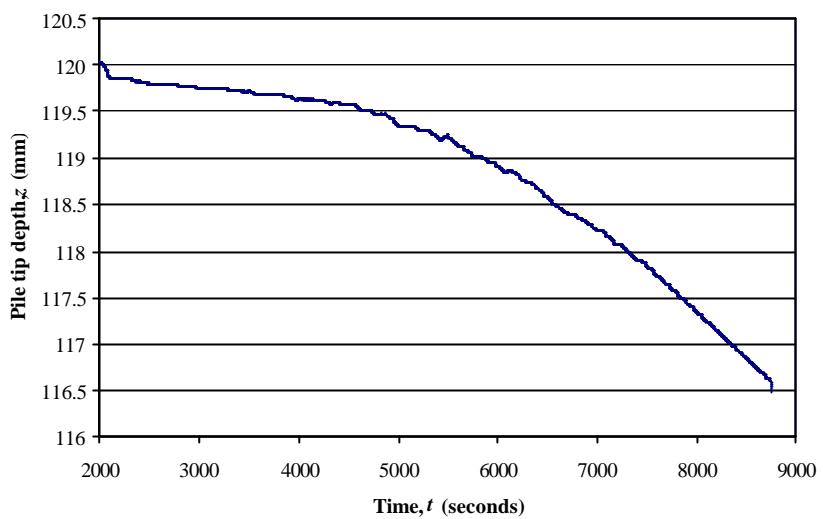


Figure 226 Test T5, Pile tip depth vs. time (load test 3: cyclic tension at L)

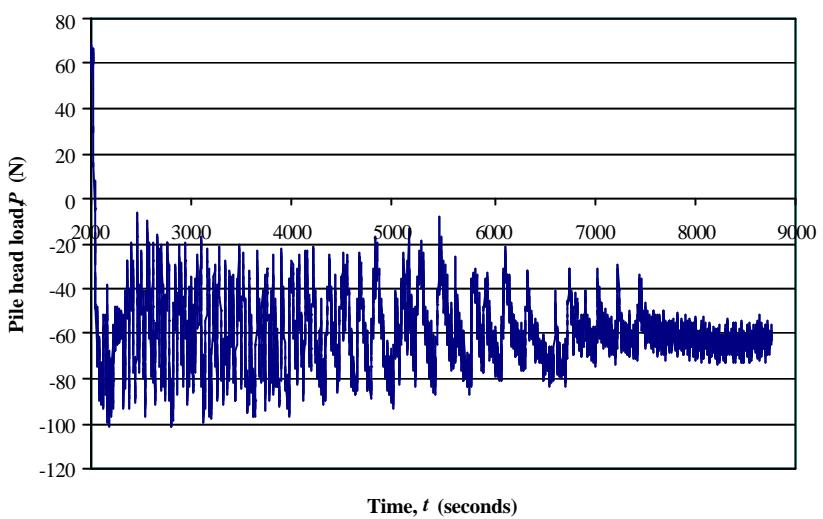


Figure 227 Test T5, Pile head load vs. time (load test 3: cyclic tension at L)

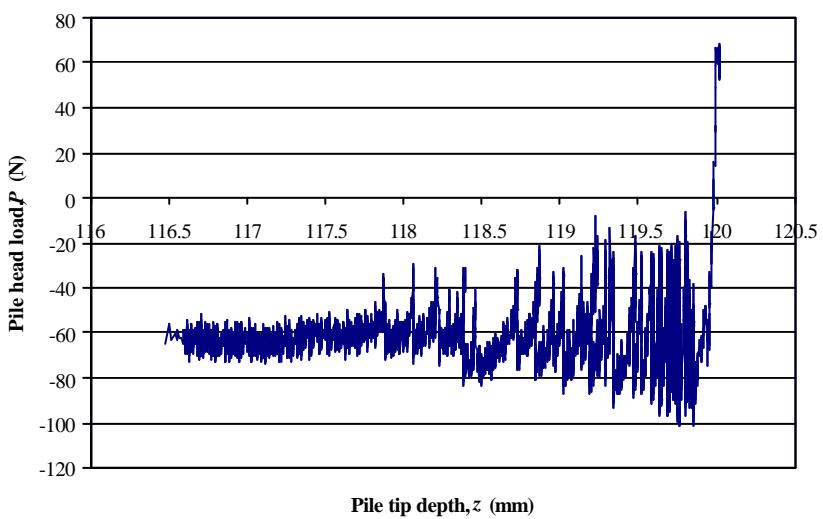


Figure 228 Test T5, Pile head load vs. pile tip depth (load test 3: cyclic tension at L)

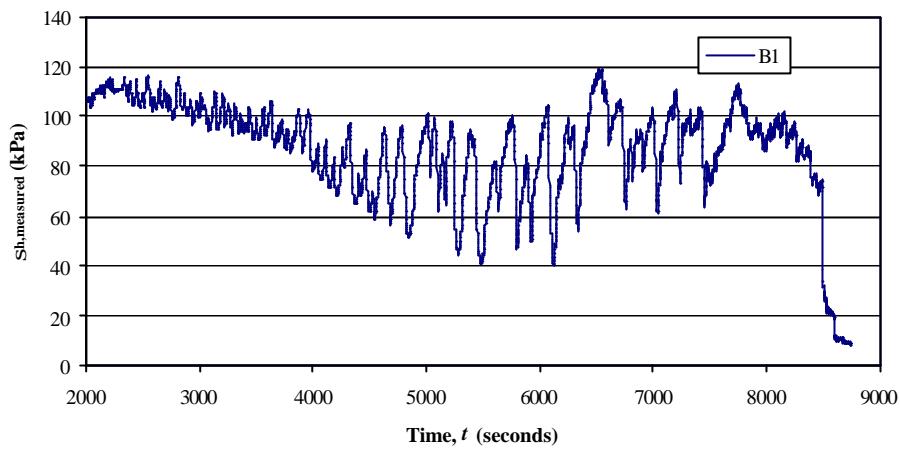


Figure 229 Test T5, B1 pressure cell vs. time (load test 3: cyclic tension at L)

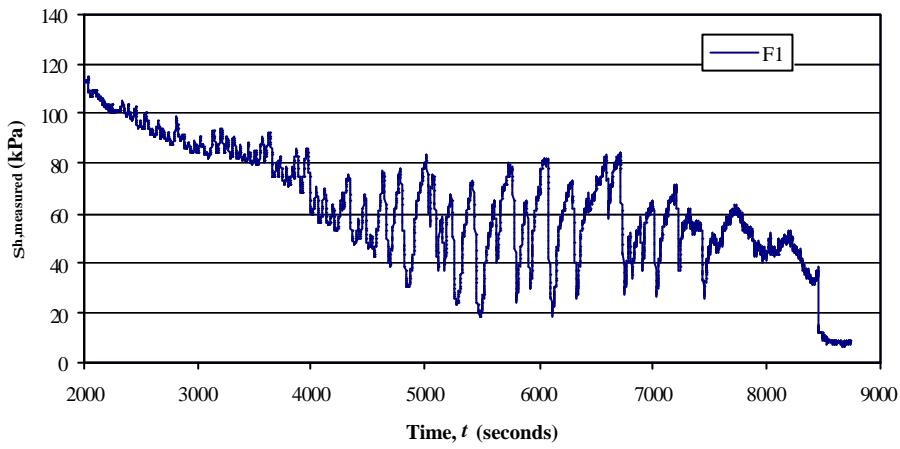


Figure 230 Test T5, F1 pressure cell vs. time (load test 3: cyclic tension at L)

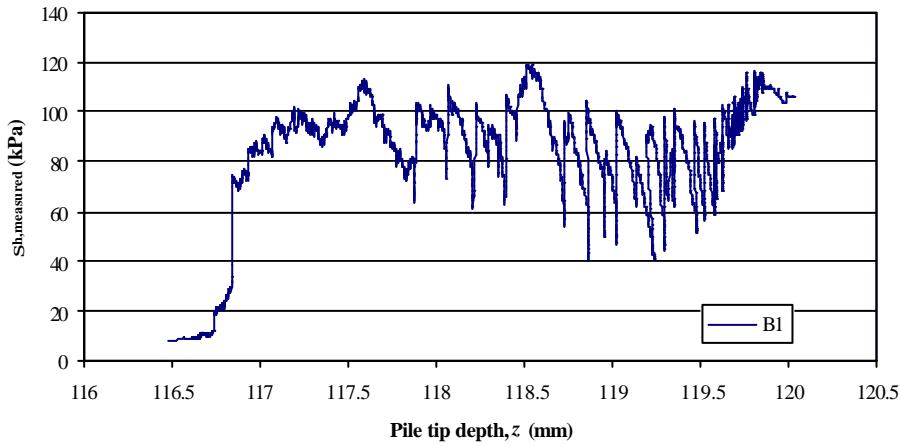


Figure 231 Test T5, B1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

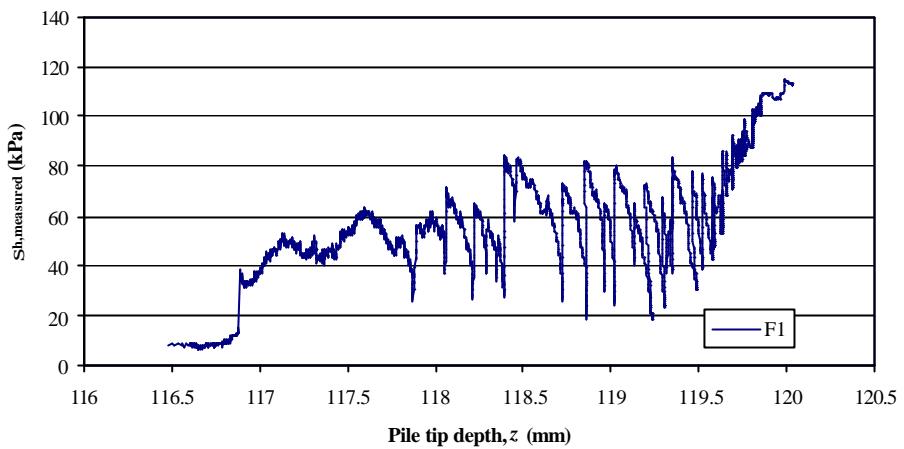


Figure 232 Test T5, F1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

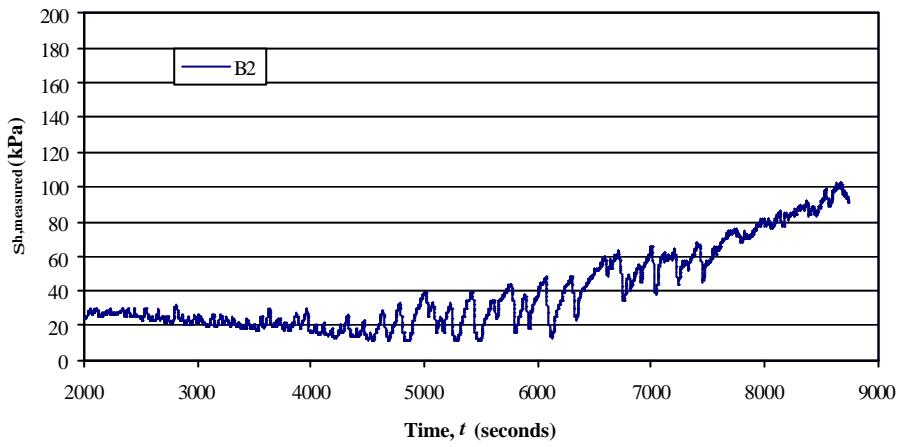


Figure 233 Test T5, B2 pressure cell vs. time (load test 3: cyclic tension at L)

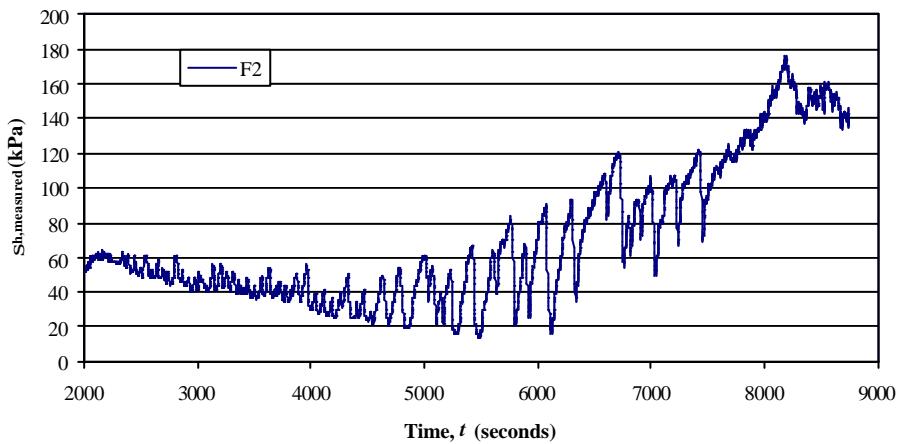


Figure 234 Test T5, F2 pressure cell vs. time (load test 3: cyclic tension at L)

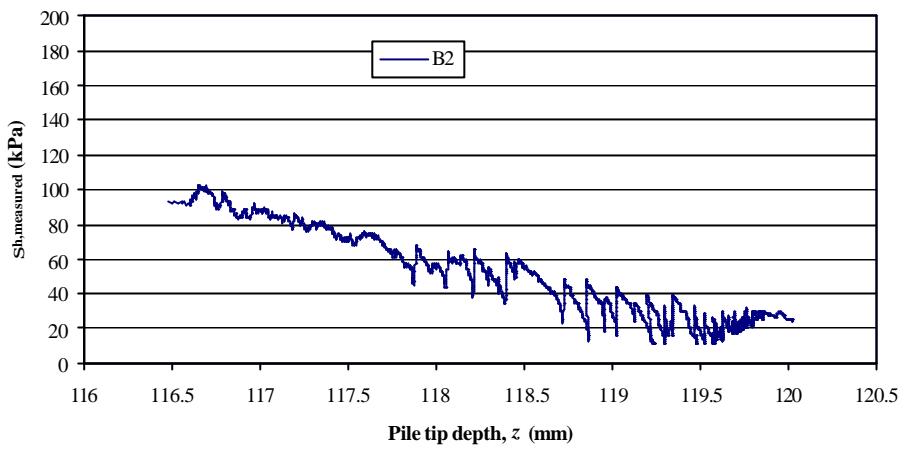


Figure 235 Test T5, B2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

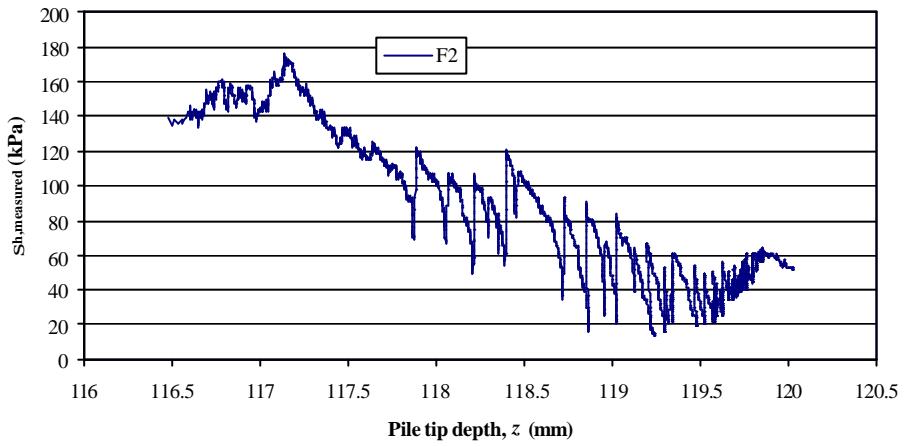


Figure 236 Test T5, F2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

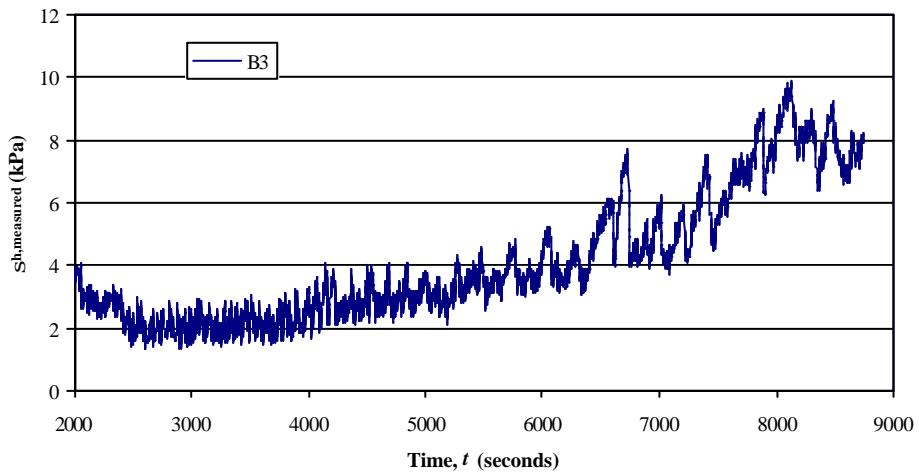


Figure 237 Test T5, B3 pressure cell vs. time (load test 3: cyclic tension at L)

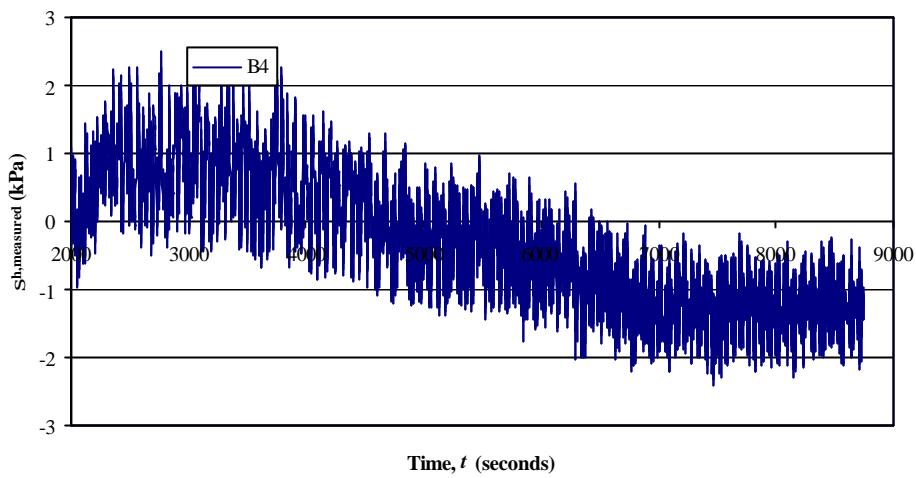


Figure 238 Test T5, B4 pressure cell vs. time (load test 3: cyclic tension at L)

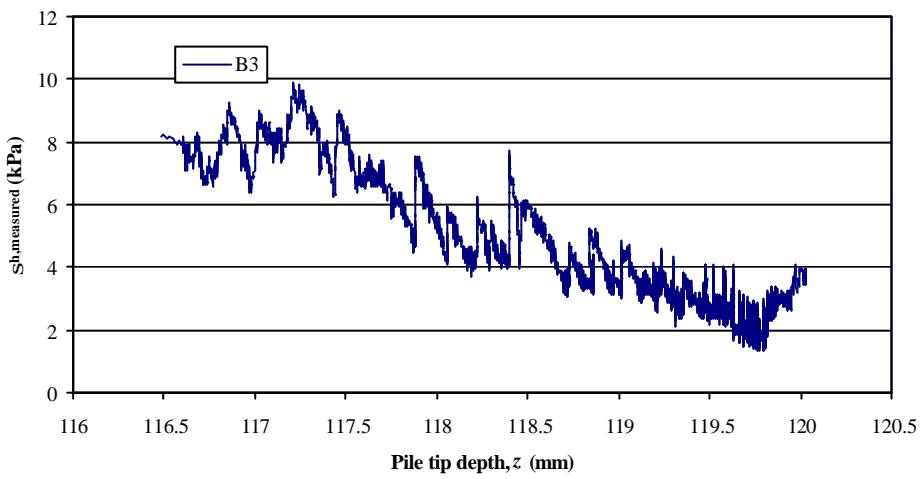


Figure 239 Test T5, B3 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

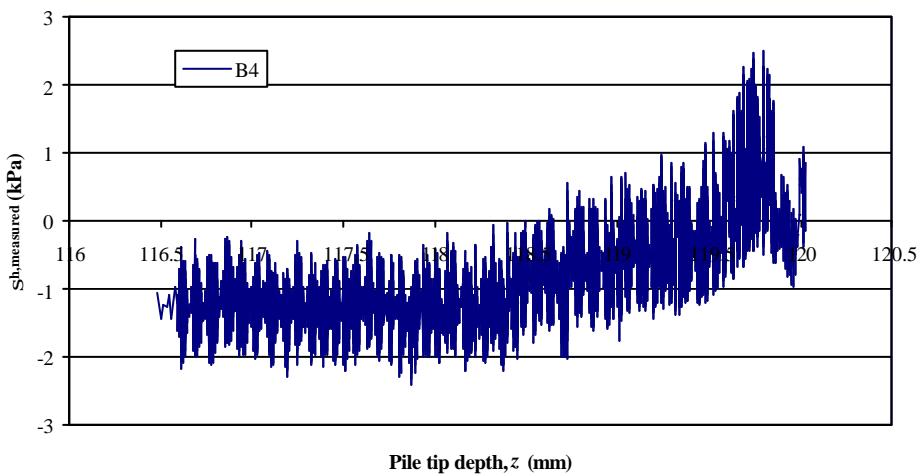


Figure 240 Test T5, B4 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

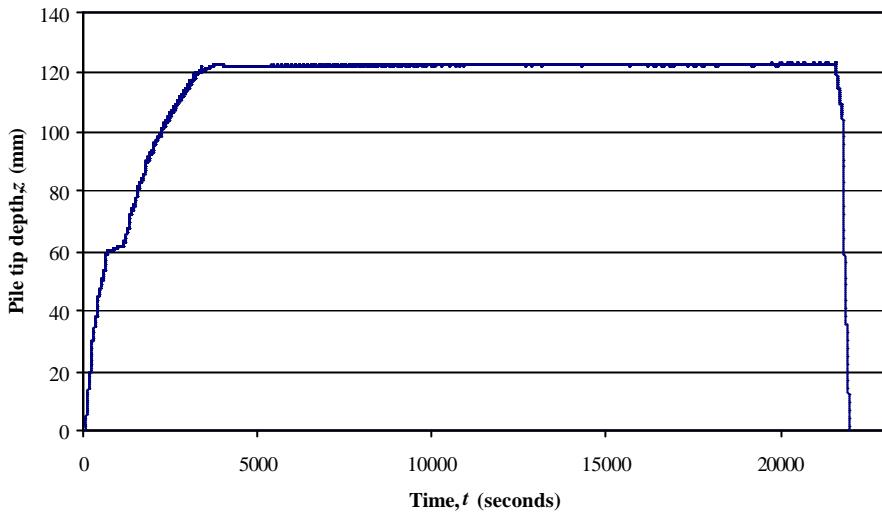


Figure 241 Test T6, Pile tip depth vs. time (entire test)

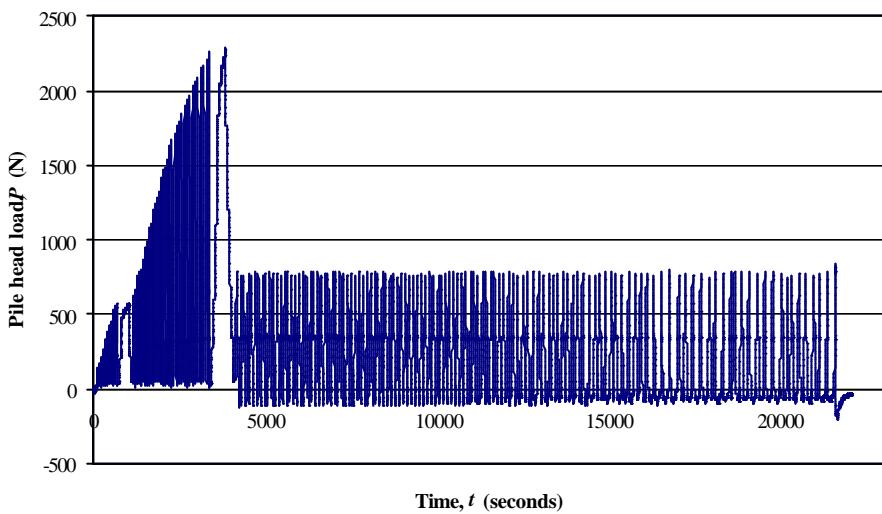


Figure 242 Test T6, Pile head load vs. time (entire test)

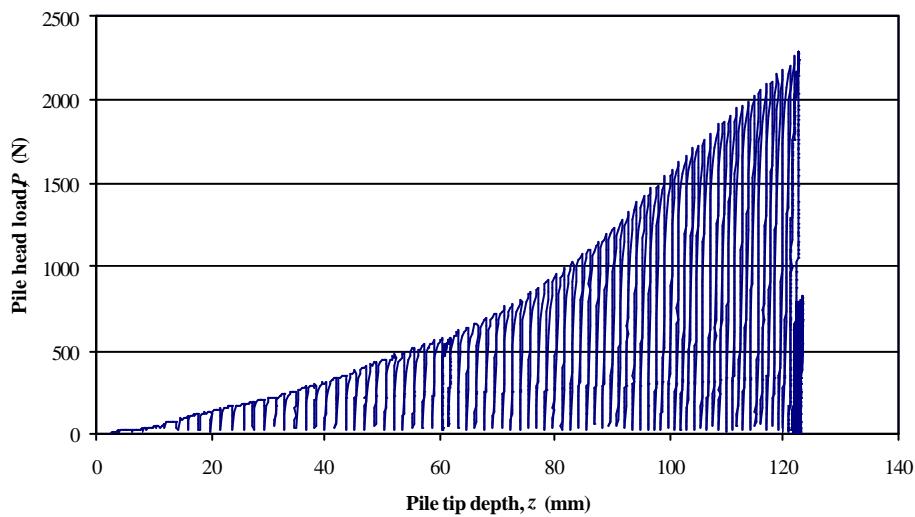


Figure 243 Test T6, Pile head load vs. pile tip depth (entire test)

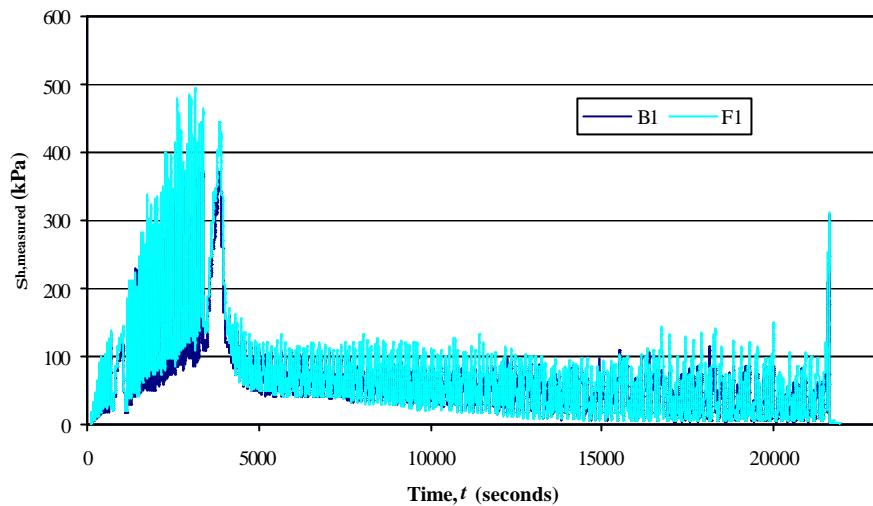


Figure 244 Test T6, B1, F1 pressure cells vs. time (entire test)

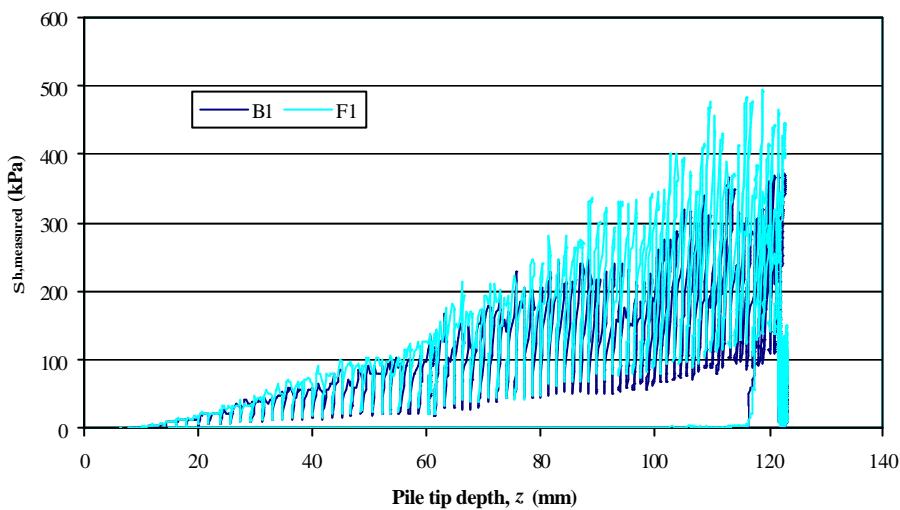


Figure 245 Test T6, B1, F1 pressure cells vs. pile tip depth (entire test)

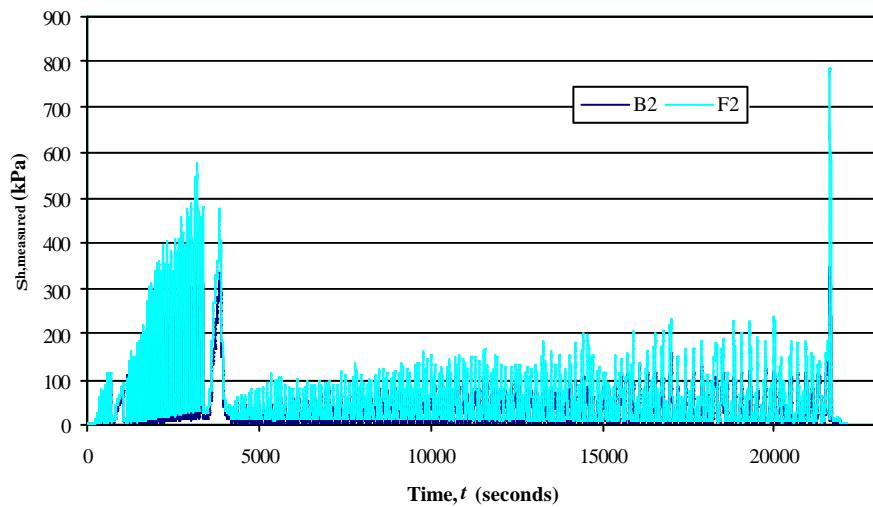


Figure 246 Test T6, B2, F2 pressure cells vs. time (entire test)

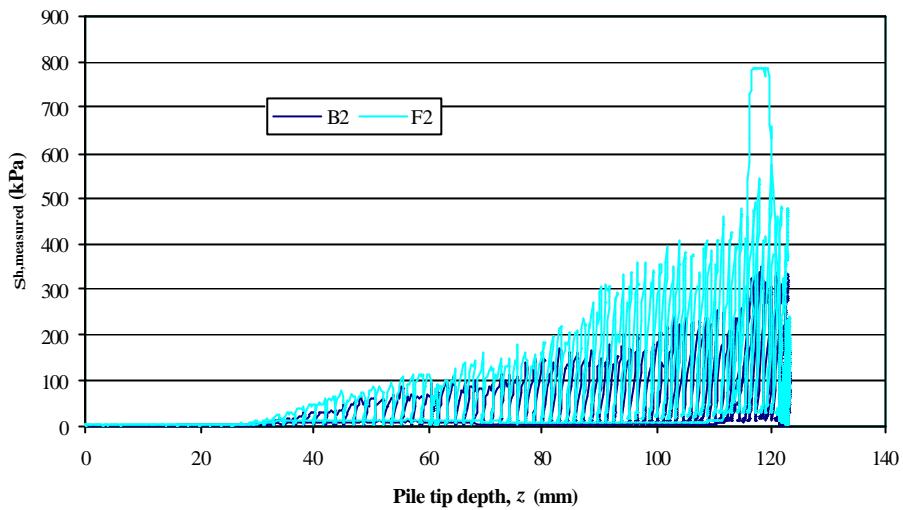


Figure 247 Test T6, B2, F2 pressure cells vs. pile tip depth (entire test)

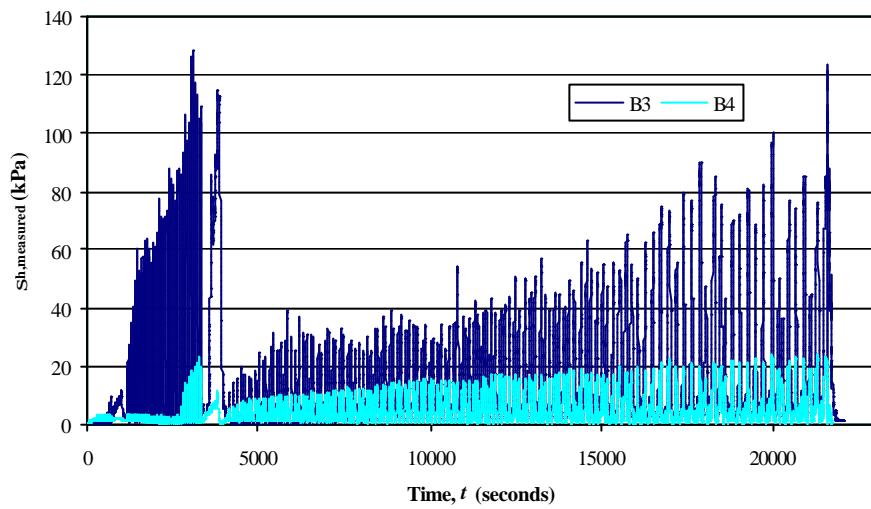


Figure 248 Test T6, B3, B4 pressure cells vs. time (entire test)

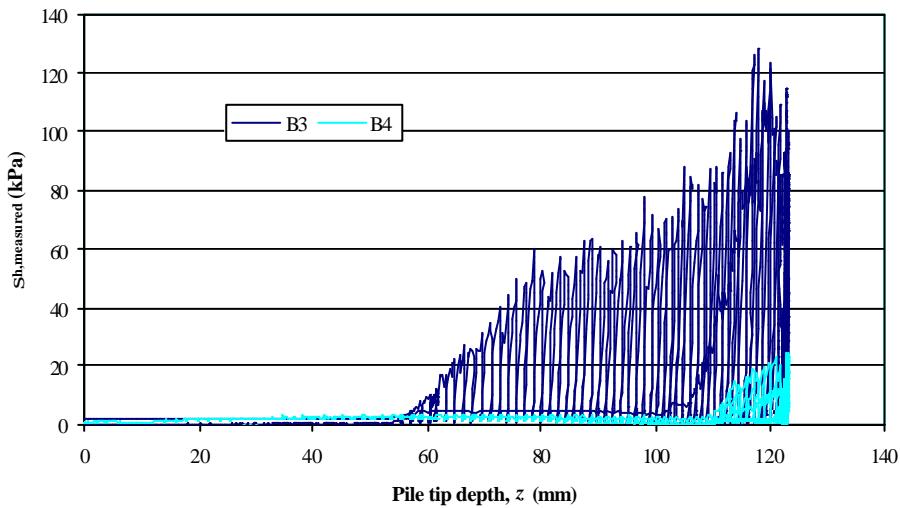


Figure 249 Test T6, B3, B4 pressure cells vs. pile tip depth (entire test)

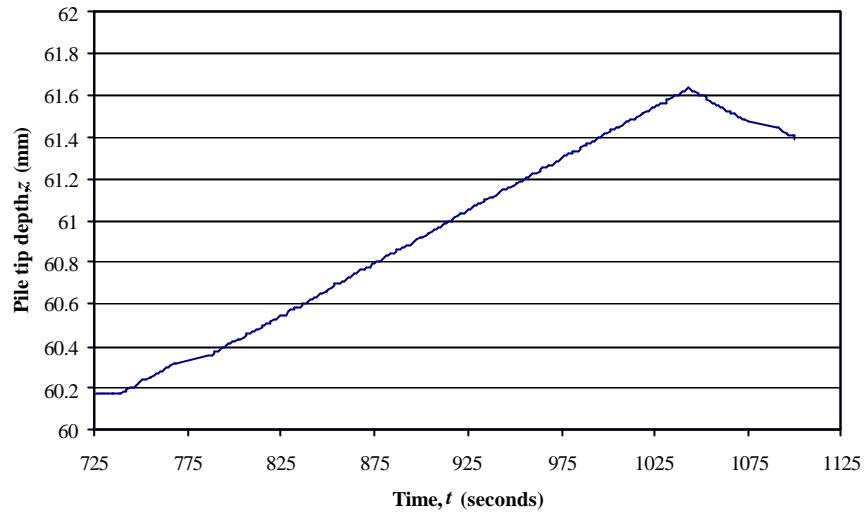


Figure 250 Test T6, Pile tip depth vs. time (load test 1: compression at L/2)

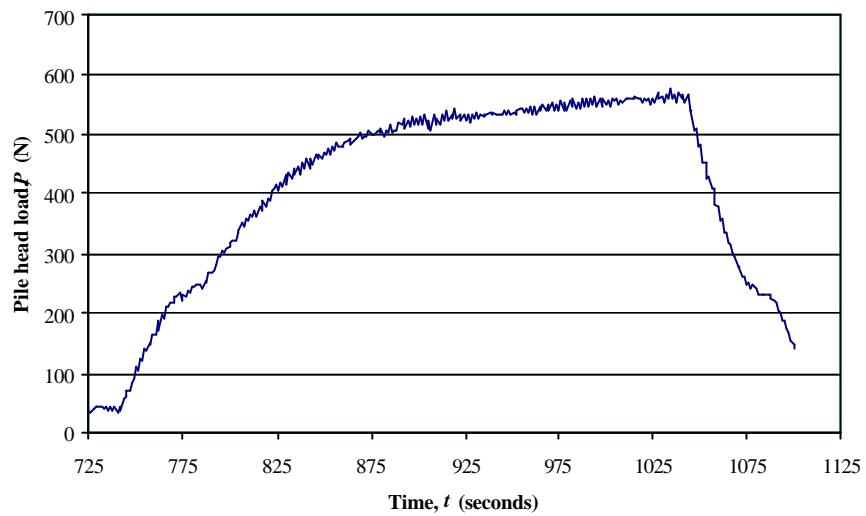


Figure 251 Test T6, Pile head load vs. time (load test 1: compression at L/2)

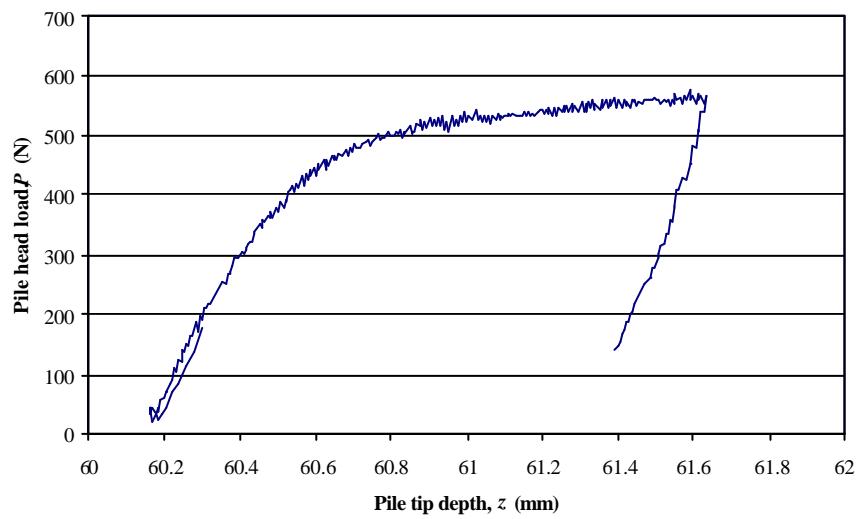


Figure 252 Test T6, Pile head load vs. pile tip depth (load test 1: compression at L/2)

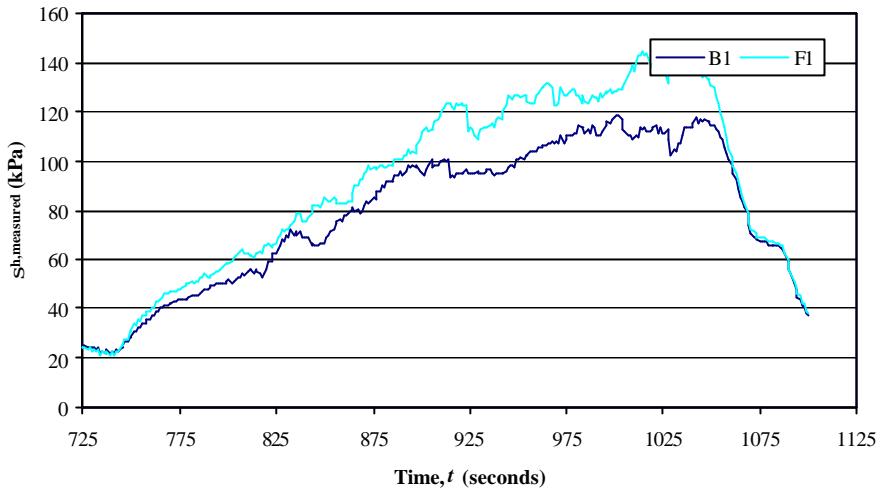


Figure 253 Test T6, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

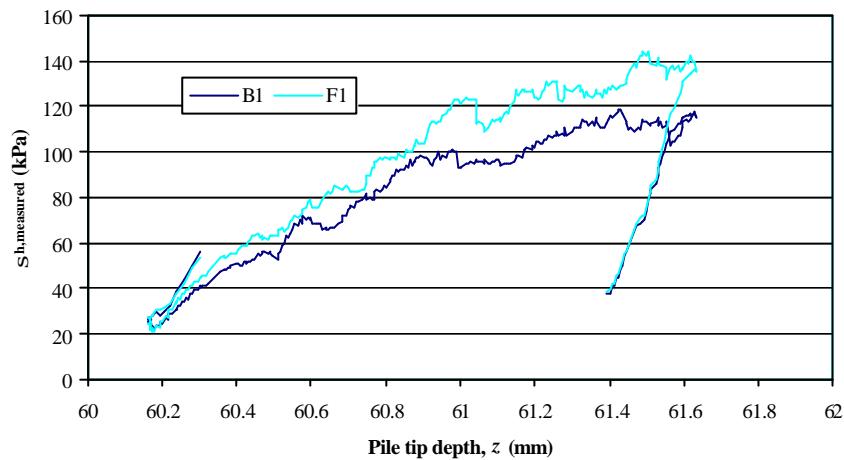


Figure 254 Test T6, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

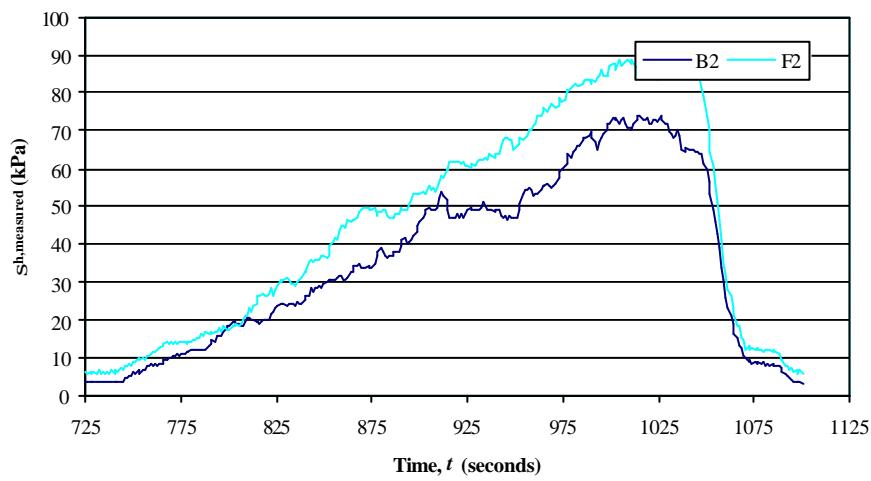


Figure 255 Test T6, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

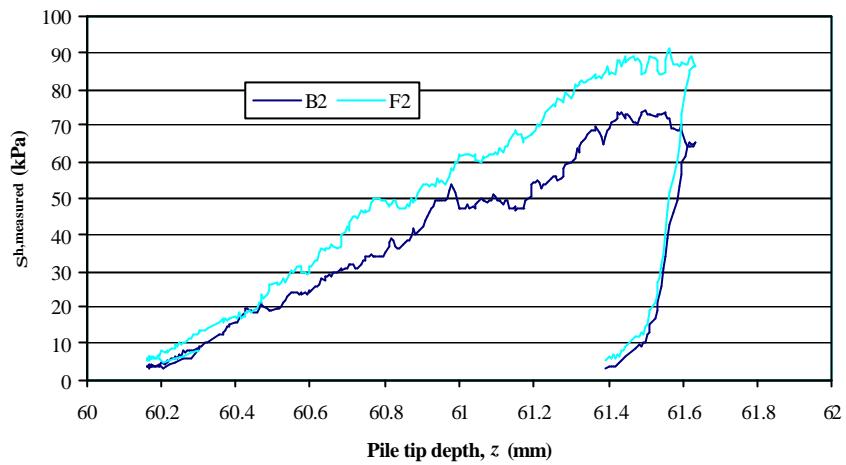


Figure 256 Test T6, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

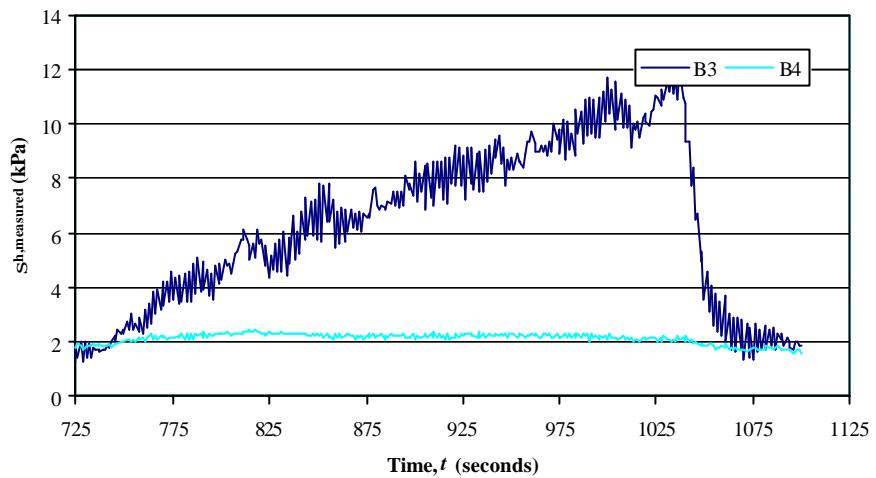


Figure 257 Test T6, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

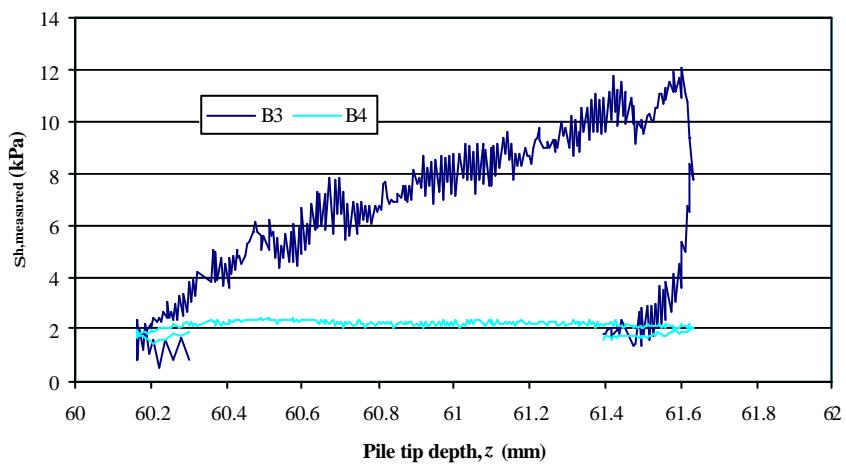


Figure 258 Test T6, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

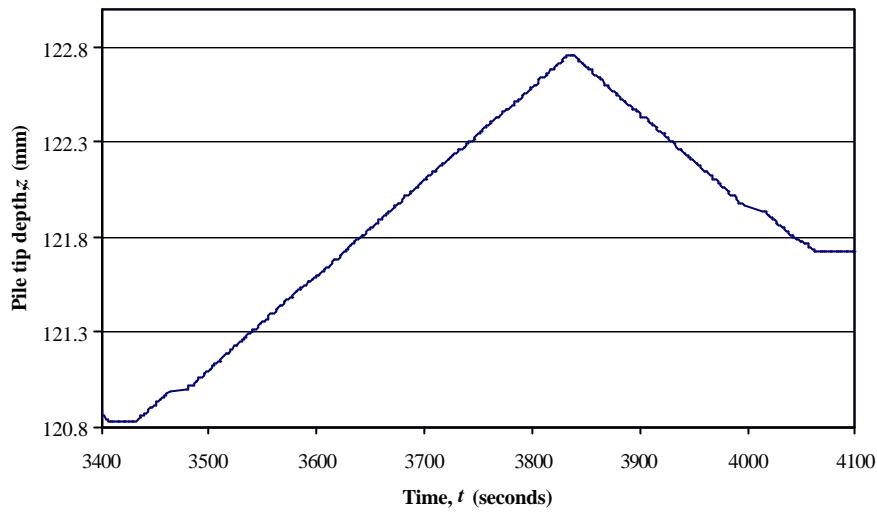


Figure 259 Test T6, Pile tip depth vs. time (load test 2: compression at L)

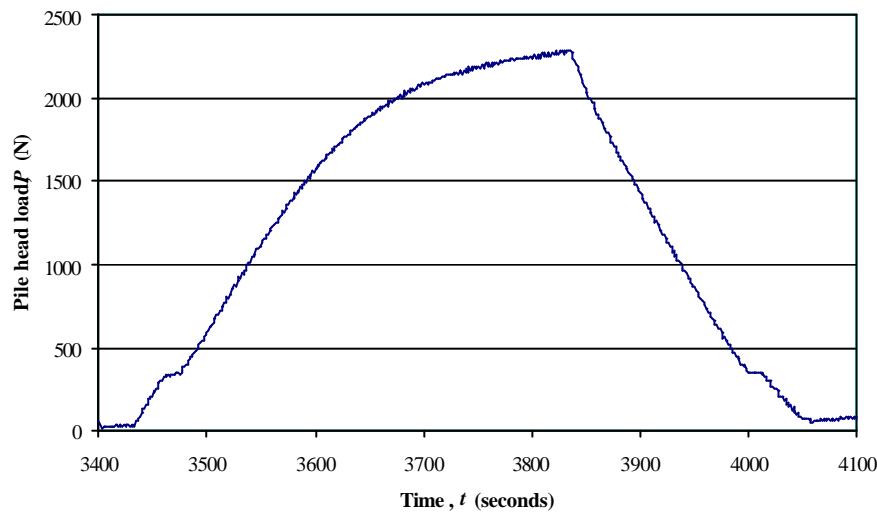


Figure 260 Test T6, Pile head load vs. time (load test 2: compression at L)

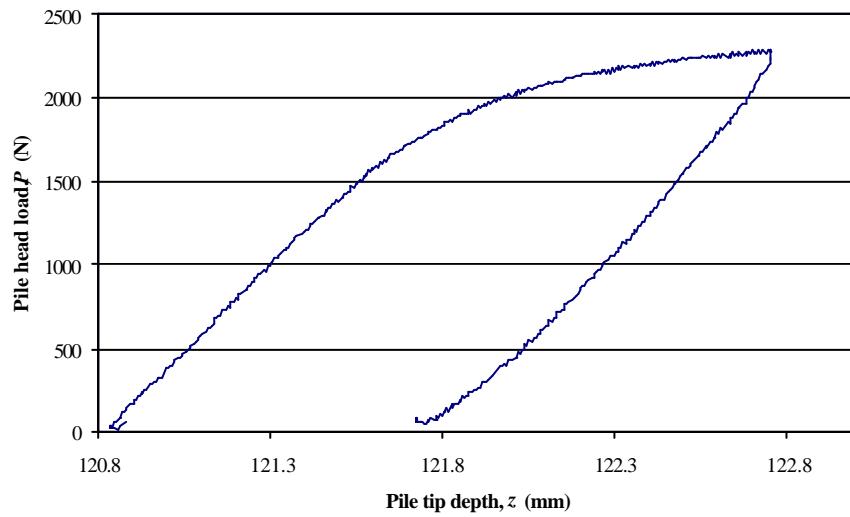


Figure 261 Test T6, Pile head load vs. pile tip depth (load test 2: compression at L)

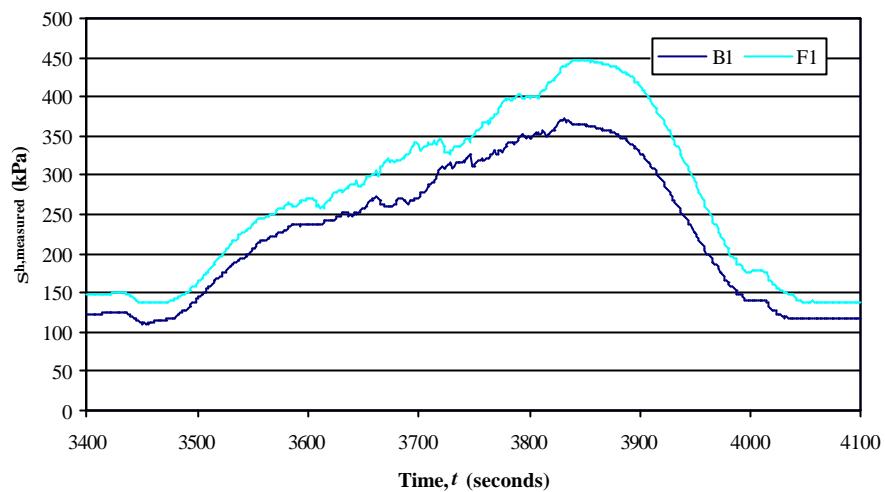


Figure 262 Test T6, B1, F1 pressure cells vs. time (load test 2: compression at L)

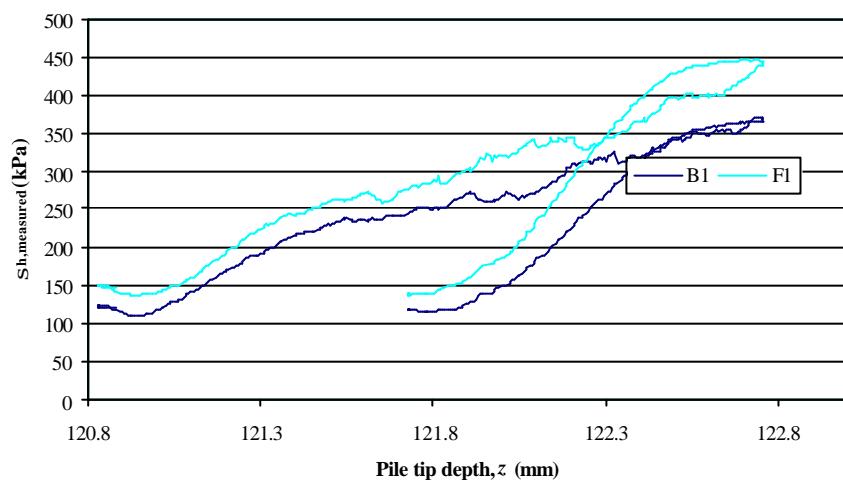


Figure 263 Test T6, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

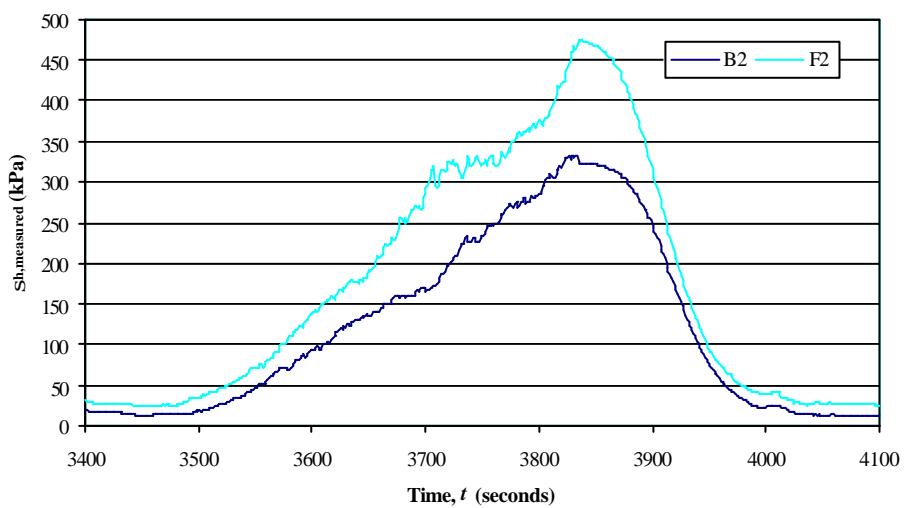


Figure 264 Test T6, B2, F2 pressure cells vs. time (load test 2: compression at L)

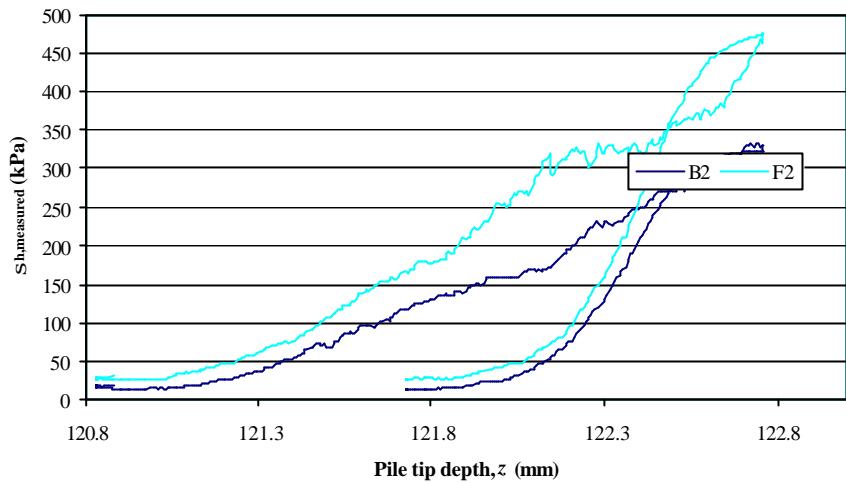


Figure 265 Test T6, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

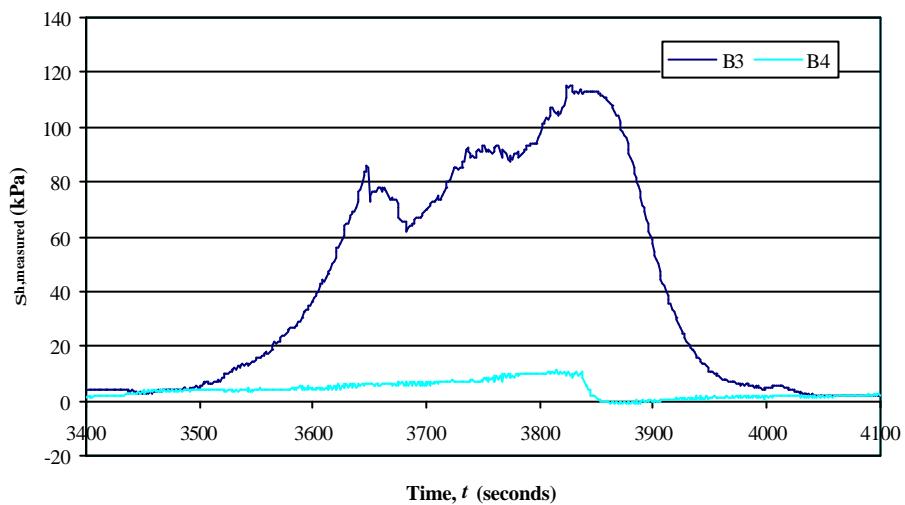


Figure 266 Test T6, B3, B4 pressure cells vs. time (load test 2: compression at L)

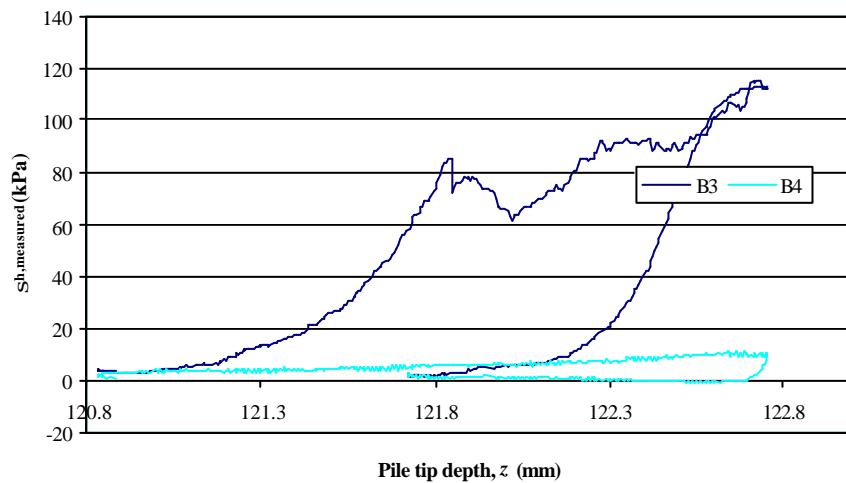


Figure 267 Test T6, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

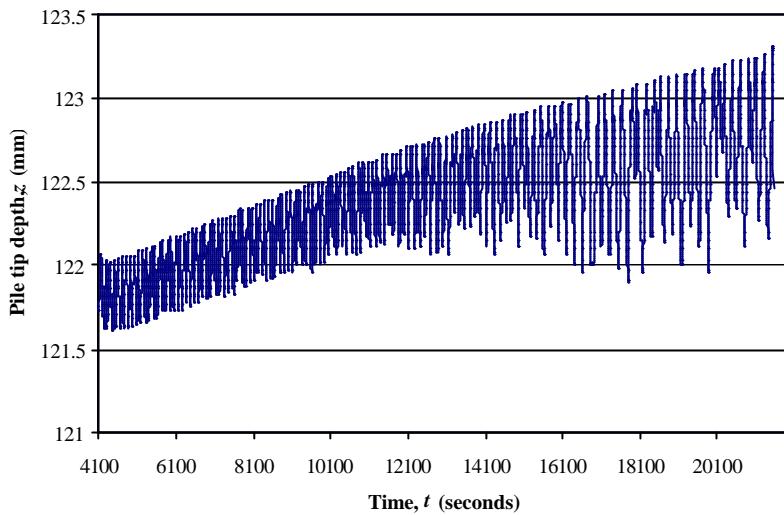


Figure 268 Test T6, Pile tip depth vs. time (load test 3: compression/tension at L)

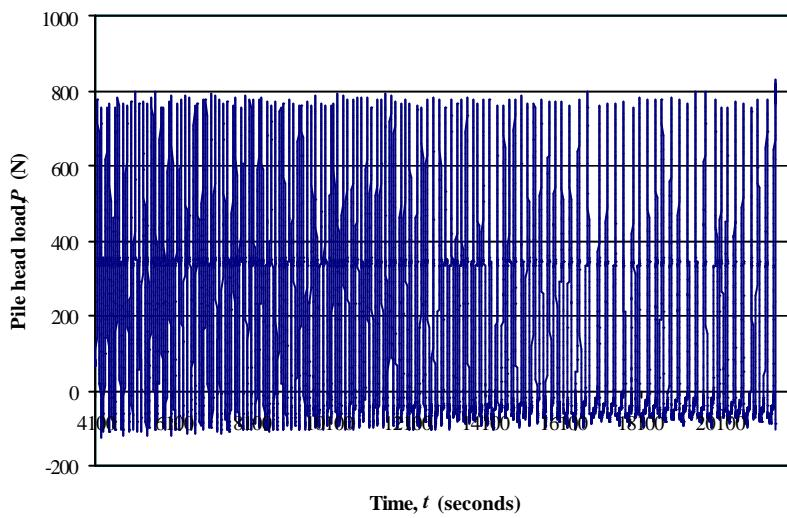


Figure 269 Test T6, Pile head load vs. time (load test 3: compression/tension at L)

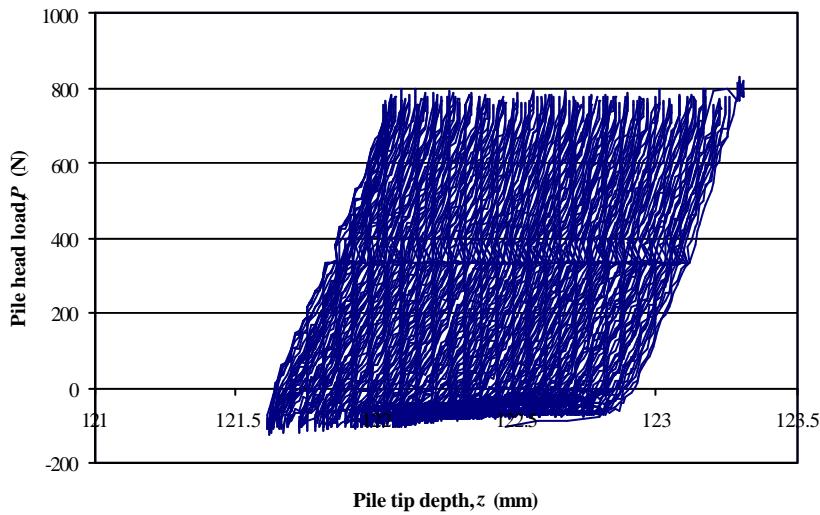


Figure 270 Test T6, Pile head load vs. pile tip depth (load test 3: compression/tension at L)

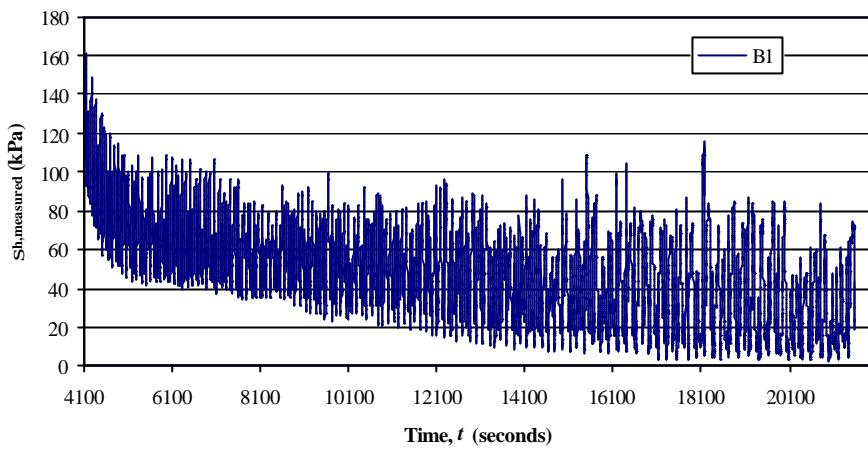


Figure 271 Test T6, B1 pressure cell vs. time (load test 3: compression/tension at L)

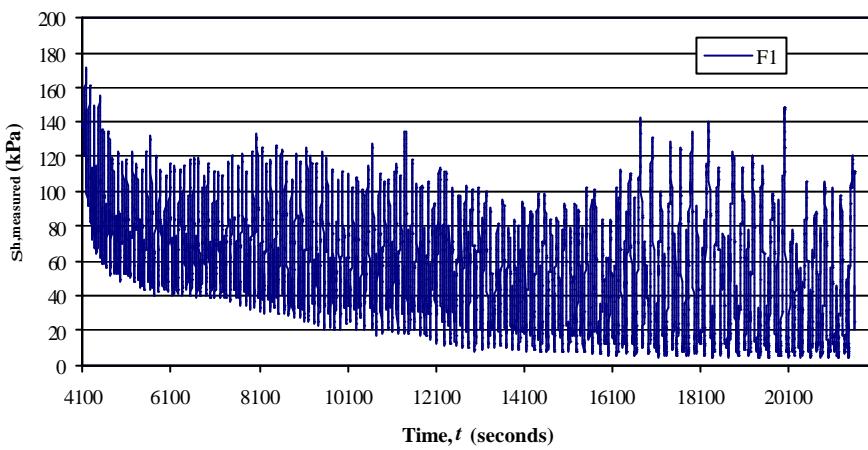


Figure 272 Test T6, F1 pressure cell vs. time (load test 3: compression/tension at L)

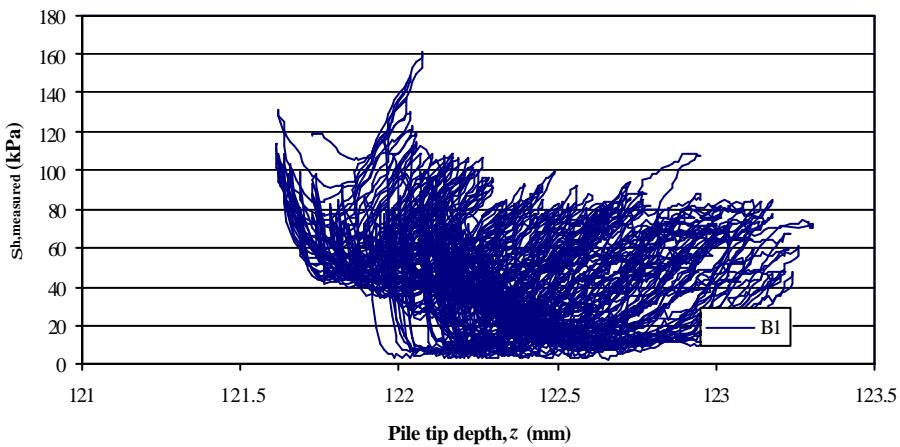


Figure 273 Test T6, B1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

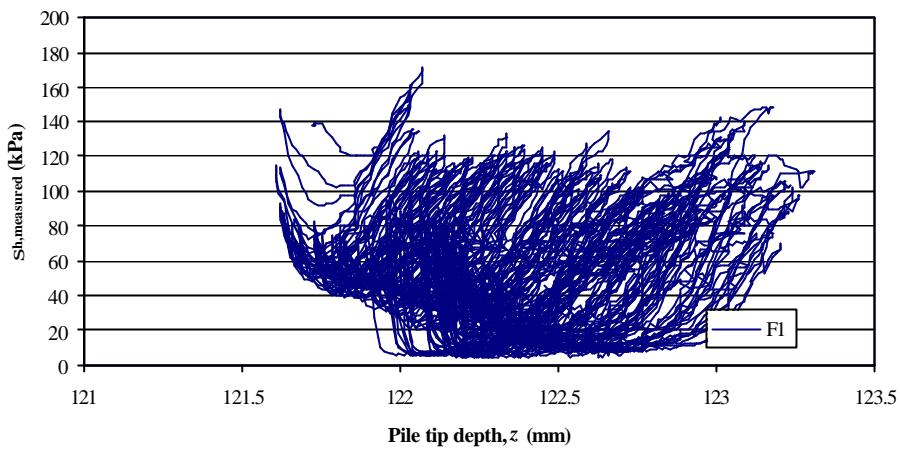


Figure 274 Test T6, F1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

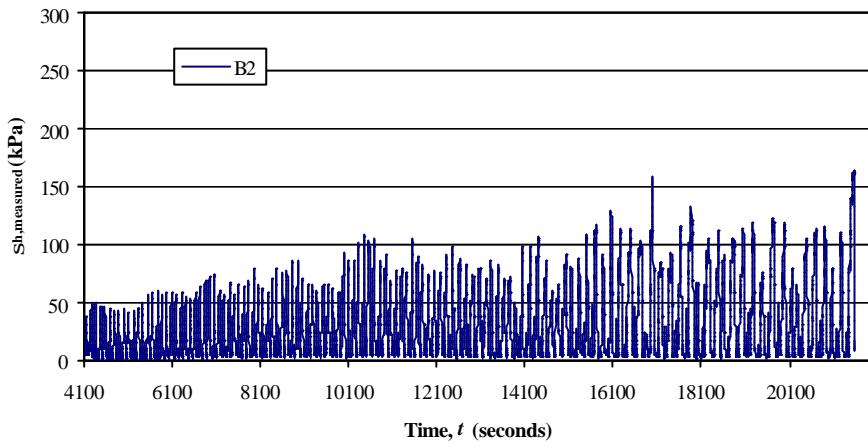


Figure 275 Test T6, B2 pressure cell vs. time (load test 3: compression/tension at L)

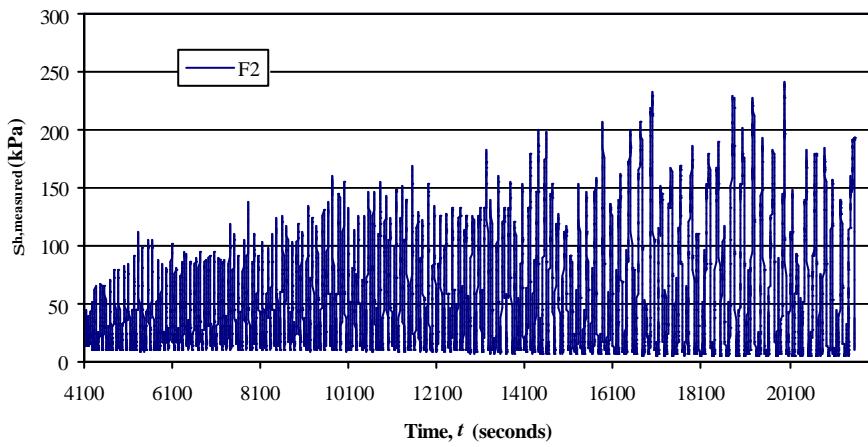


Figure 276 Test T6, F2 pressure cell vs. time (load test 3: compression/tension at L)

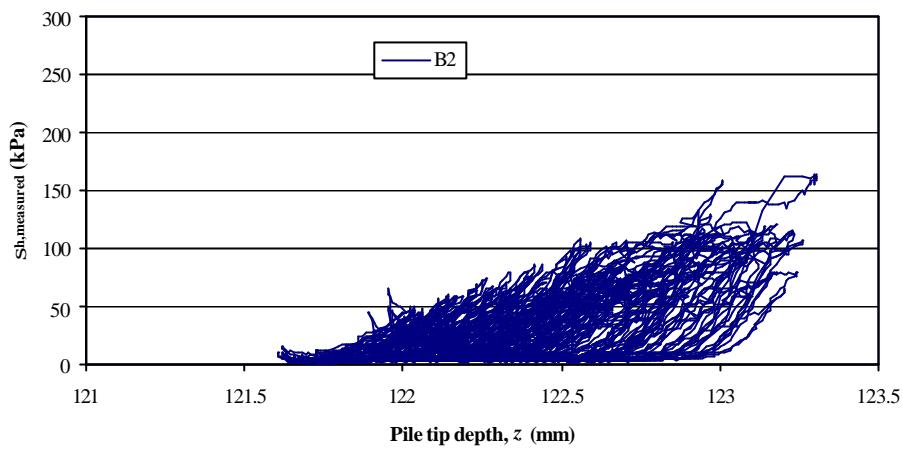


Figure 277 Test T6, B2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

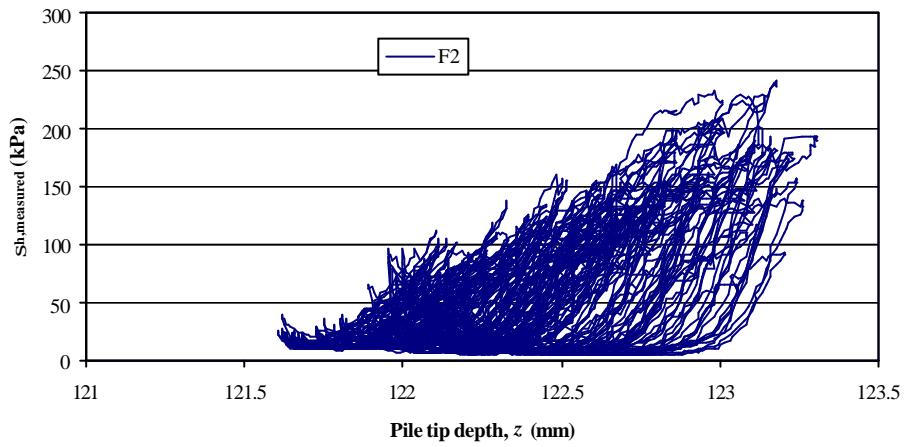


Figure 278 Test T6, F2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

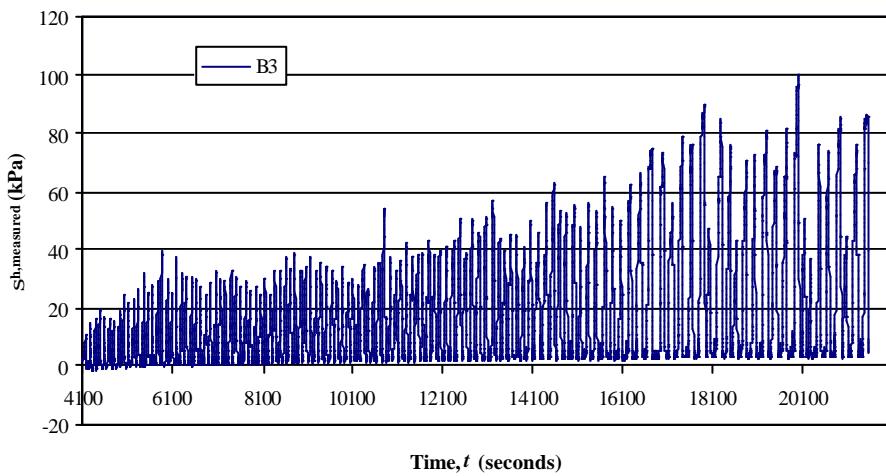


Figure 279 Test T6, B3 pressure cell vs. time (load test 3: compression/tension at L)

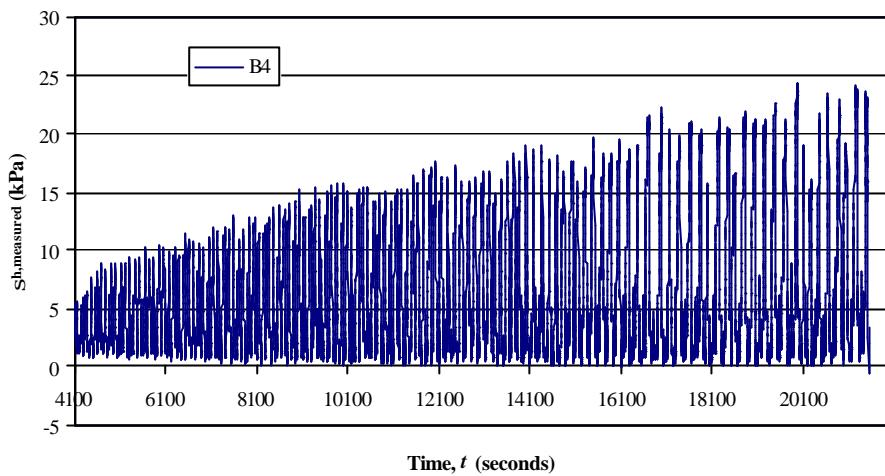


Figure 280 Test T6, B4 pressure cell vs. time (load test 3: compression/tension at L)

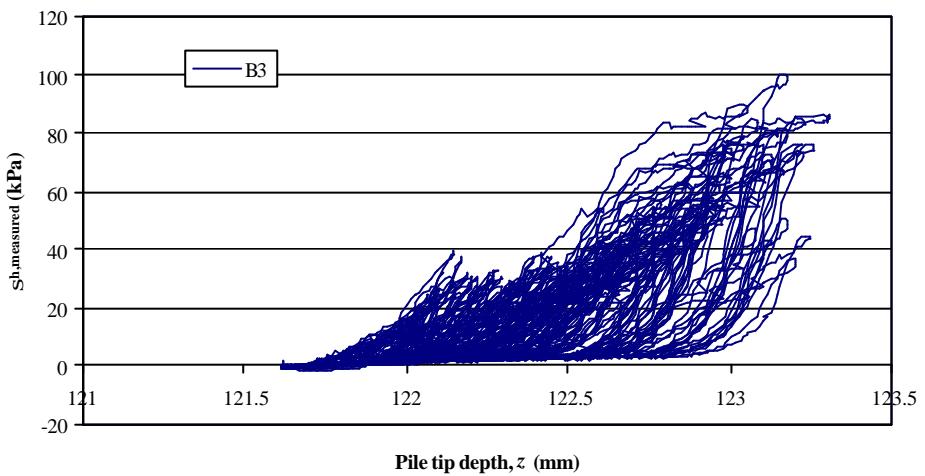


Figure 281 Test T6, B3 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

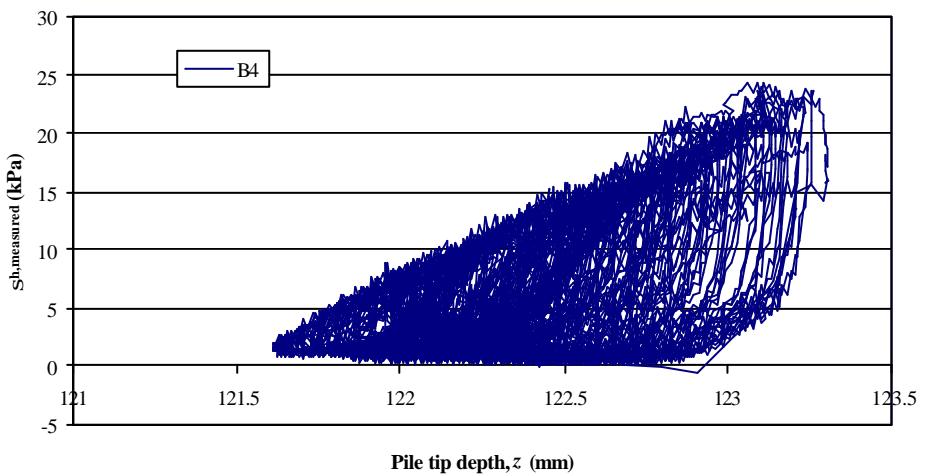


Figure 282 Test T6, B4 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

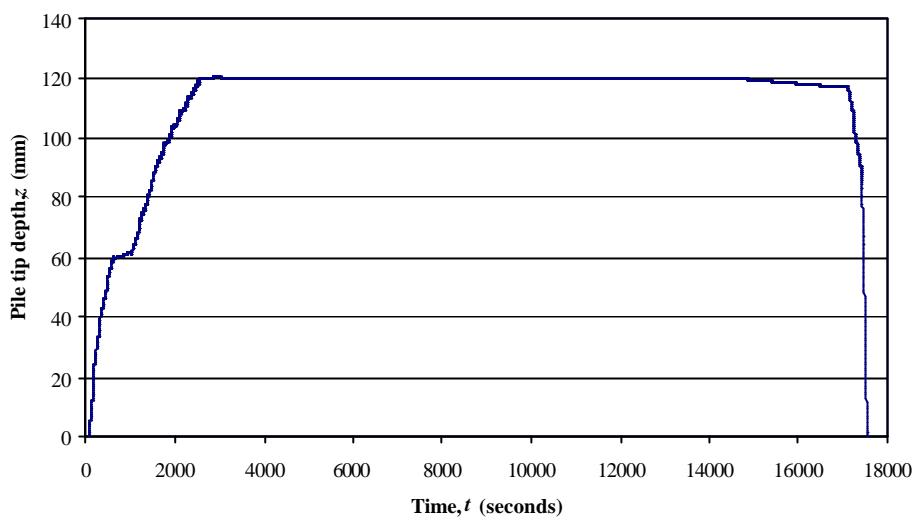


Figure 283 Test T7, Pile tip depth vs. time (entire test)

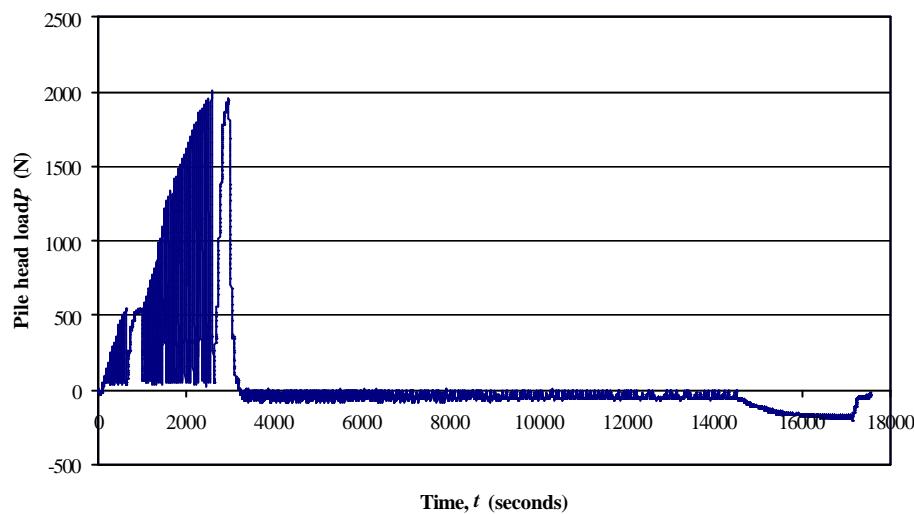


Figure 284 Test T7, Pile head load vs. time (entire test)

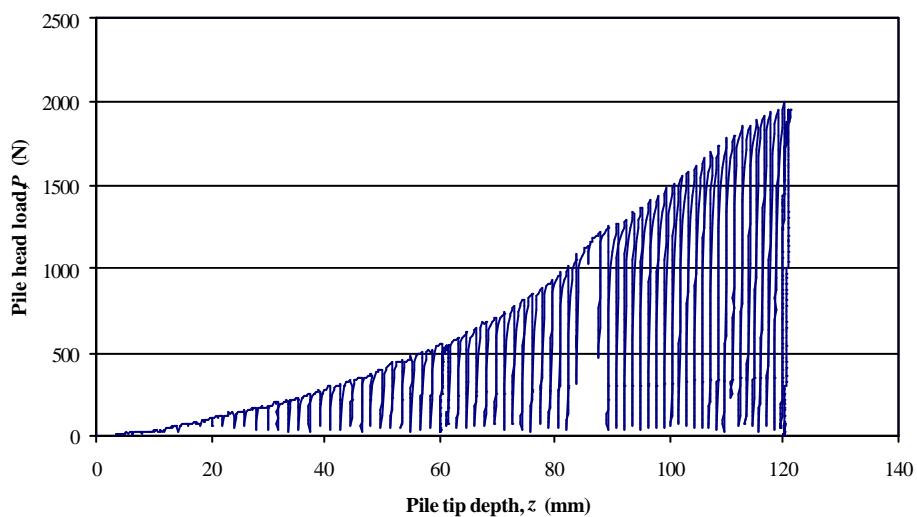


Figure 285 Test T7, Pile head load vs. pile tip depth (entire test)

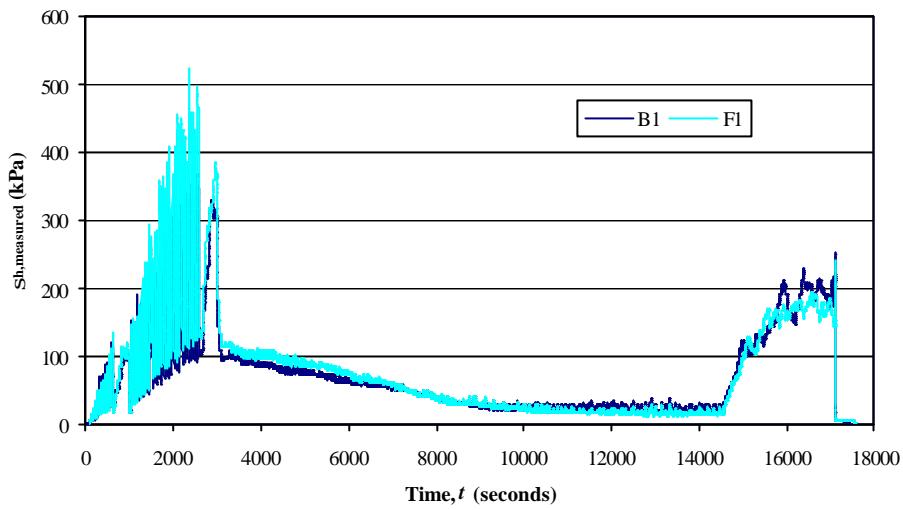


Figure 286 Test T7, B1, F1 pressure cells vs. time (entire test)

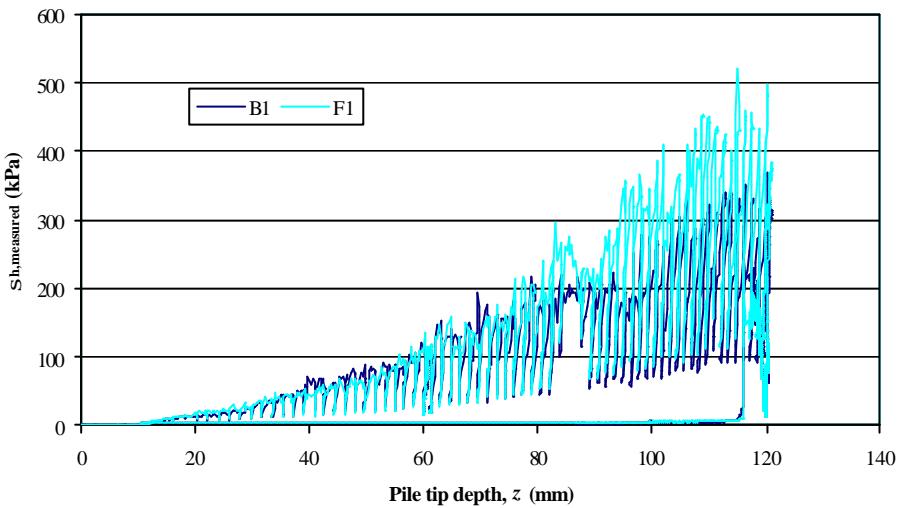


Figure 287 Test T7, B1, F1 pressure cells vs. pile tip depth (entire test)

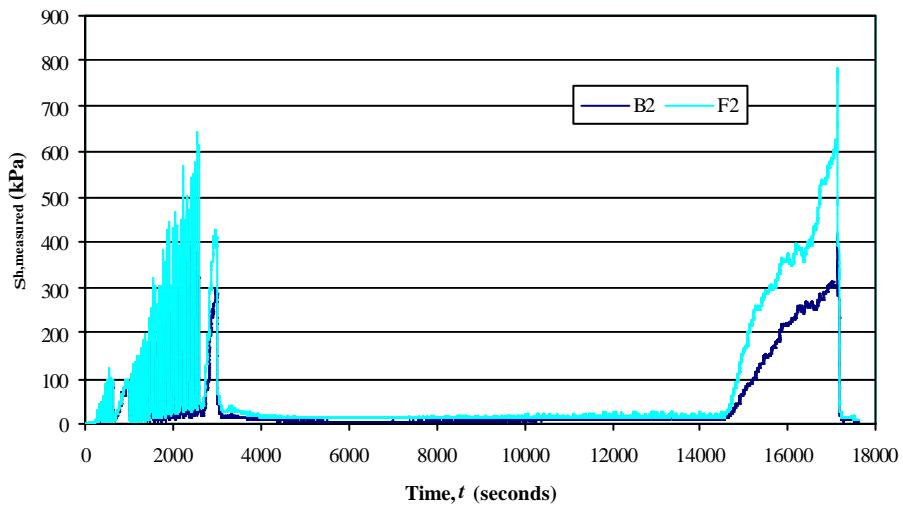


Figure 288 Test T7, B2, F2 pressure cells vs. time (entire test)

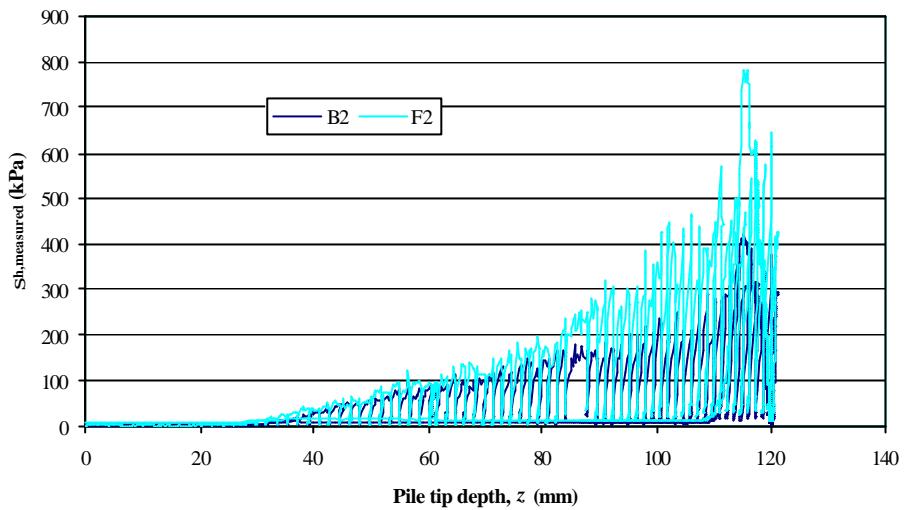


Figure 289 Test T7, B2, F2 pressure cells vs. pile tip depth (entire test)

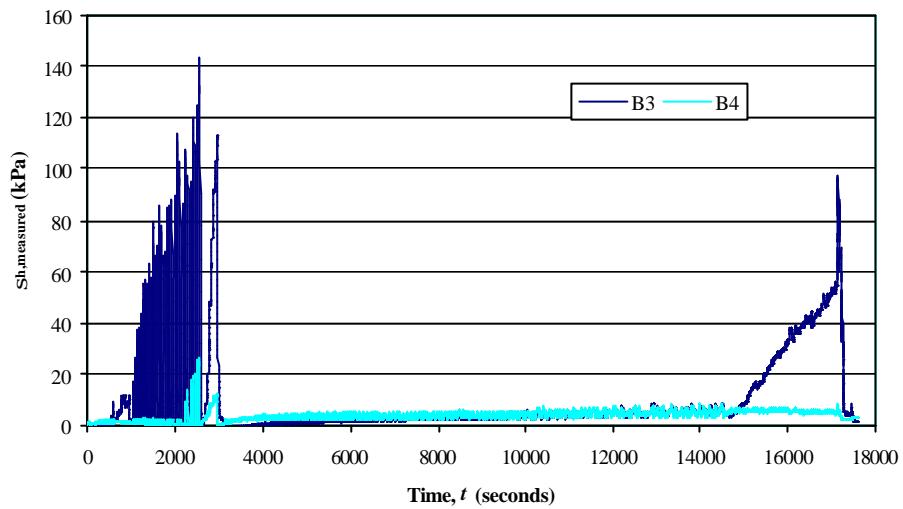


Figure 290 Test T7, B3, B4 pressure cells vs. time (entire test)

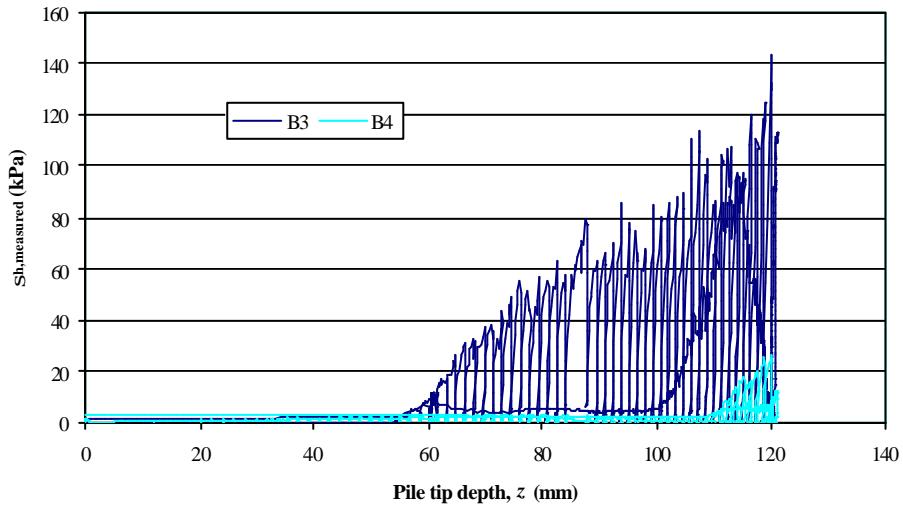


Figure 291 Test T7, B3, B4 pressure cells vs. pile tip depth (entire test)

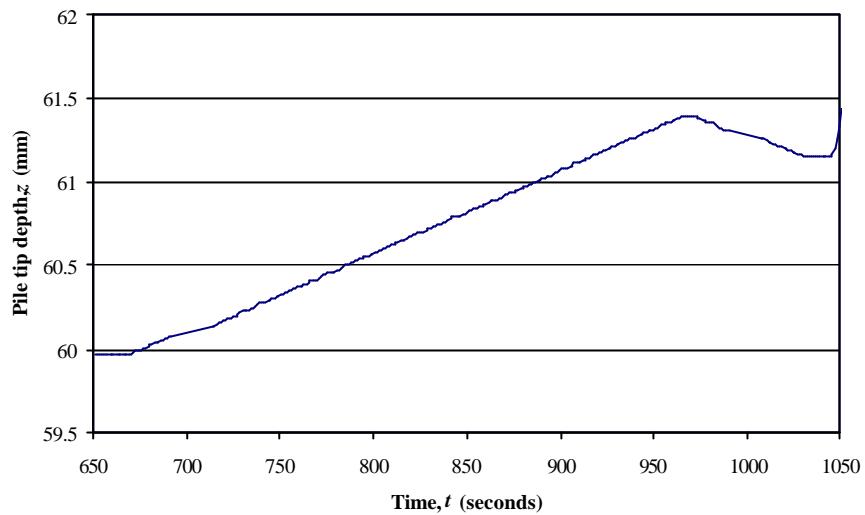


Figure 292 Test T7, Pile tip depth vs. time (load test 1: compression at L/2)

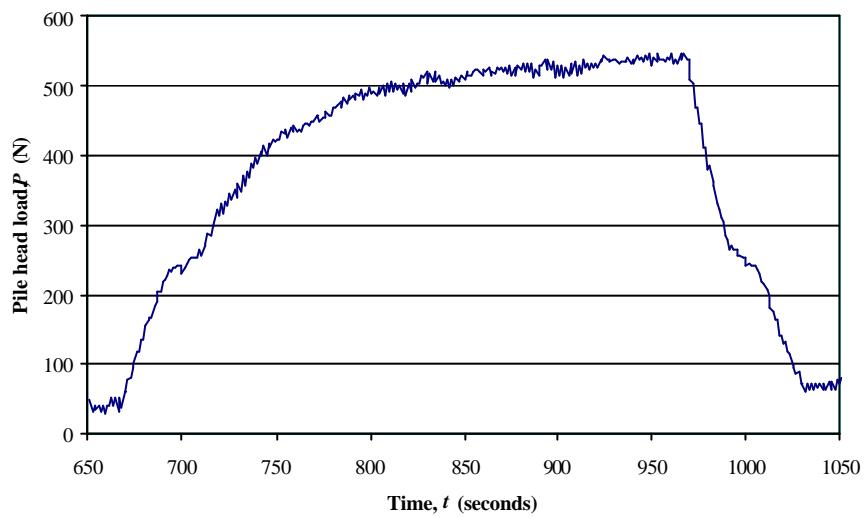


Figure 293 Test T7, Pile head load vs. time (load test 1: compression at L/2)

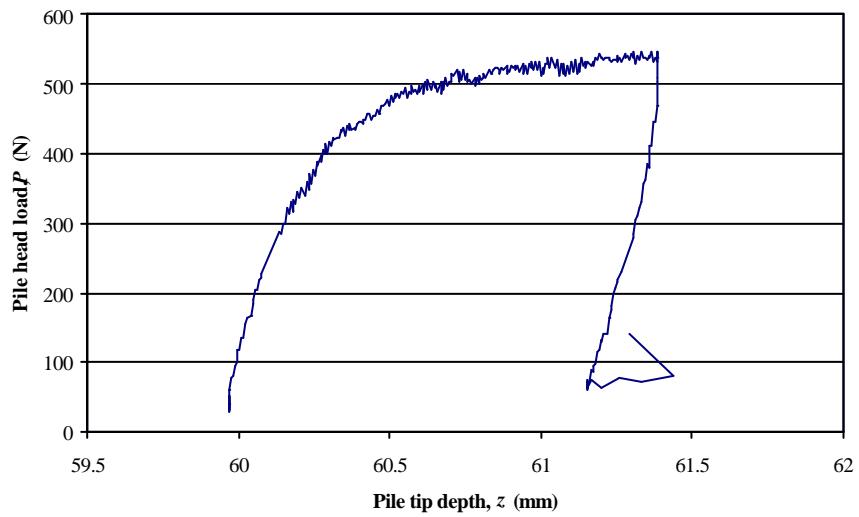


Figure 294 Test T7, Pile head load vs. pile tip depth (load test 1: compression at L/2)

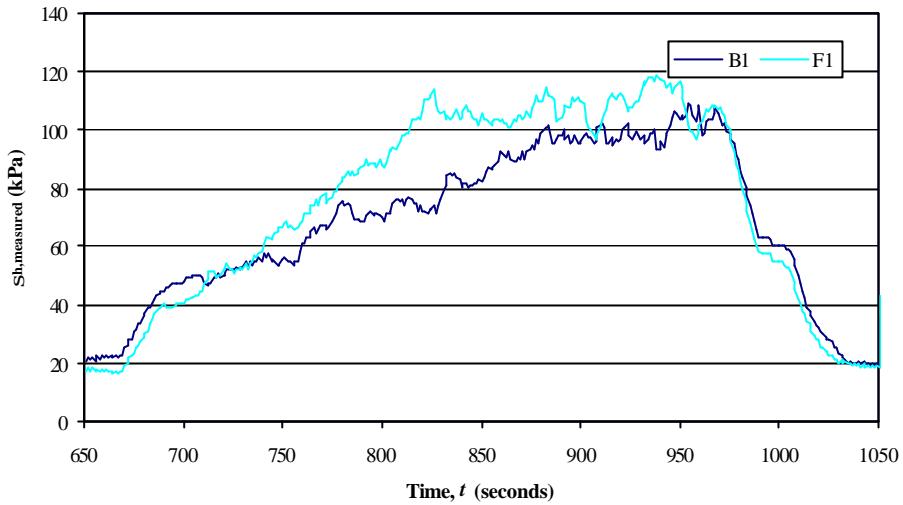


Figure 295 Test T7, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

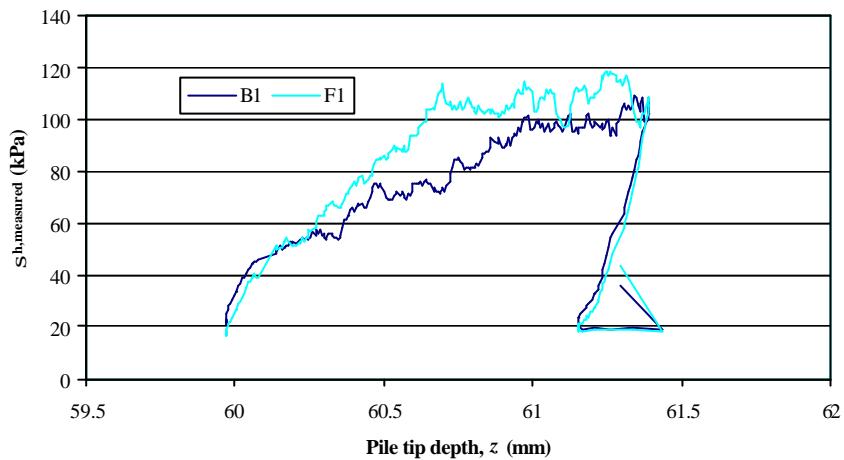


Figure 296 Test T7, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

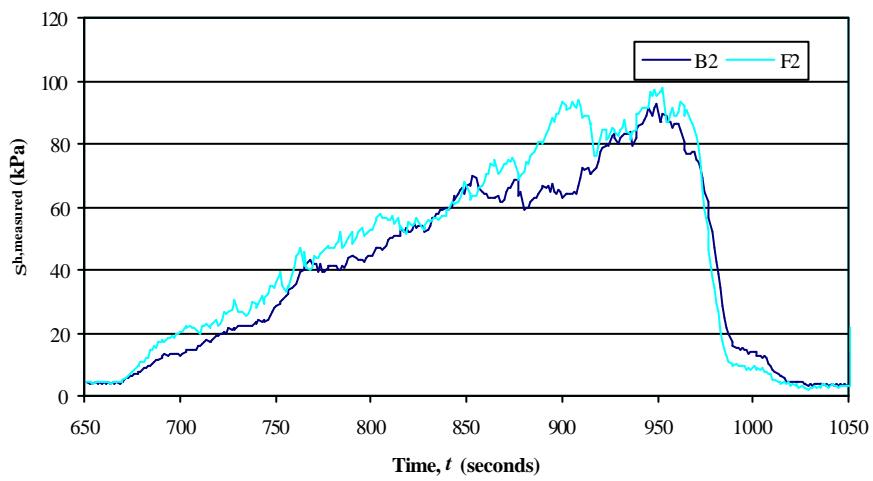


Figure 297 Test T7, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

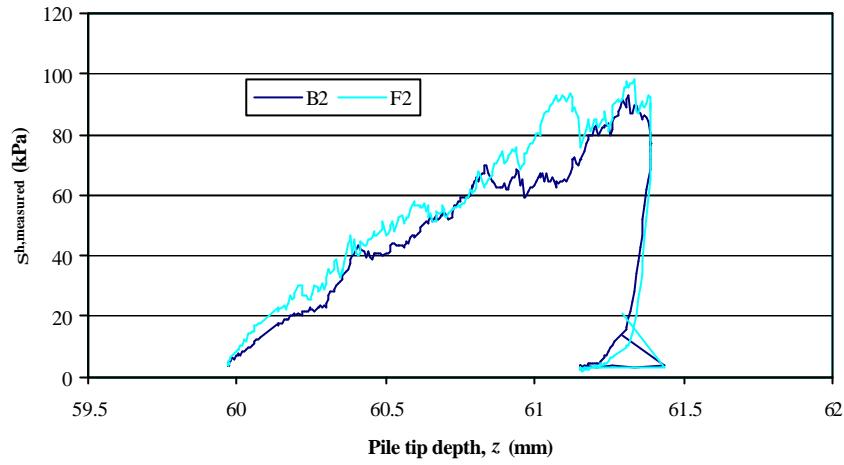


Figure 298 Test T7, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

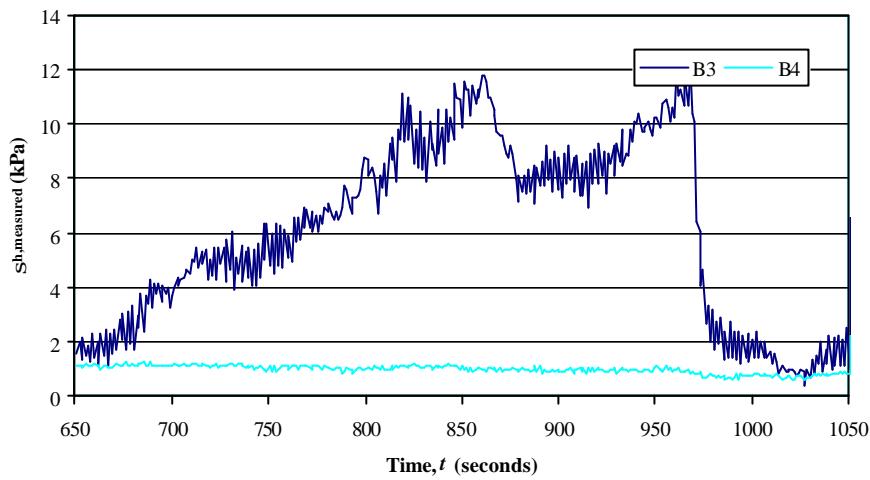


Figure 299 Test T7, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

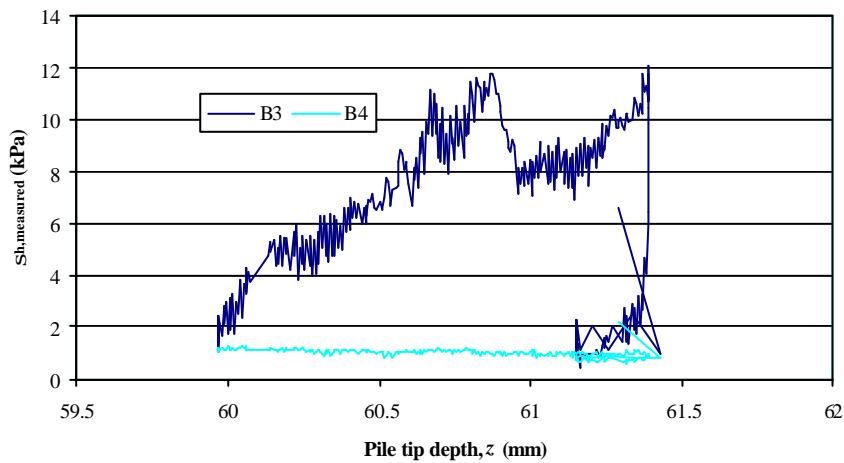


Figure 300 Test T7, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

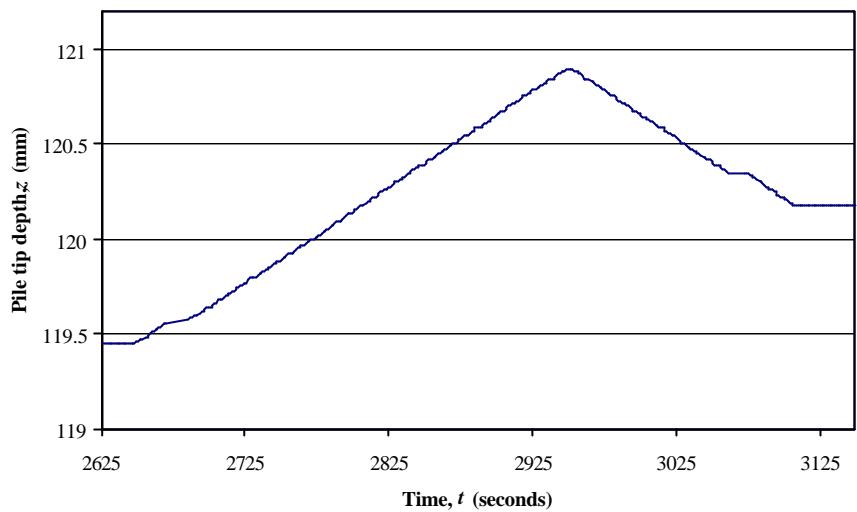


Figure 301 Test T7, Pile tip depth vs. time (load test 2: compression at L)

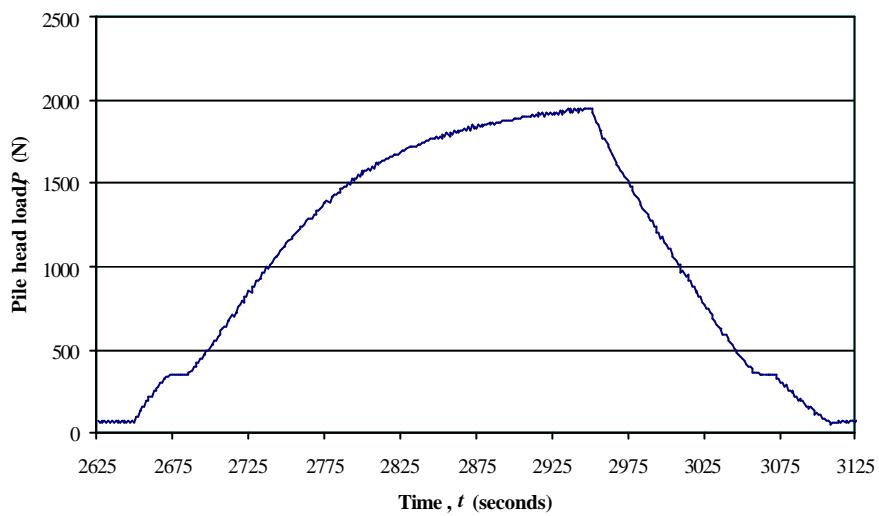


Figure 302 Test T7, Pile head load vs. time (load test 2: compression at L)

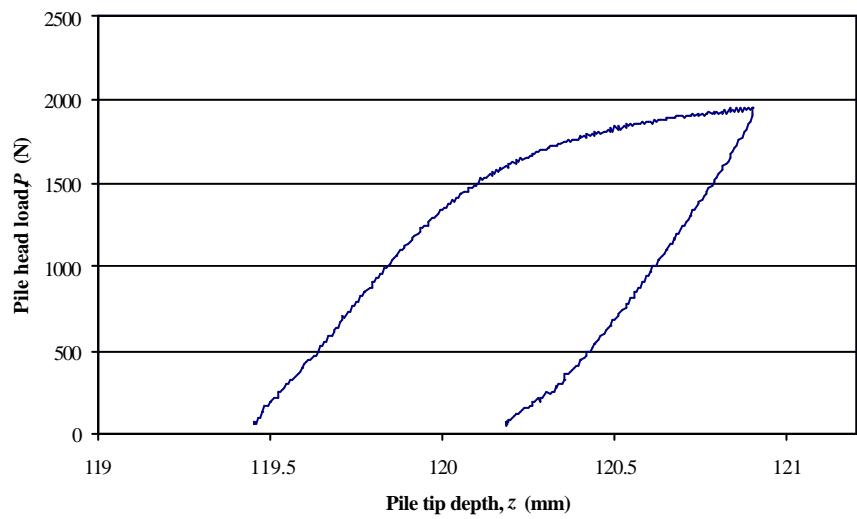


Figure 303 Test T7, Pile head load vs. pile tip depth (load test 2: compression at L)

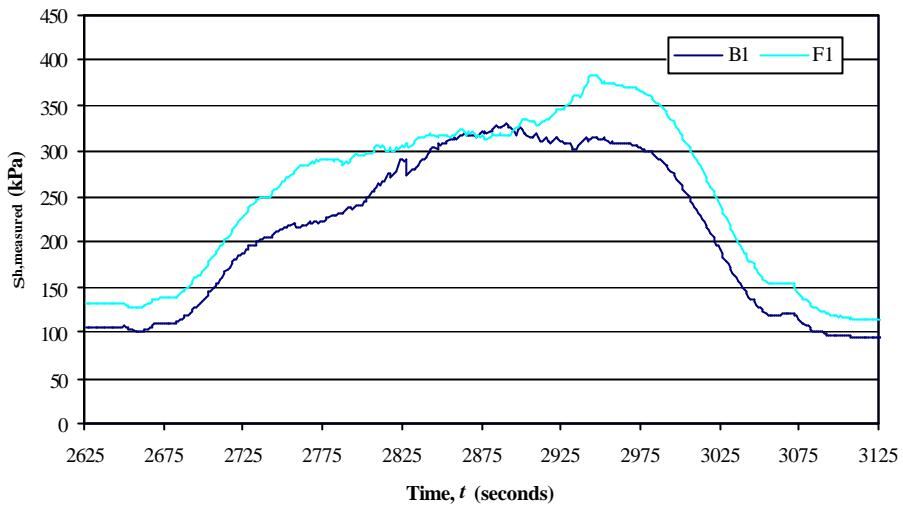


Figure 304 Test T7, B1, F1 pressure cells vs. time (load test 2: compression at L)

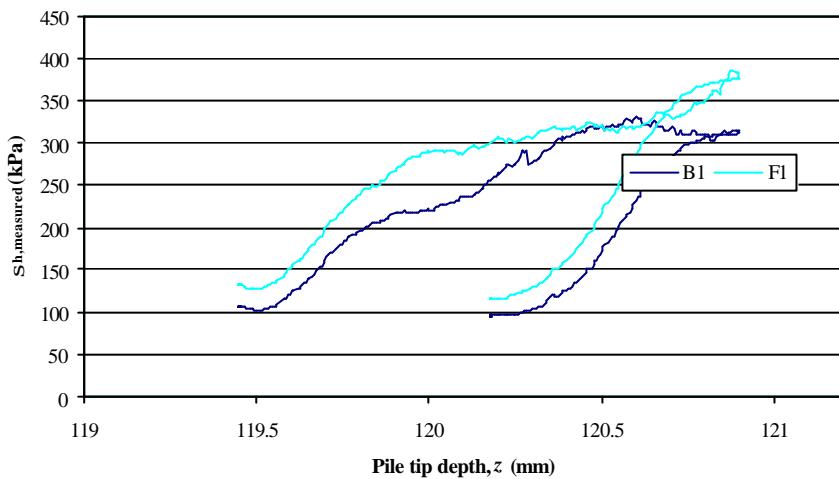


Figure 305 Test T7, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

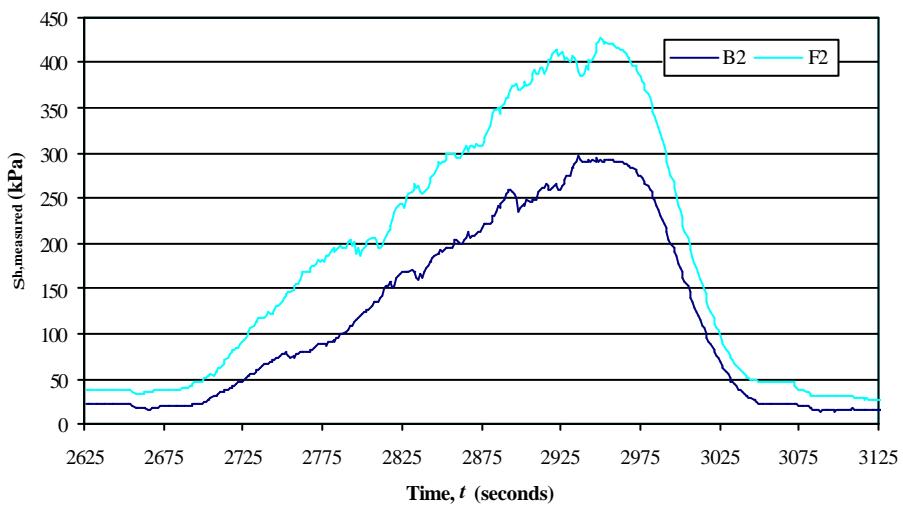


Figure 306 Test T7, B2, F2 pressure cells vs. time (load test 2: compression at L)

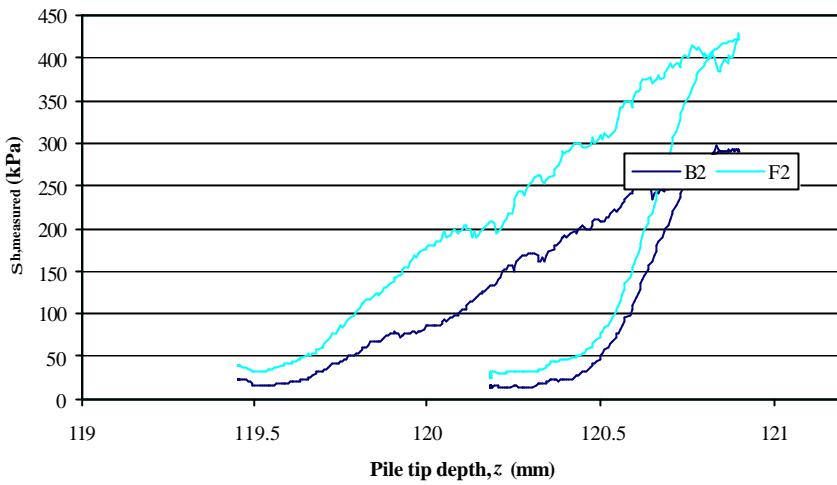


Figure 307 Test T7, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

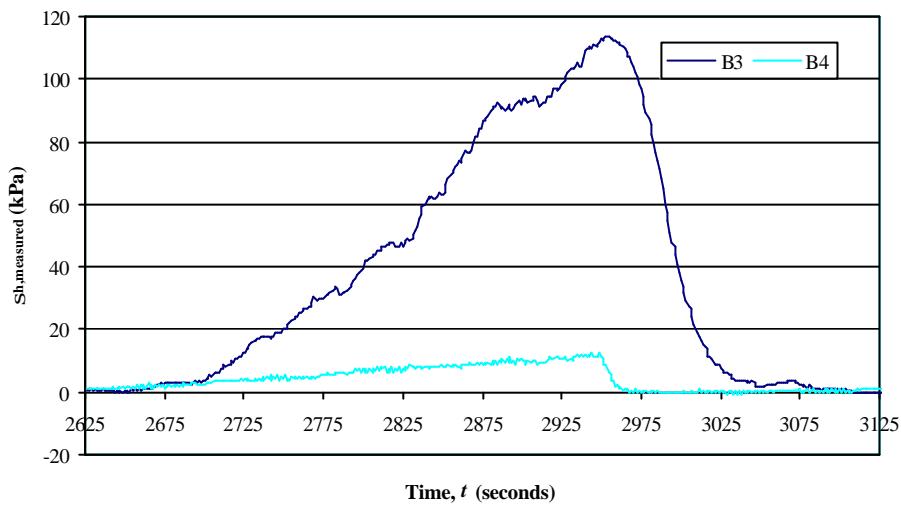


Figure 308 Test T7, B3, B4 pressure cells vs. time (load test 2: compression at L)

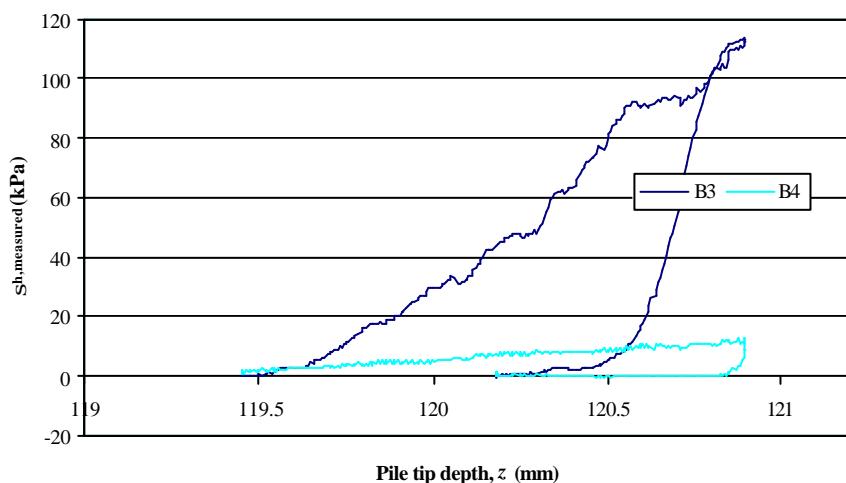


Figure 309 Test T7, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

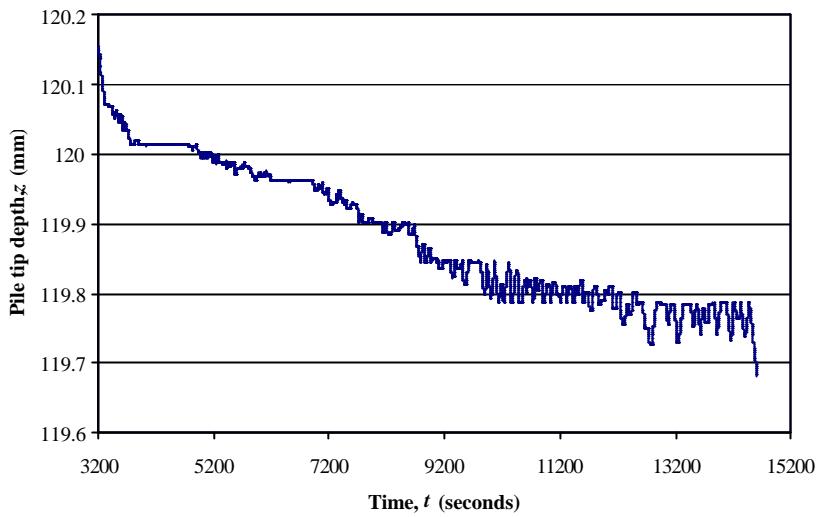


Figure 310 Test T7, Pile tip depth vs. time (load test 3: cyclic tension at L)

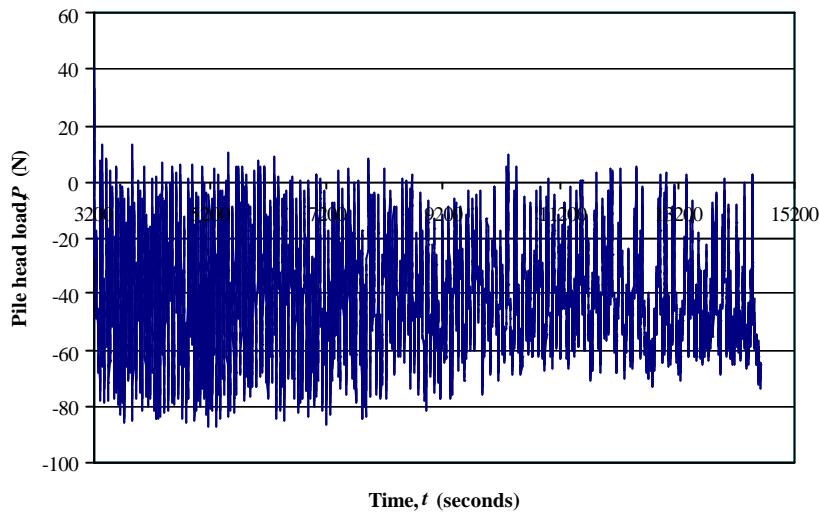


Figure 311 Test T7, Pile head load vs. time (load test 3: cyclic tension at L)

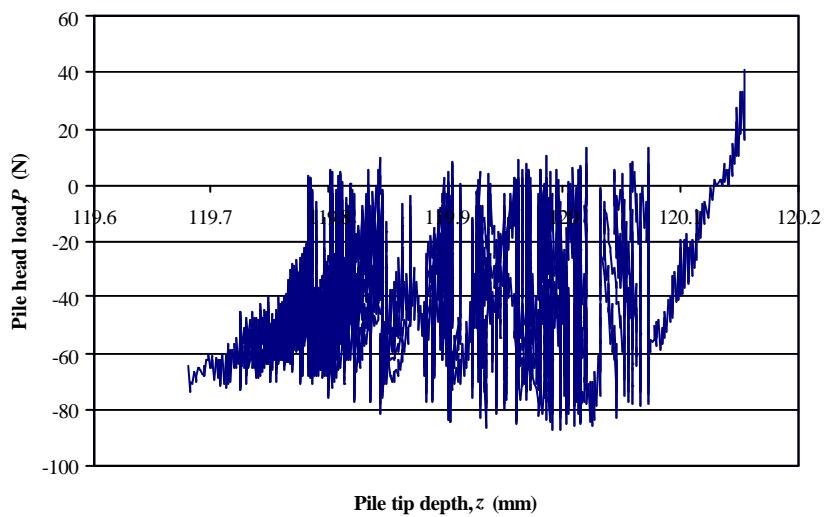


Figure 312 Test T7, Pile head load vs. pile tip depth (load test 3: cyclic tension at L)

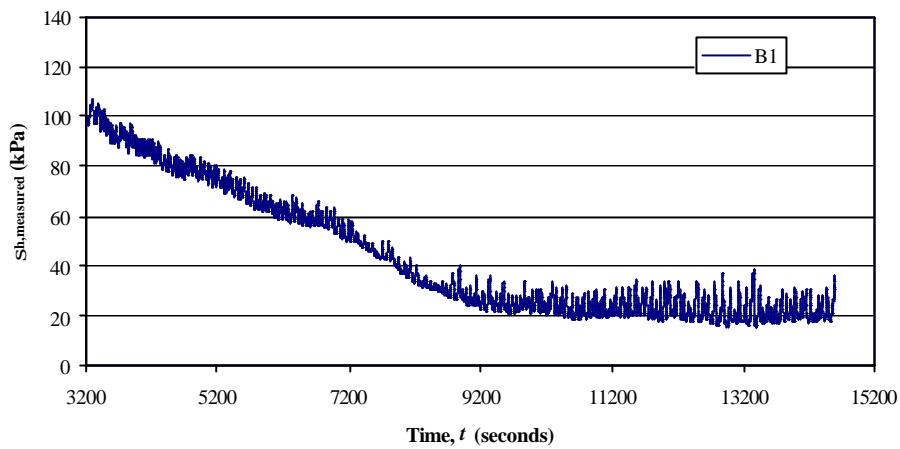


Figure 313 Test T7, B1 pressure cell vs. time (load test 3: cyclic tension at L)

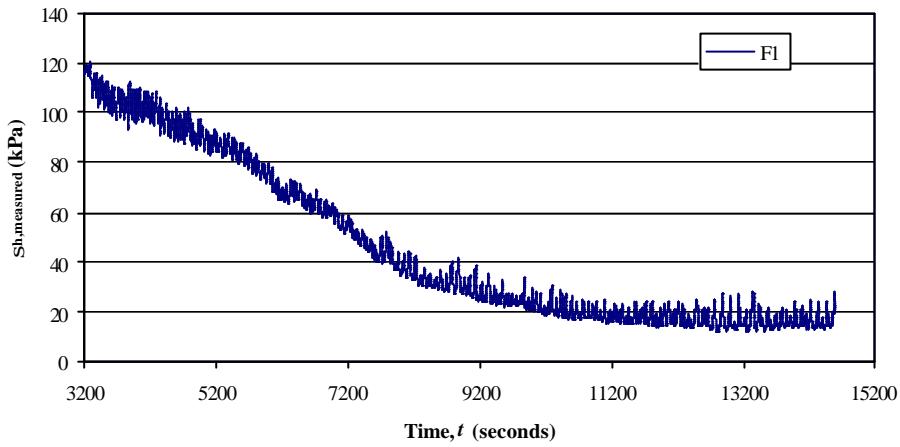


Figure 314 Test T7, F1 pressure cell vs. time (load test 3: cyclic tension at L)

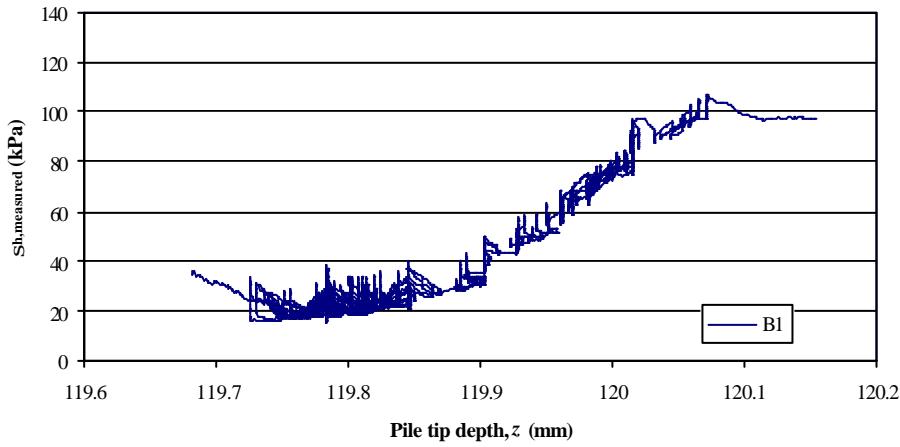


Figure 315 Test T7, B1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

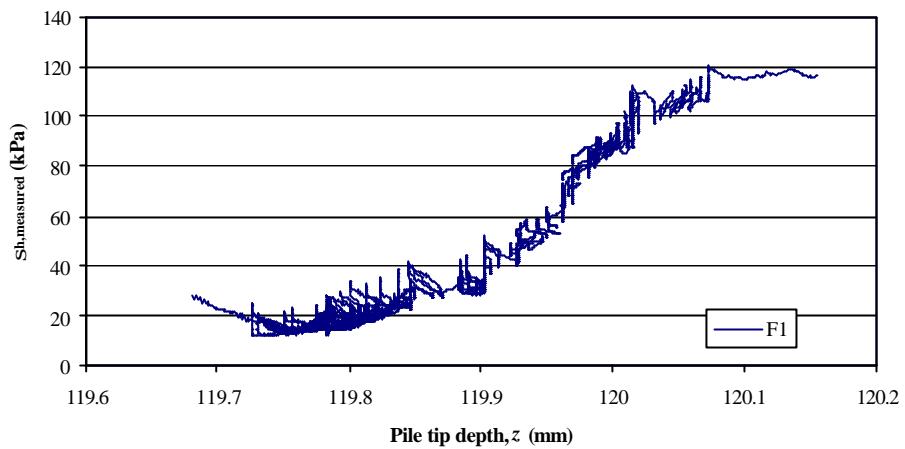


Figure 316 Test T7, F1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

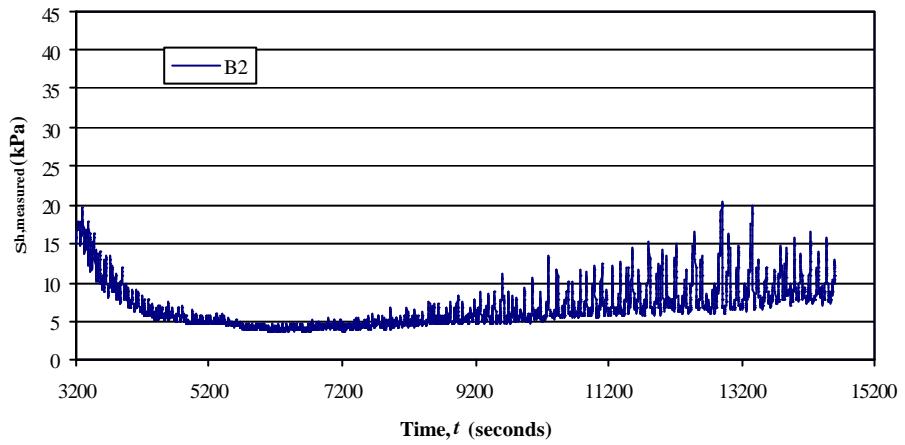


Figure 317 Test T7, B2 pressure cell vs. time (load test 3: cyclic tension at L)

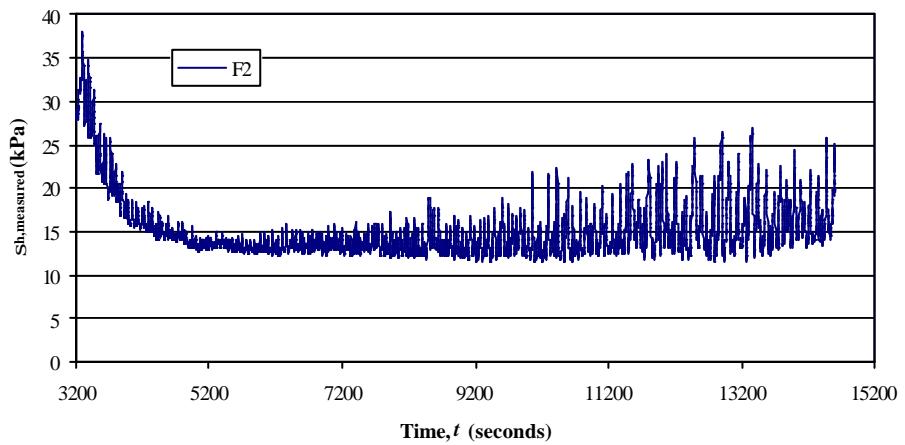


Figure 318 Test T7, F2 pressure cell vs. time (load test 3: cyclic tension at L)

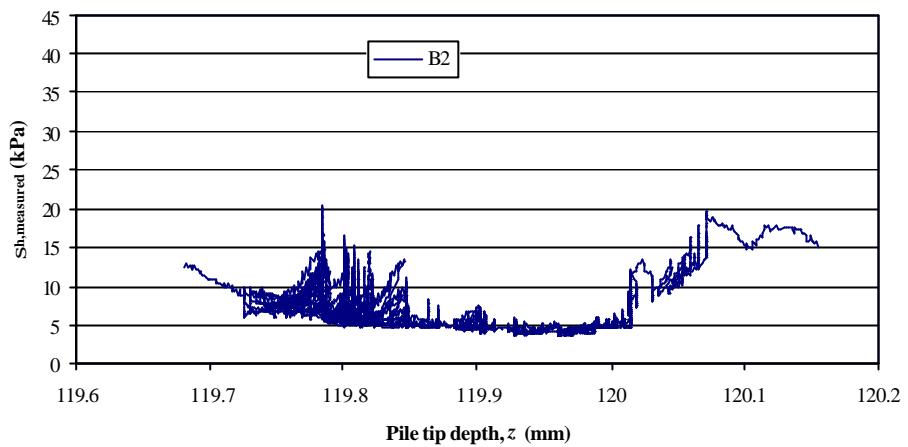


Figure 319 Test T7, B2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

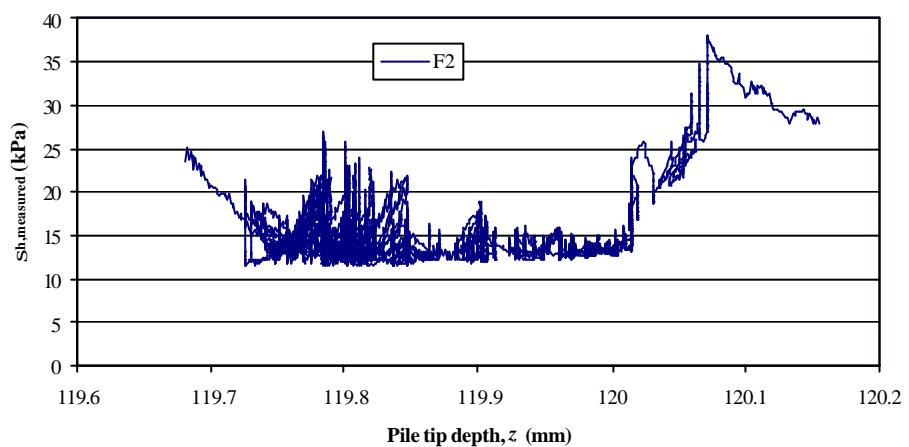


Figure 320 Test T7, F2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

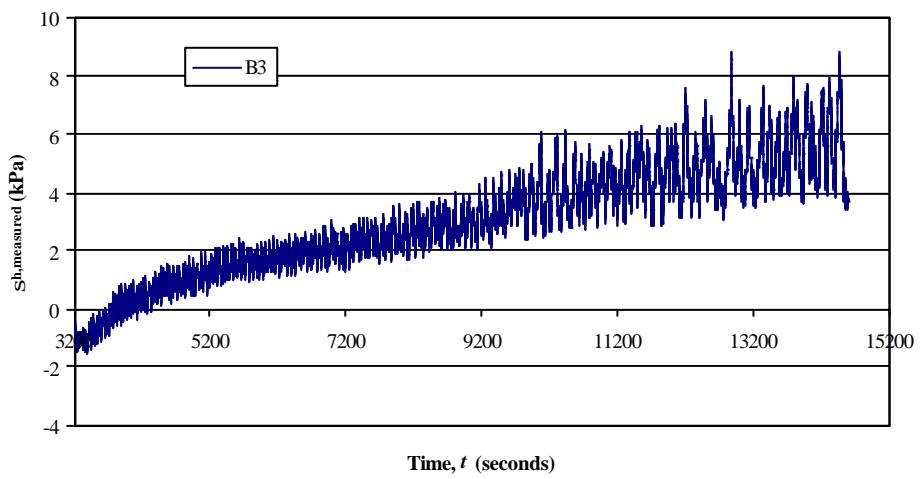


Figure 321 Test T7, B3 pressure cell vs. time (load test 3: cyclic tension at L)

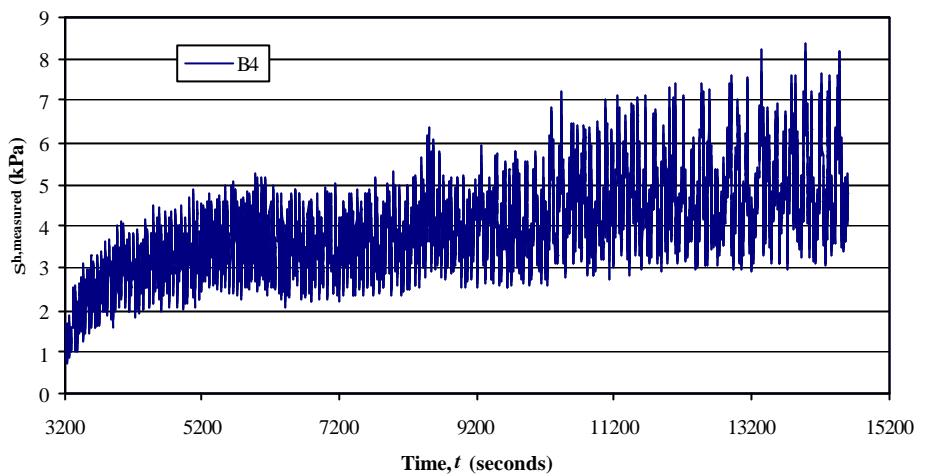


Figure 322 Test T7, B4 pressure cell vs. time (load test 3: cyclic tension at L)

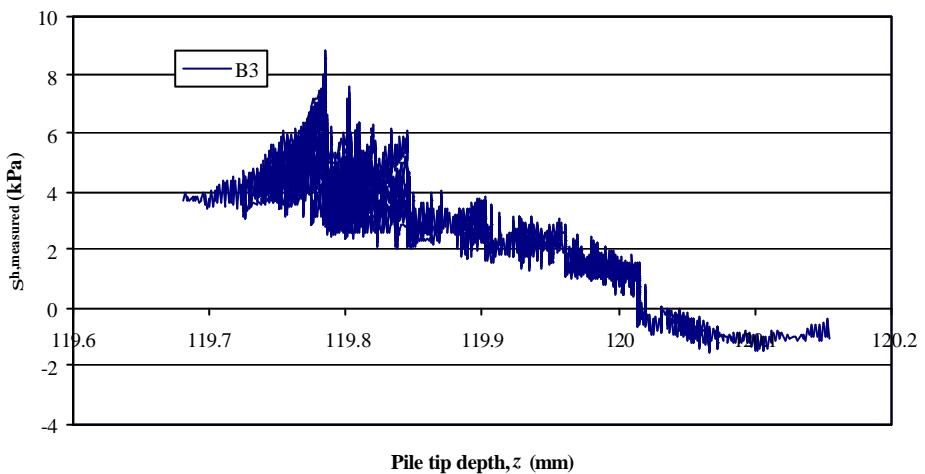


Figure 323 Test T7, B3 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

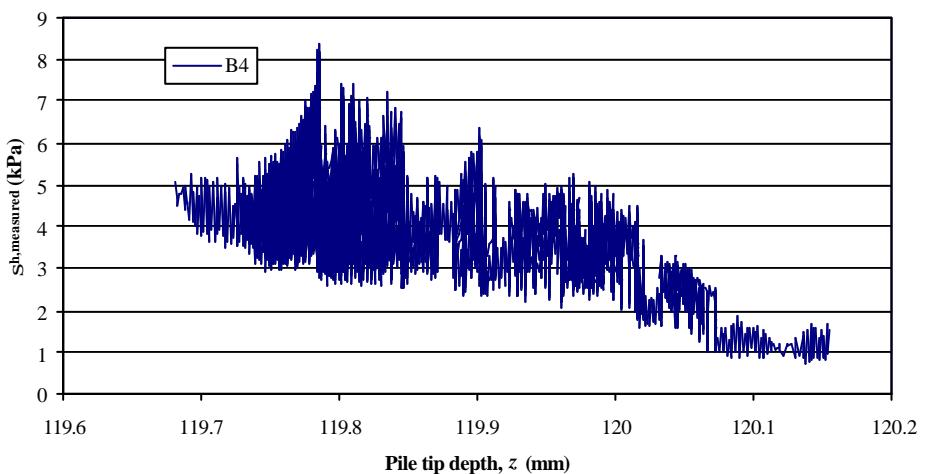


Figure 324 Test T7, B4 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

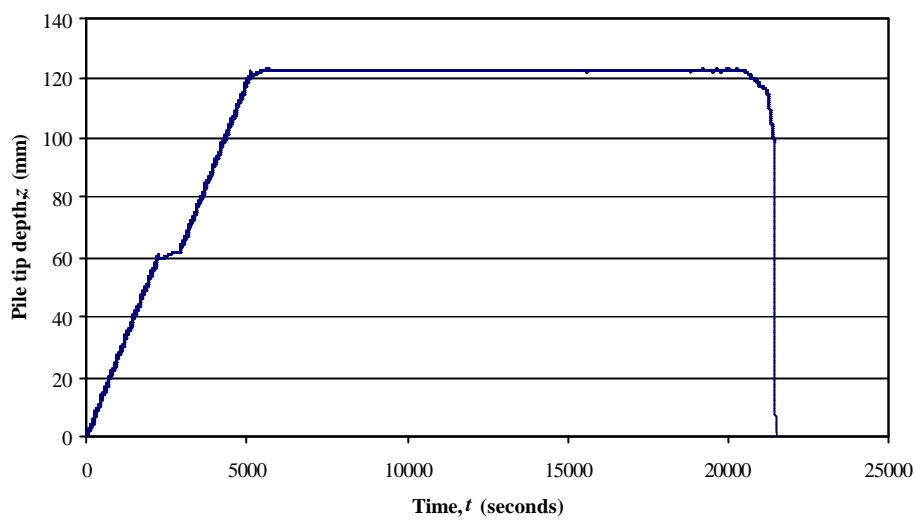


Figure 325 Test T8, Pile tip depth vs. time (entire test)

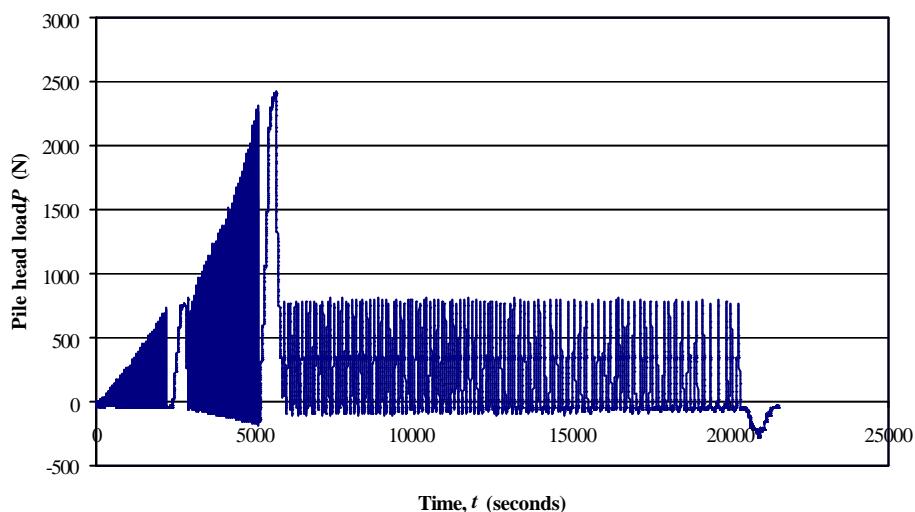


Figure 326 Test T8, Pile head load vs. time (entire test)

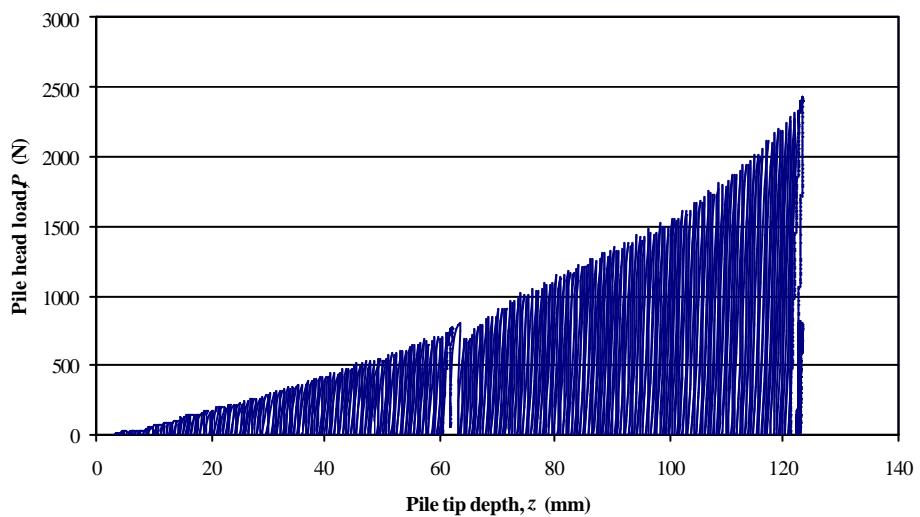


Figure 327 Test T8, Pile head load vs. pile tip depth (entire test)

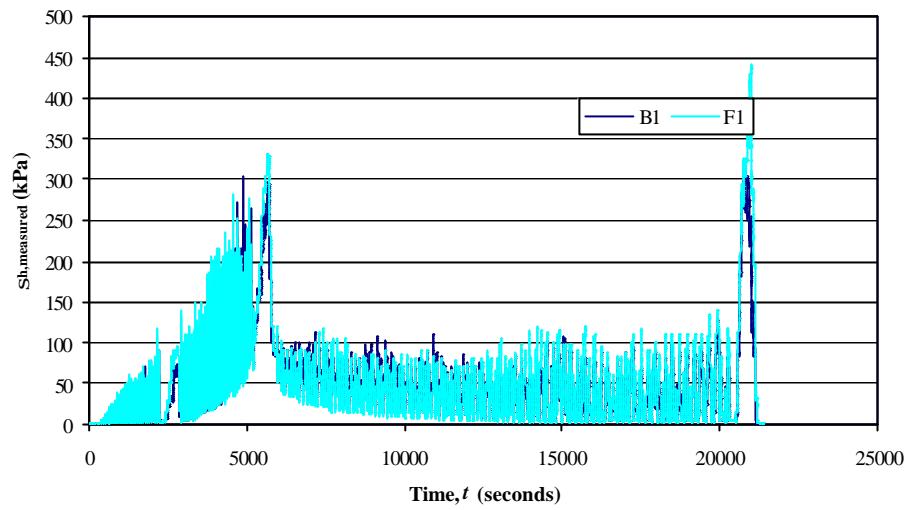


Figure 328 Test T8, B1, F1 pressure cells vs. time (entire test)

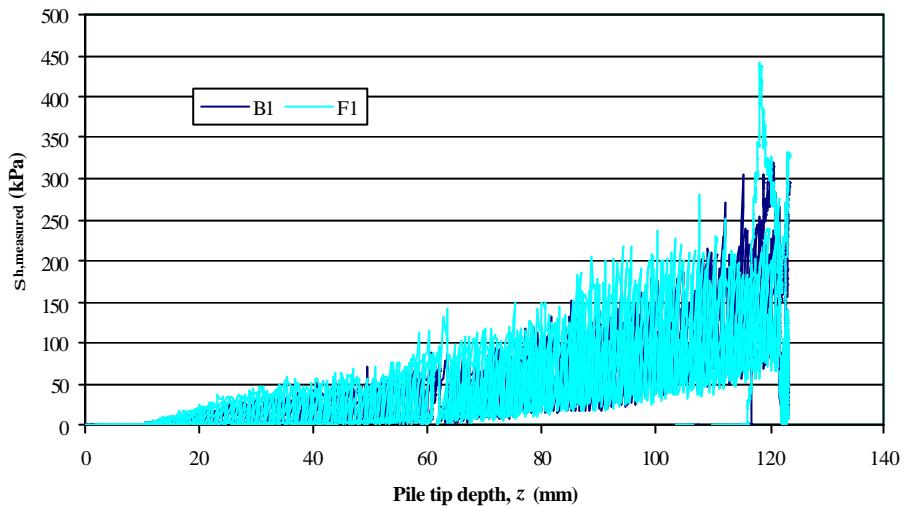


Figure 329 Test T8, B1, F1 pressure cells vs. pile tip depth (entire test)

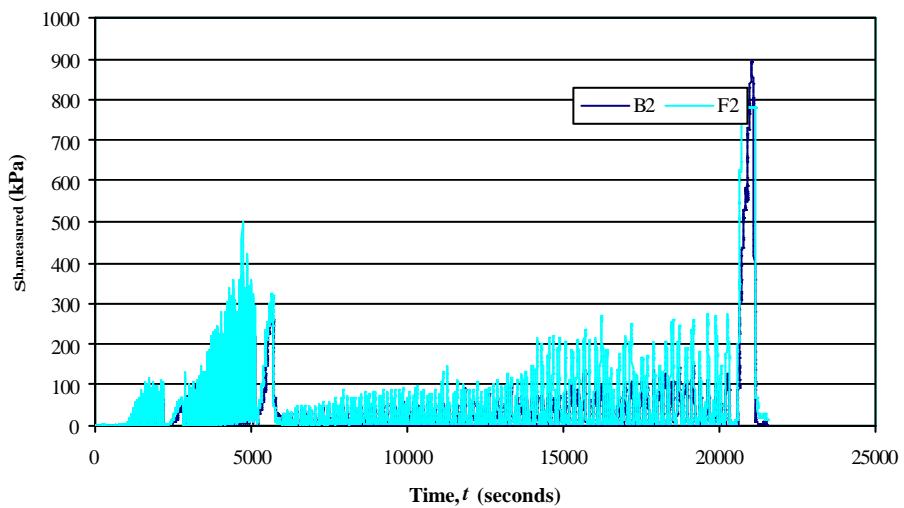


Figure 330 Test T8, B2, F2 pressure cells vs. time (entire test)

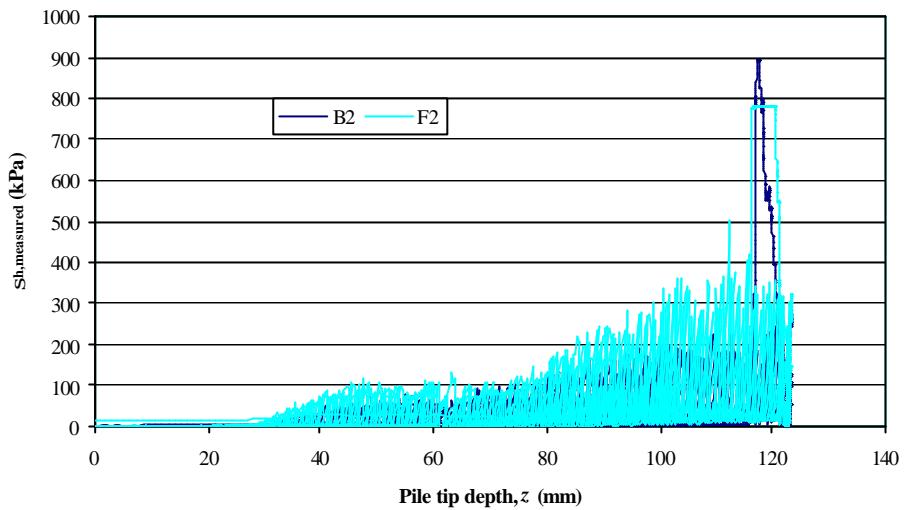


Figure 331 Test T8, B2, F2 pressure cells vs. pile tip depth (entire test)

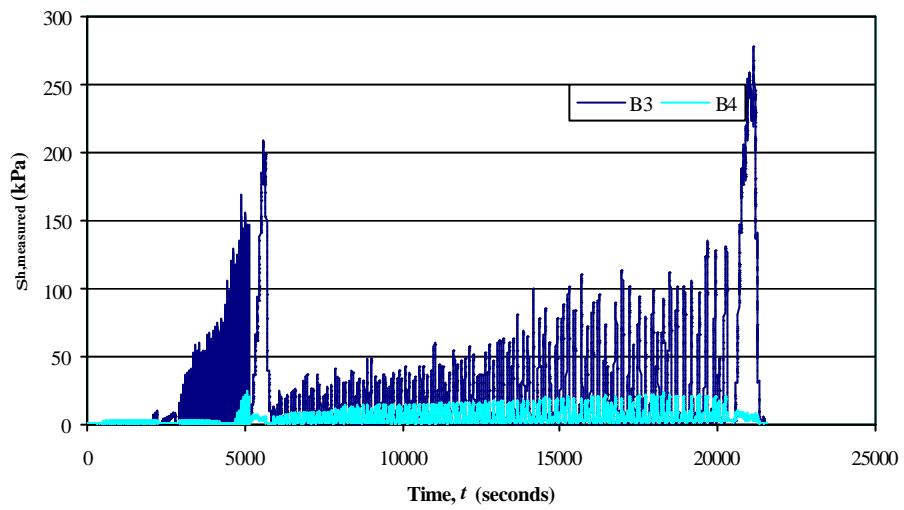


Figure 332 Test T8, B3, B4 pressure cells vs. time (entire test)

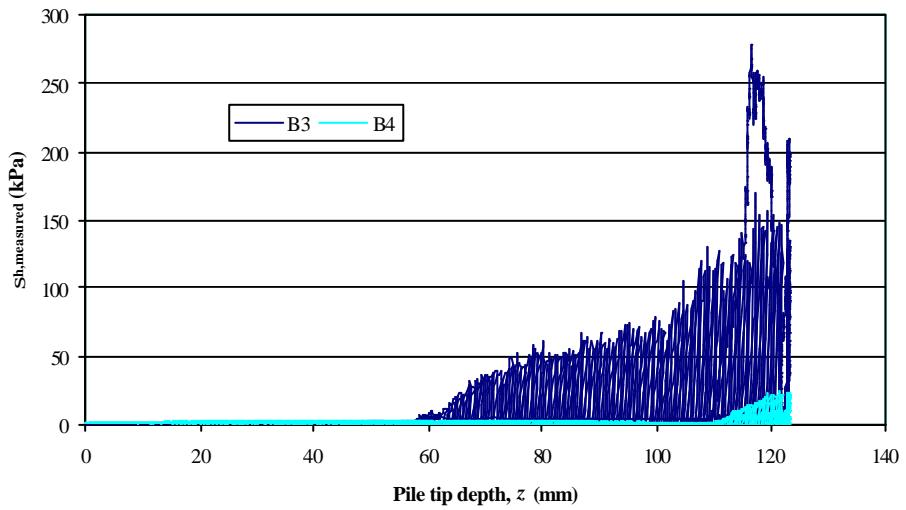


Figure 333 Test T8, B3, B4 pressure cells vs. pile tip depth (entire test)

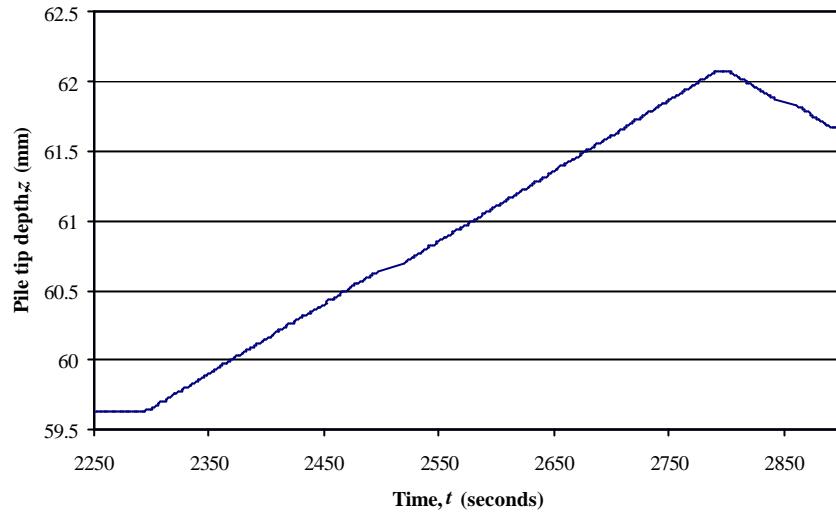


Figure 334 Test T8, Pile tip depth vs. time (load test 1: compression at L/2)

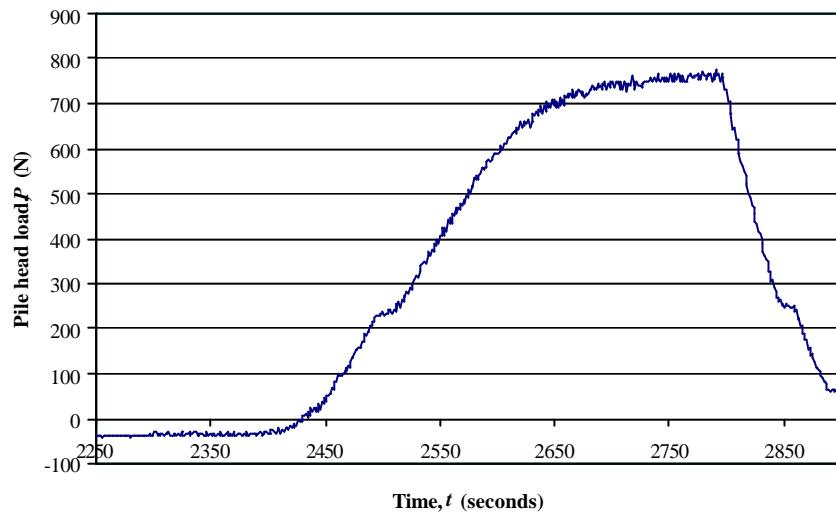


Figure 335 Test T8, Pile head load vs. time (load test 1: compression at L/2)

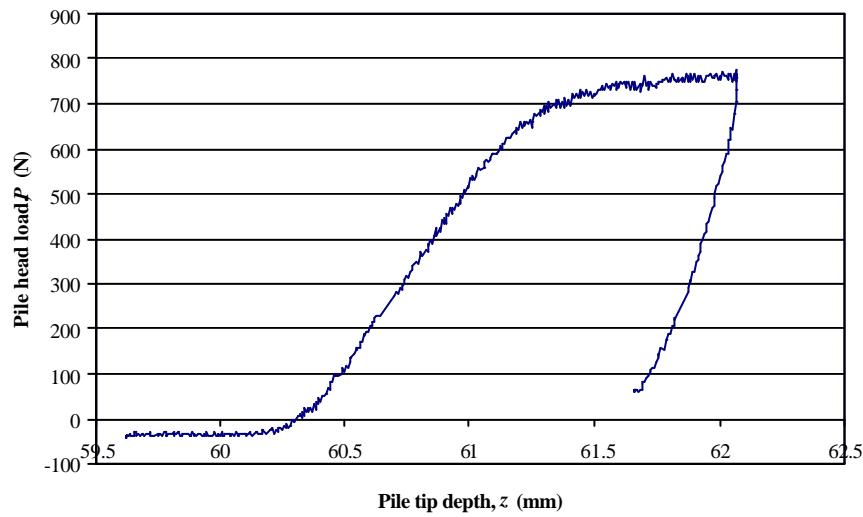


Figure 336 Test T8, Pile head load vs. pile tip depth (load test 1: compression at L/2)

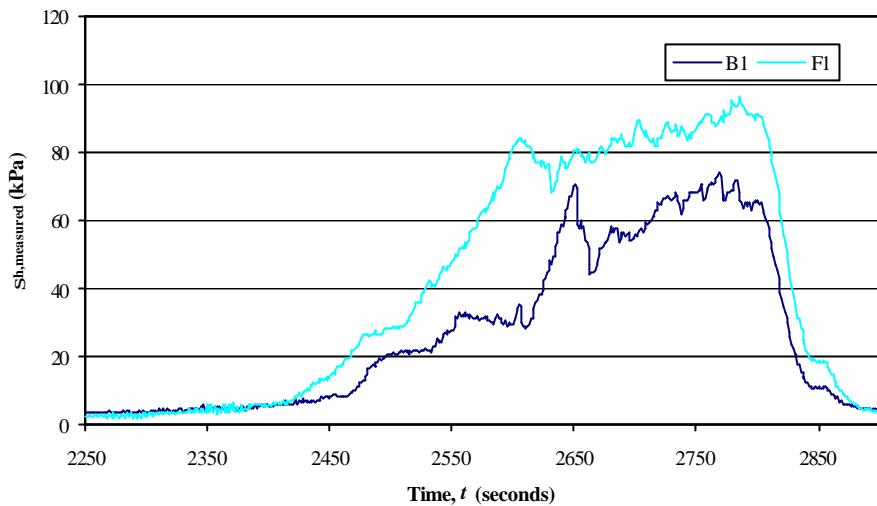


Figure 337 Test T8, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

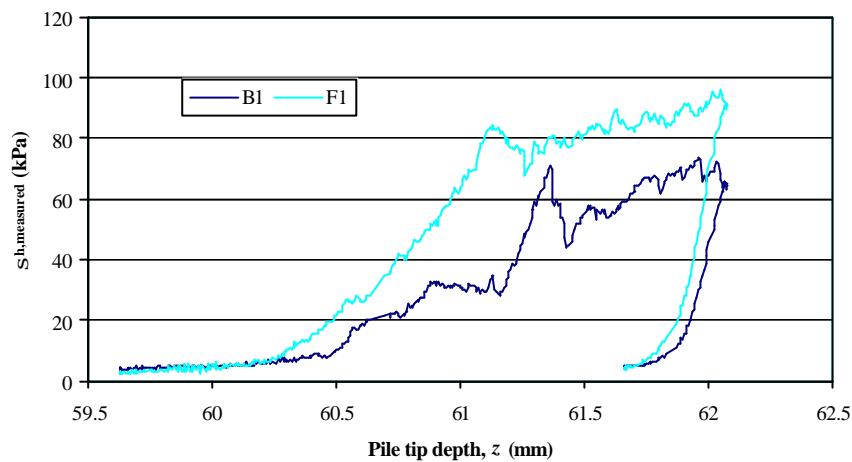


Figure 338 Test T8, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

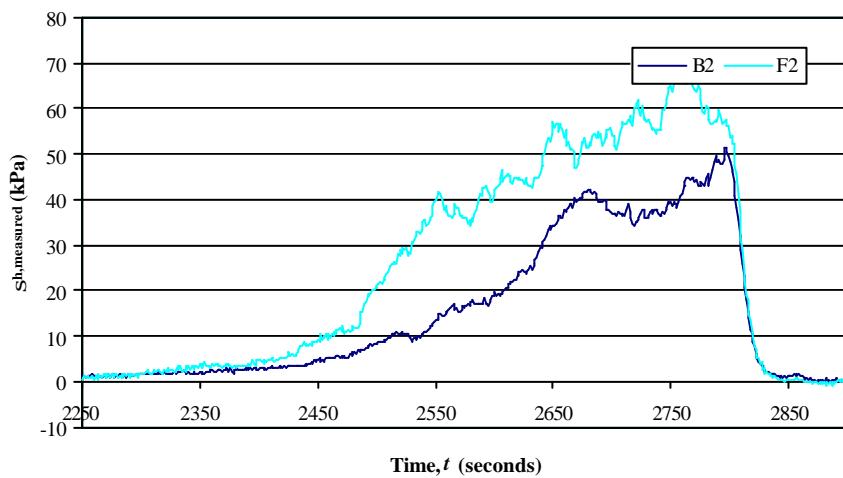


Figure 339 Test T8, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

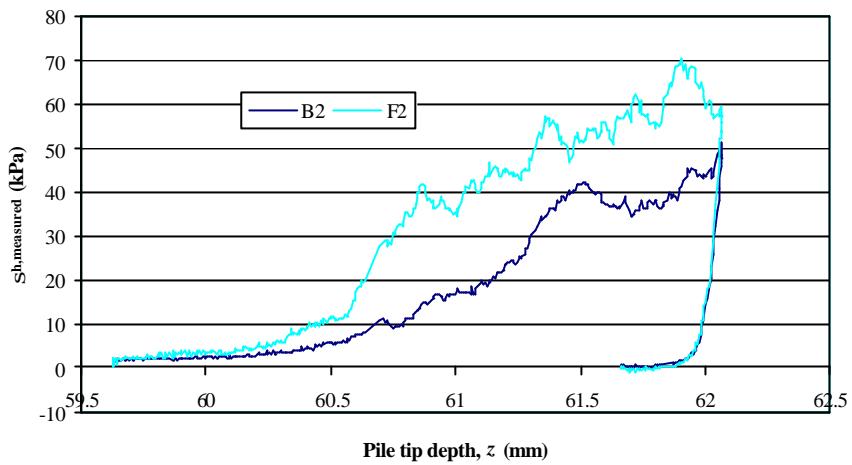


Figure 340 Test T8, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

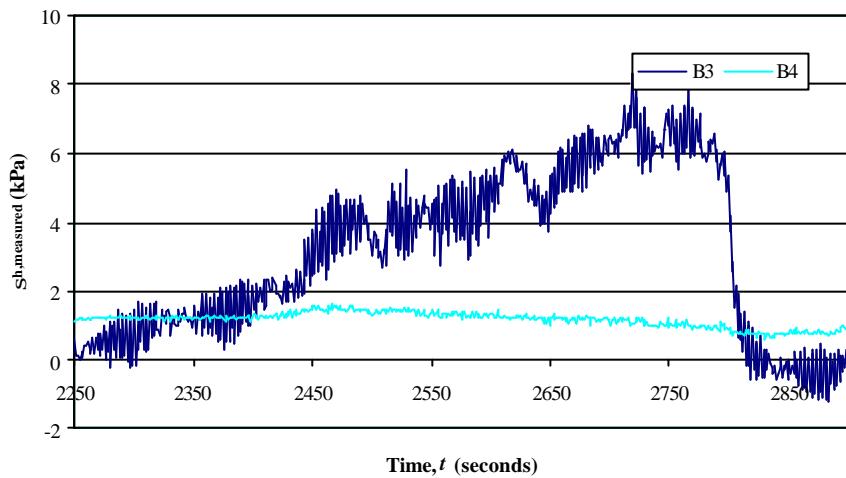


Figure 341 Test T8, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

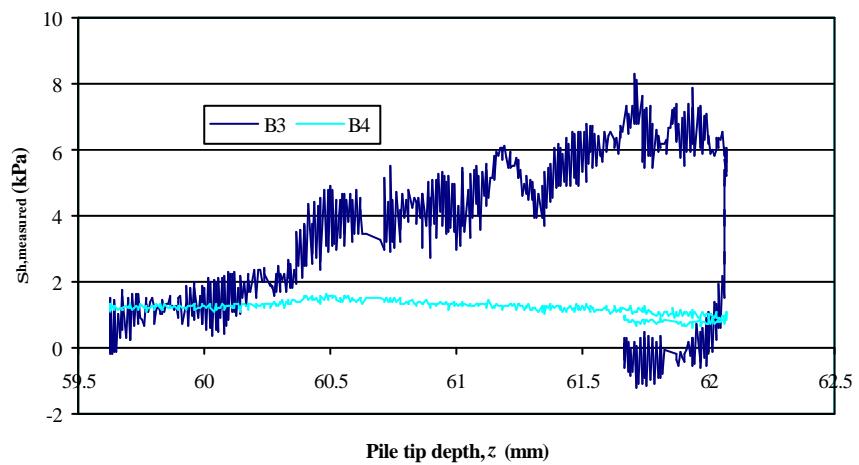


Figure 342 Test T8, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

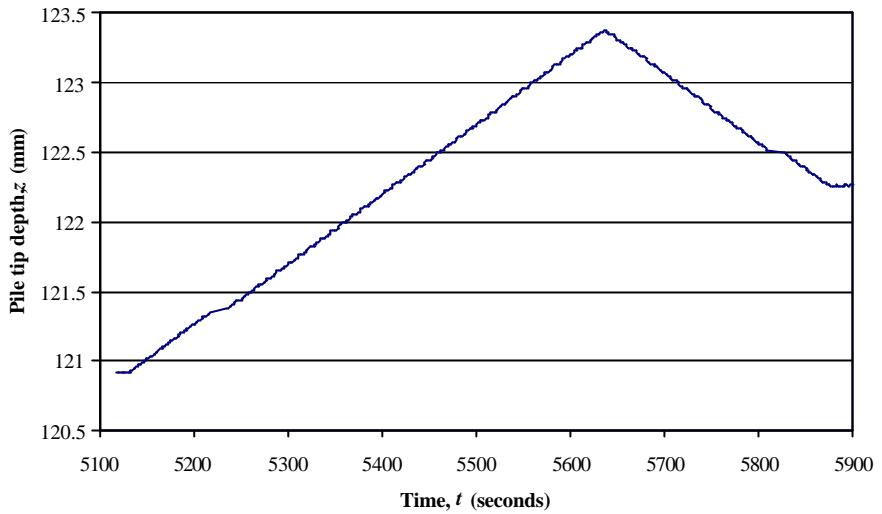


Figure 343 Test T8, Pile tip depth vs. time (load test 2: compression at L)

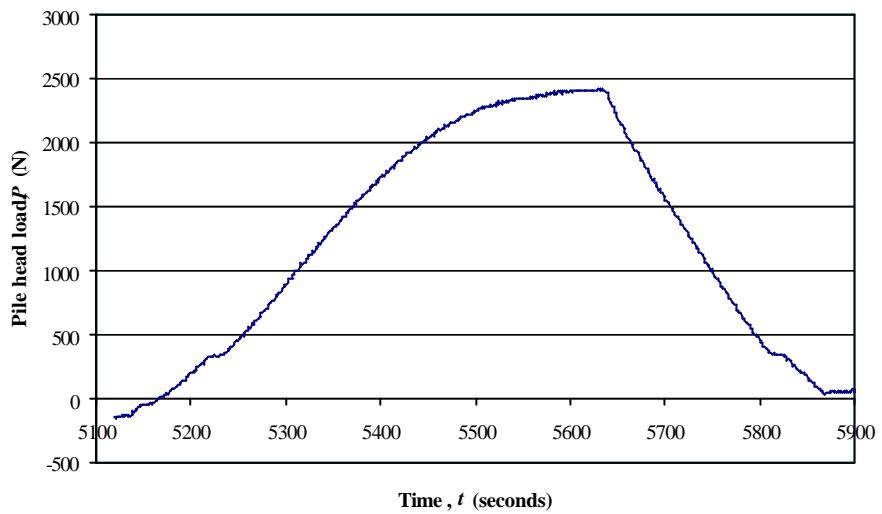


Figure 344 Test T8, Pile head load vs. time (load test 2: compression at L)

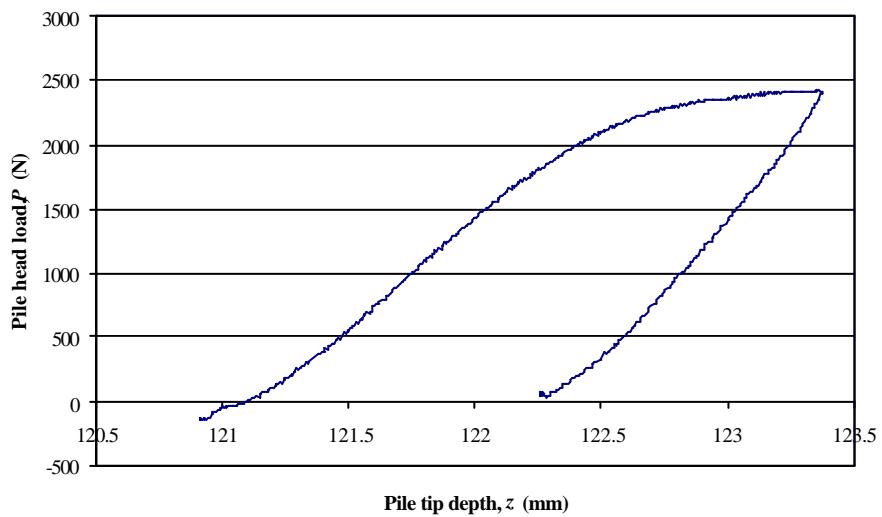


Figure 345 Test T8, Pile head load vs. pile tip depth (load test 2: compression at L)

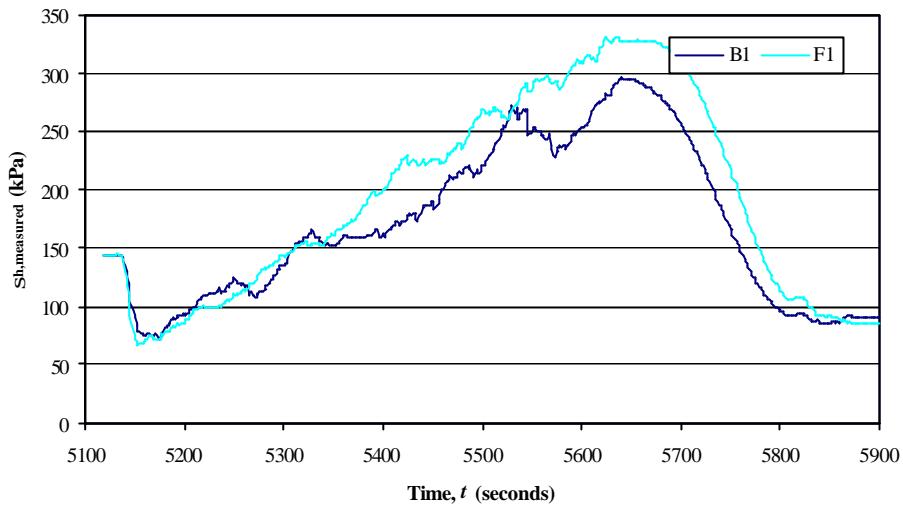


Figure 346 Test T8, B1, F1 pressure cells vs. time (load test 2: compression at L)

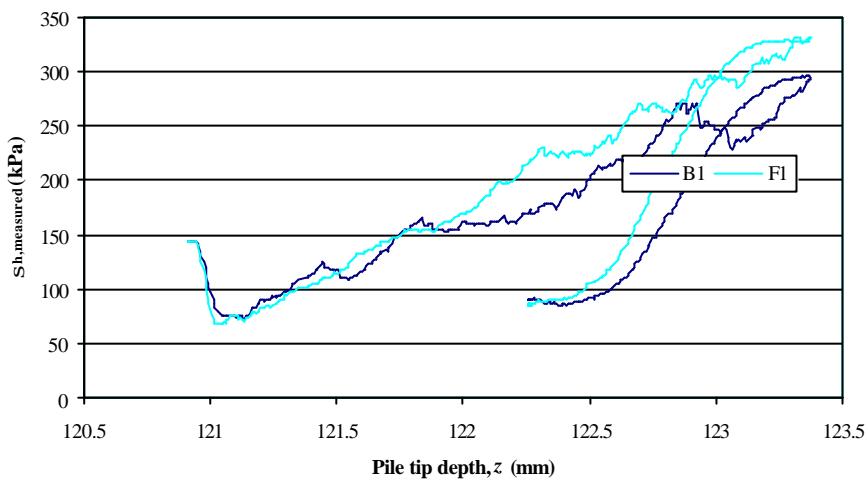


Figure 347 Test T8, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

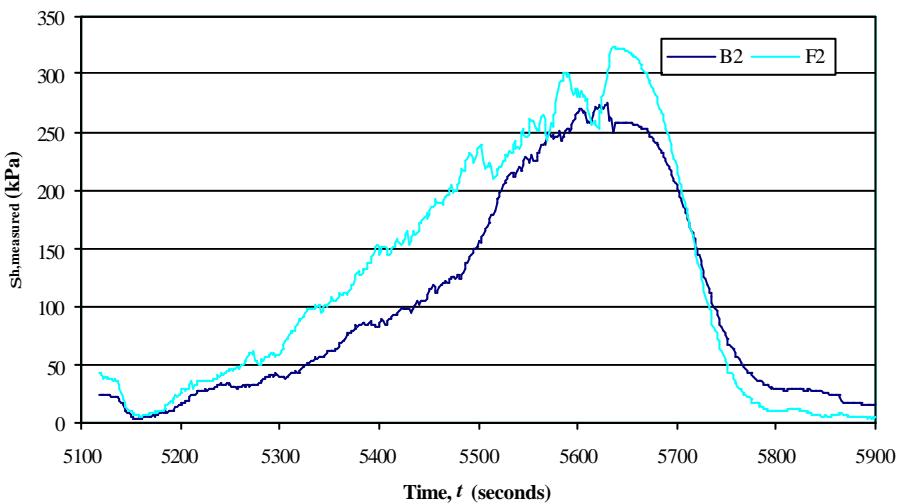


Figure 348 Test T8, B2, F2 pressure cells vs. time (load test 2: compression at L)

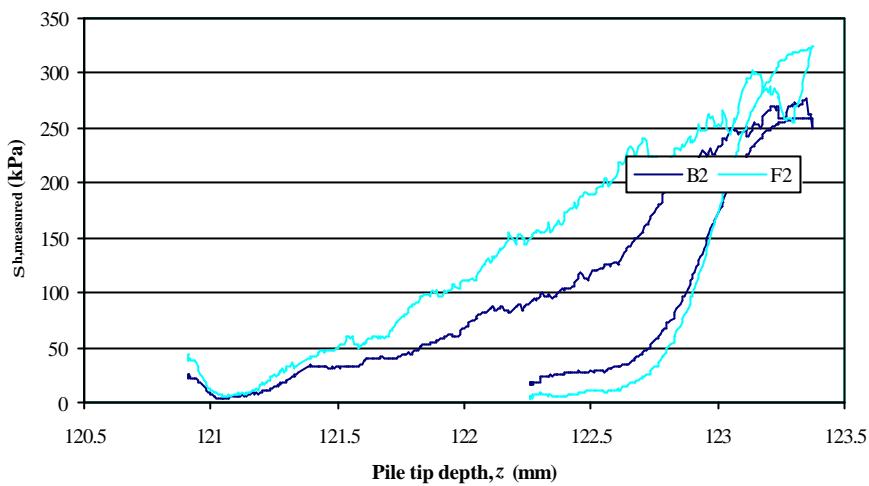


Figure 349 Test T8, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

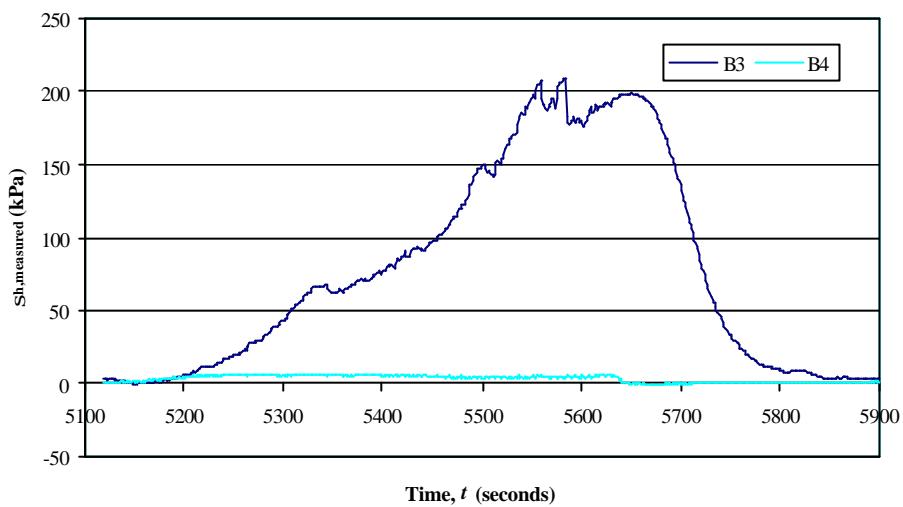


Figure 350 Test T8, B3, B4 pressure cells vs. time (load test 2: compression at L)

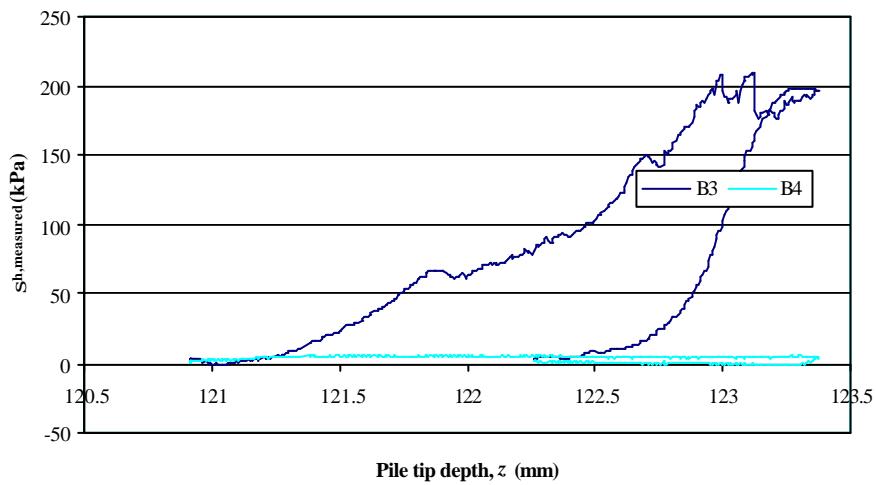


Figure 351 Test T8, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

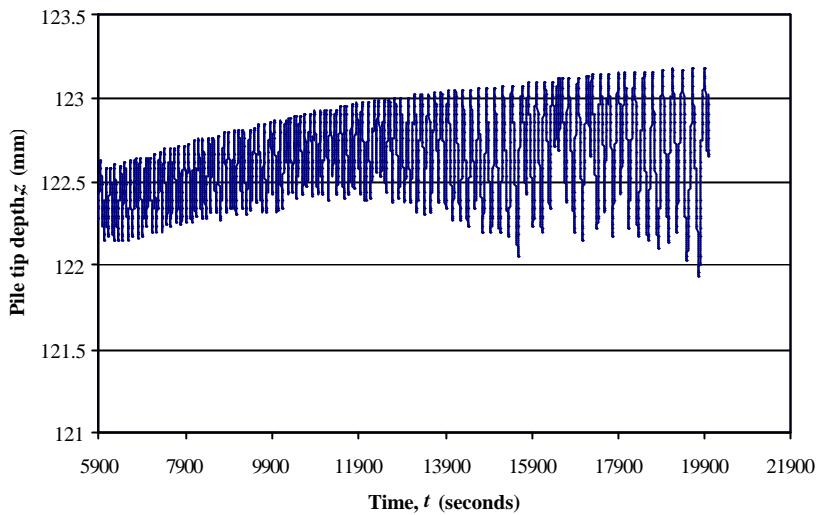


Figure 352 Test T8, Pile tip depth vs. time (load test 3: compression/tension at L)

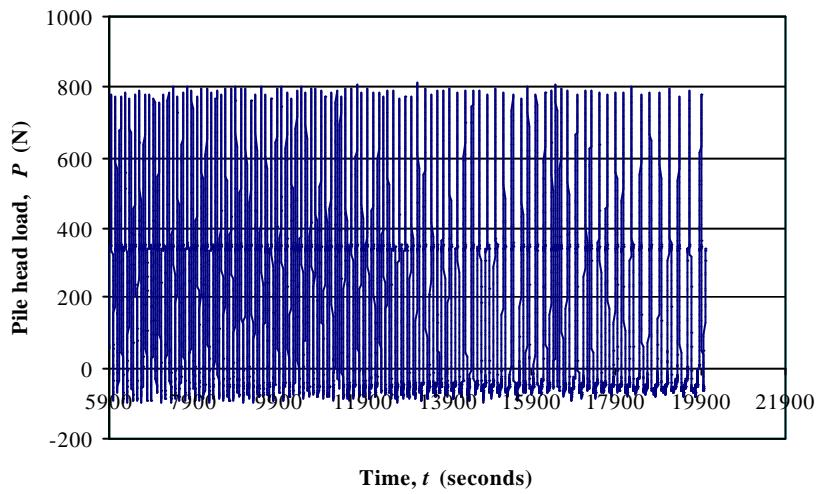


Figure 353 Test T8, Pile head load vs. time (load test 3: compression/tension at L)

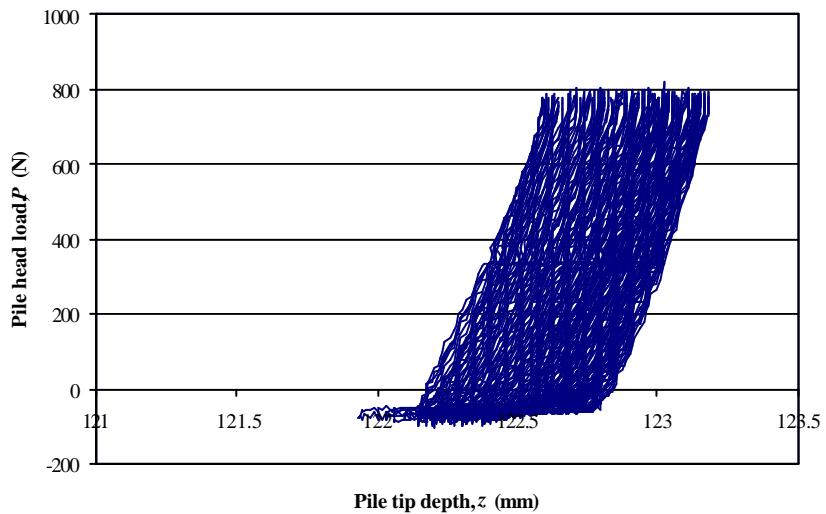


Figure 354 Test T8, Pile head load vs. pile tip depth (load test 3: compression/tension at L)

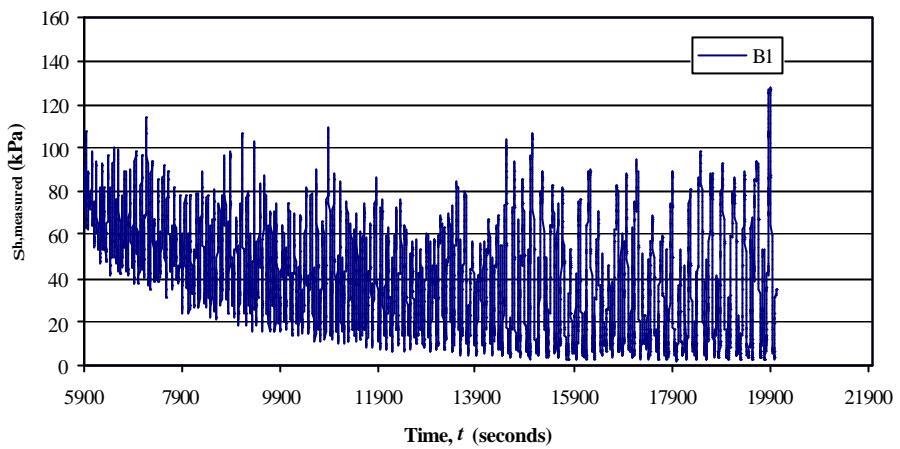


Figure 355 Test T8, B1 pressure cell vs. time (load test 3: compression/tension at L)

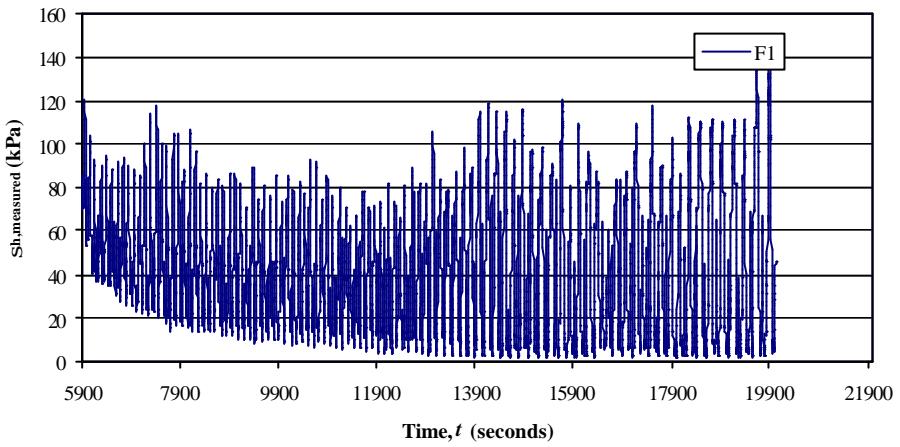


Figure 356 Test T8, F1 pressure cell vs. time (load test 3: compression/tension at L)

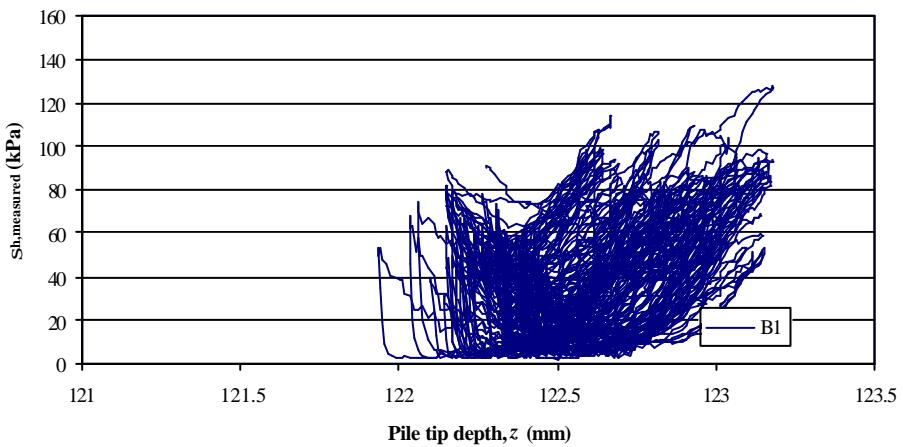


Figure 357 Test T8, B1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

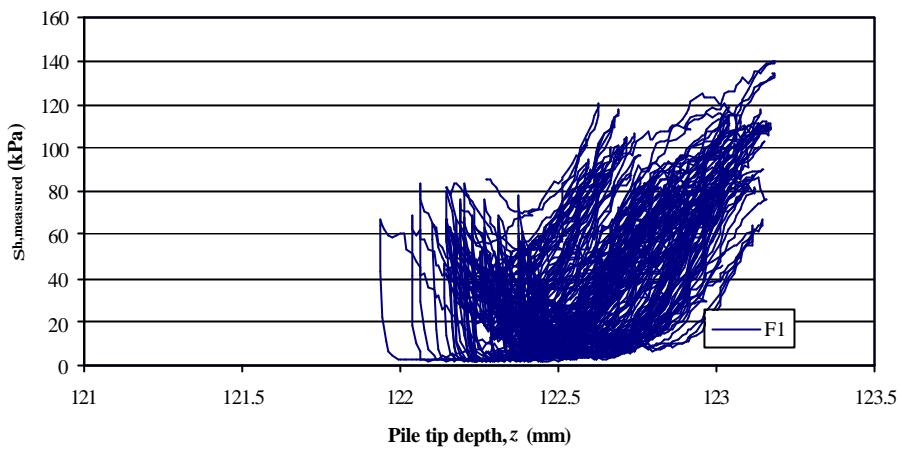


Figure 358 Test T8, F1 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

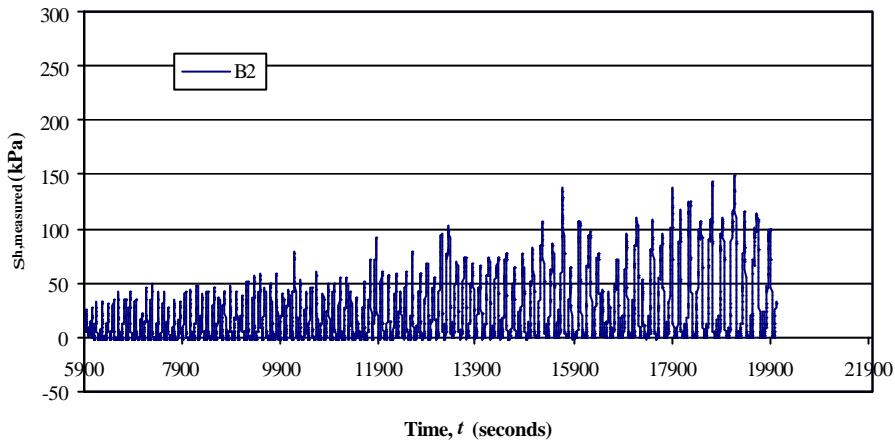


Figure 359 Test T8, B2 pressure cell vs. time (load test 3: compression/tension at L)

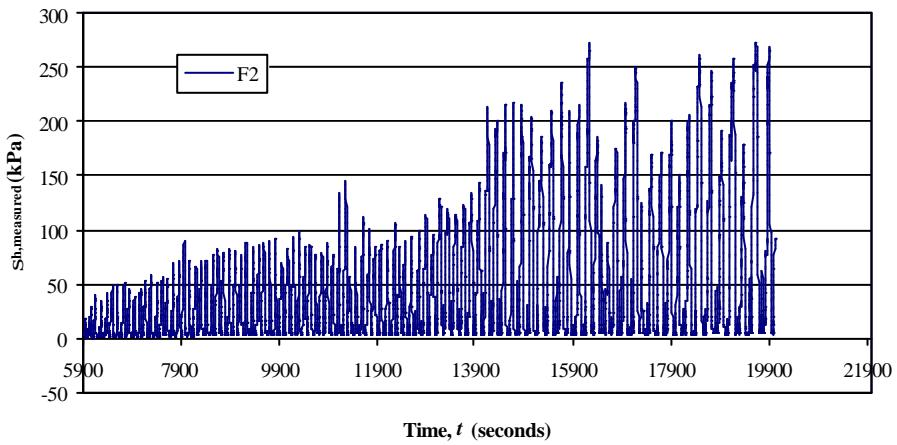


Figure 360 Test T8, F2 pressure cell vs. time (load test 3: compression/tension at L)

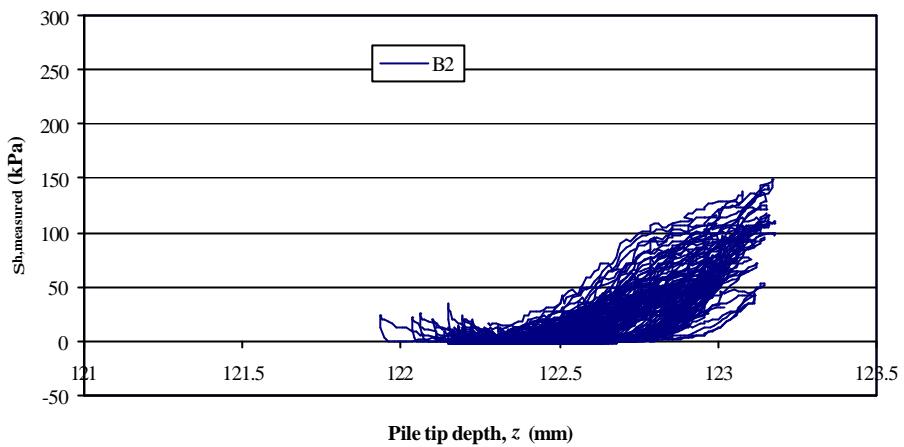


Figure 361 Test T8, B2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

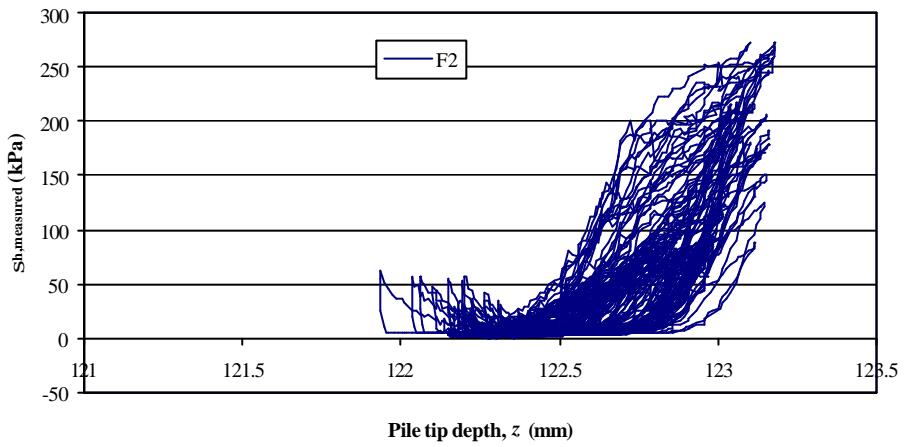


Figure 362 Test T8, F2 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

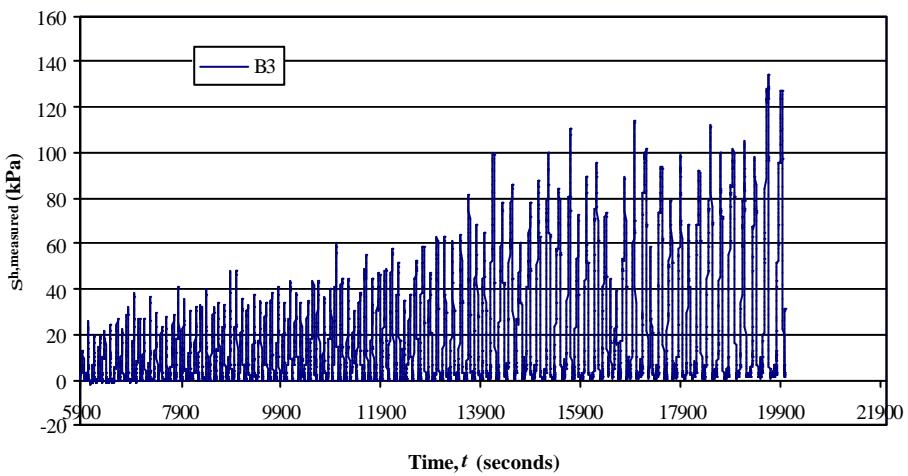


Figure 363 Test T8, B3 pressure cell vs. time (load test 3: compression/tension at L)

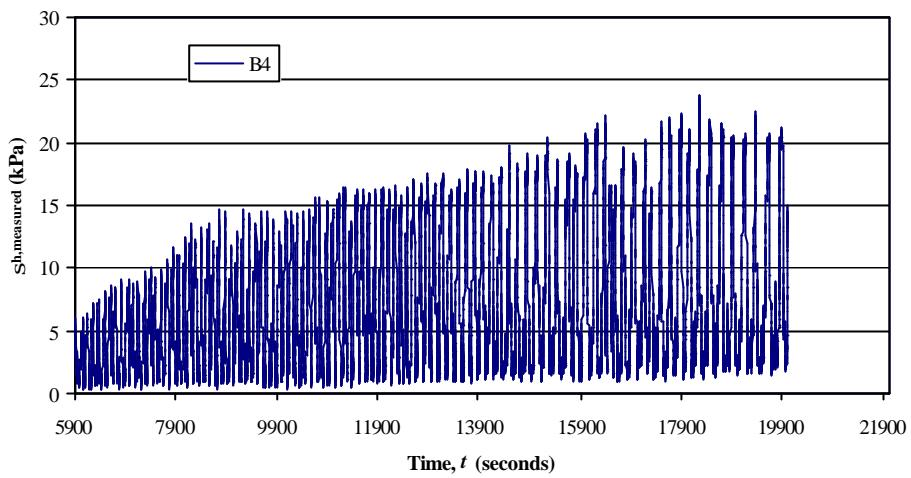


Figure 364 Test T8, B4 pressure cell vs. time (load test 3: compression/tension at L)

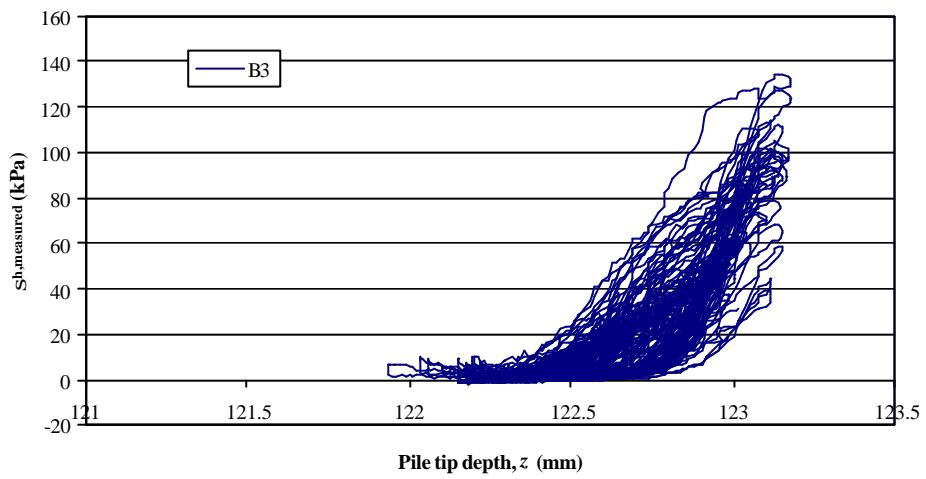


Figure 365 Test T8, B3 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

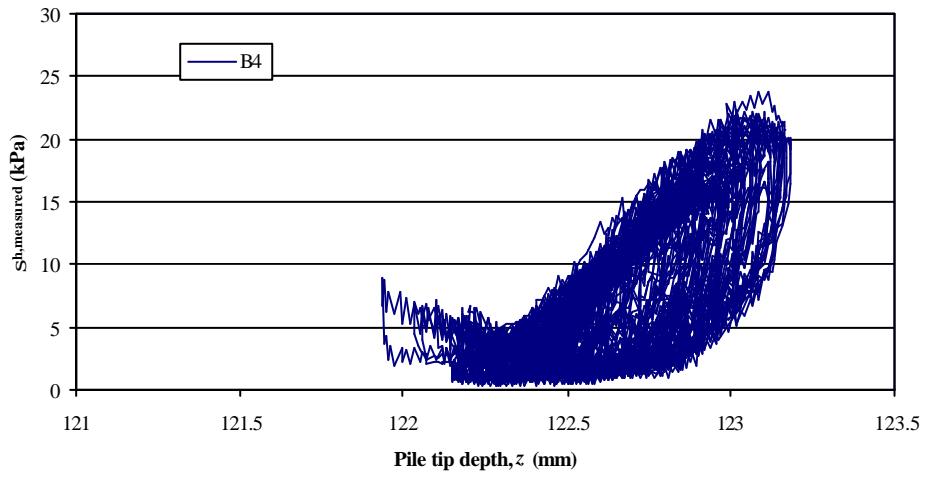


Figure 366 Test T8, B4 pressure cell vs. pile tip depth (load test 3: compression/tension at L)

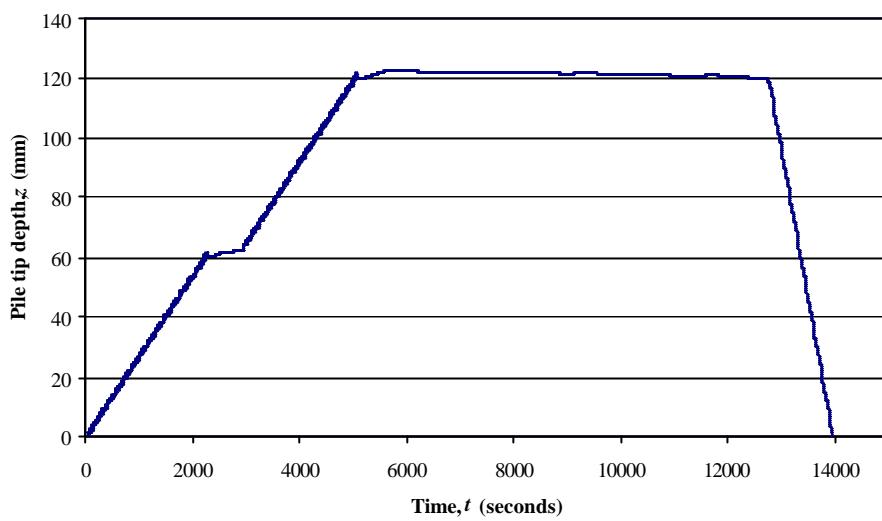


Figure 367 Test T9, Pile tip depth vs. time (entire test)

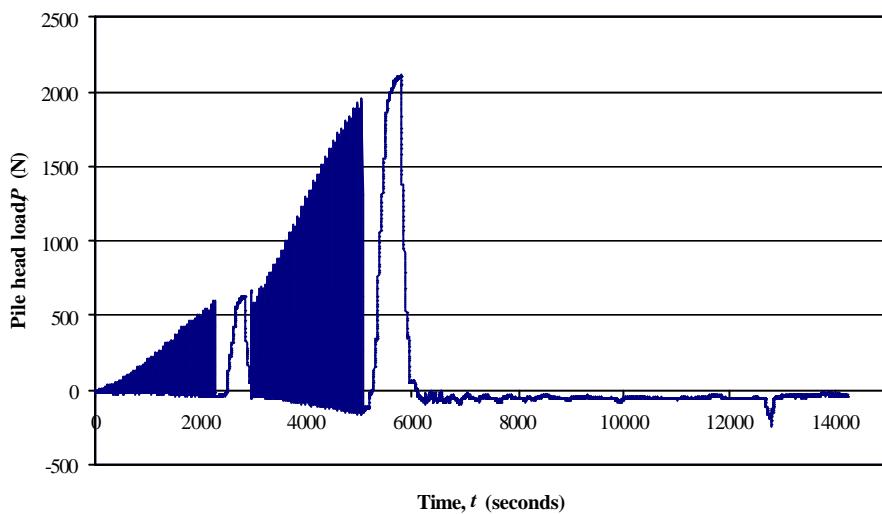


Figure 368 Test T9, Pile head load vs. time (entire test)

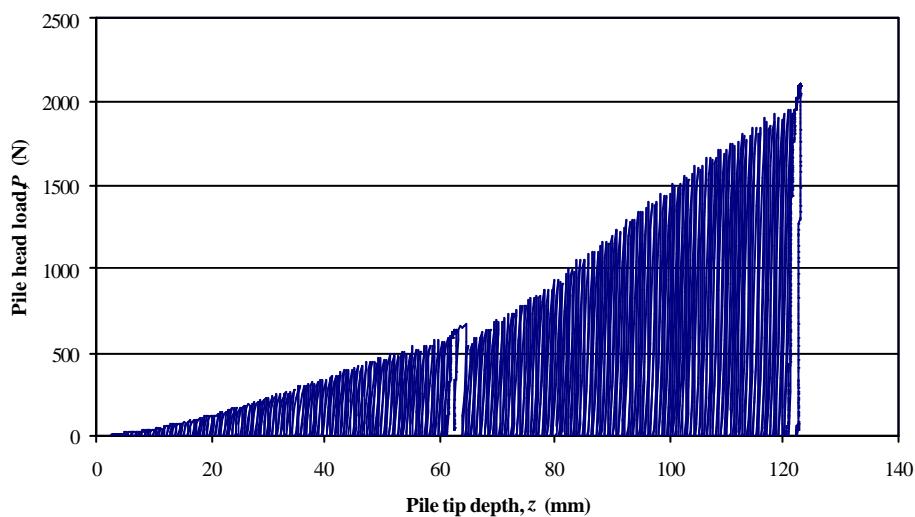


Figure 369 Test T9, Pile head load vs. pile tip depth (entire test)

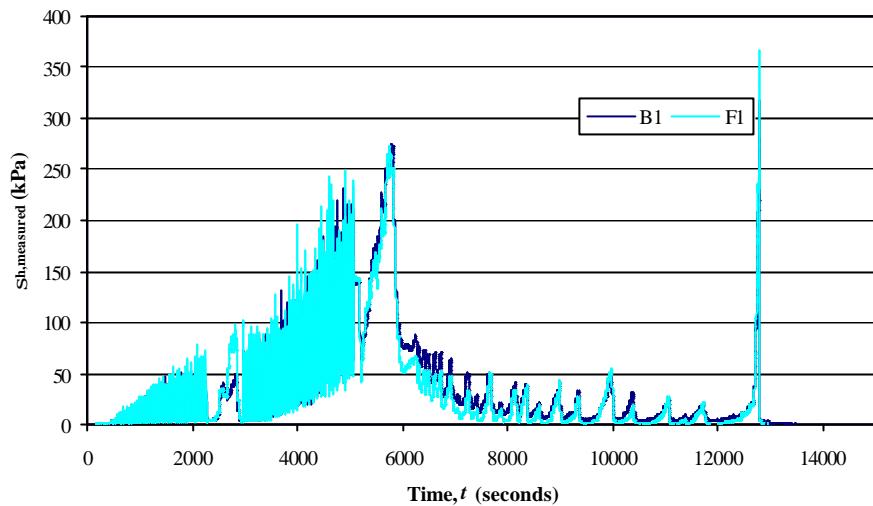


Figure 370 Test T9, B1, F1 pressure cells vs. time (entire test)

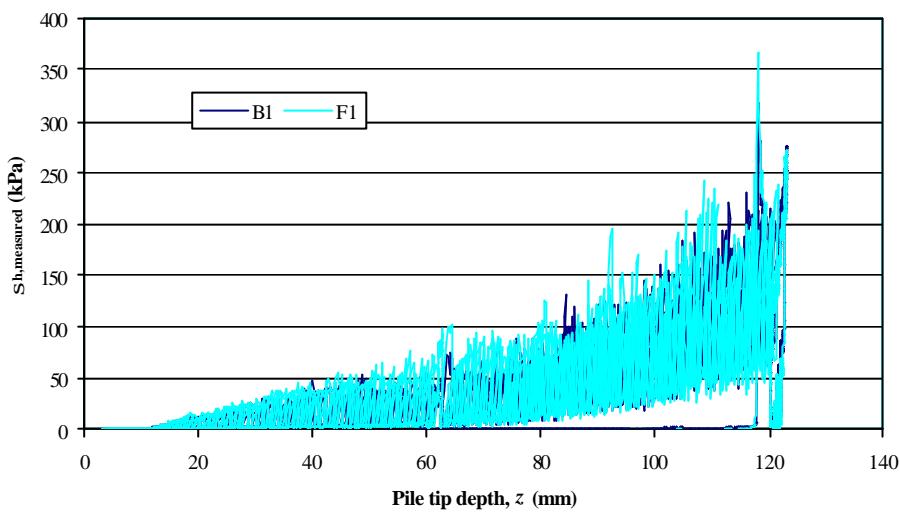


Figure 371 Test T9, B1, F1 pressure cells vs. pile tip depth (entire test)

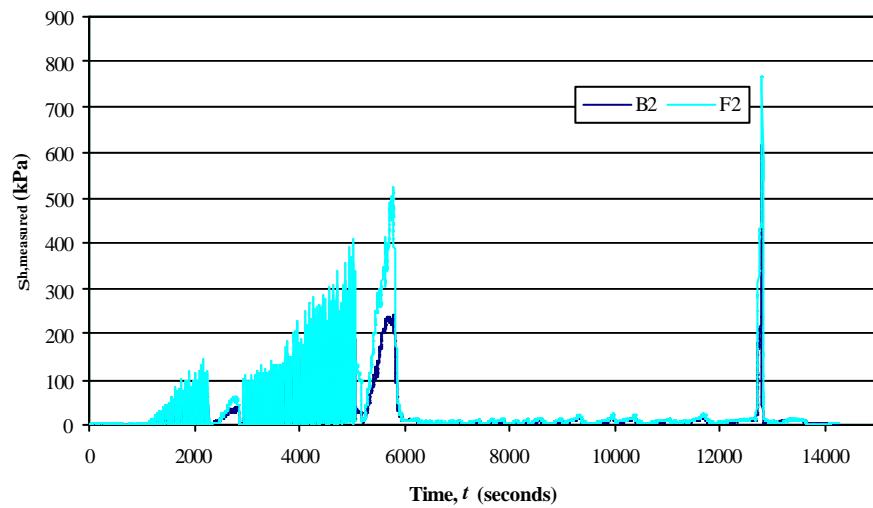


Figure 372 Test T9, B2, F2 pressure cells vs. time (entire test)

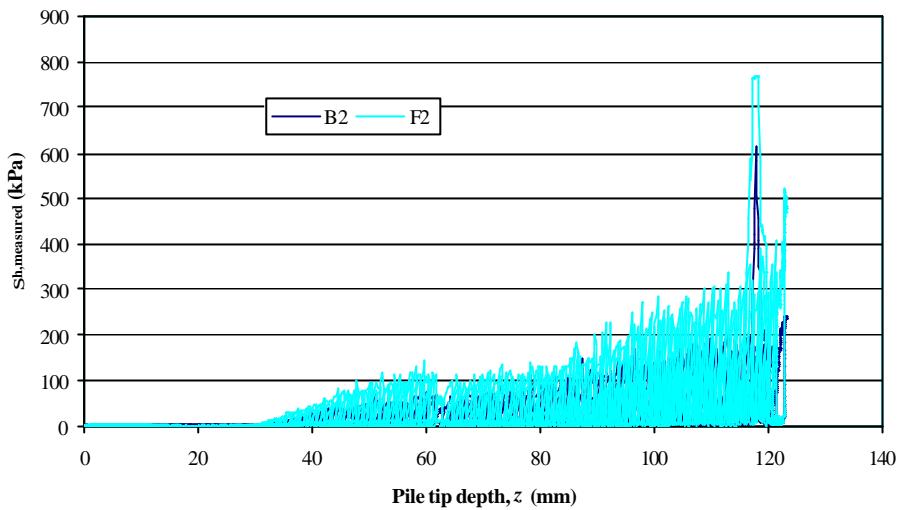


Figure 373 Test T9, B2, F2 pressure cells vs. pile tip depth (entire test)

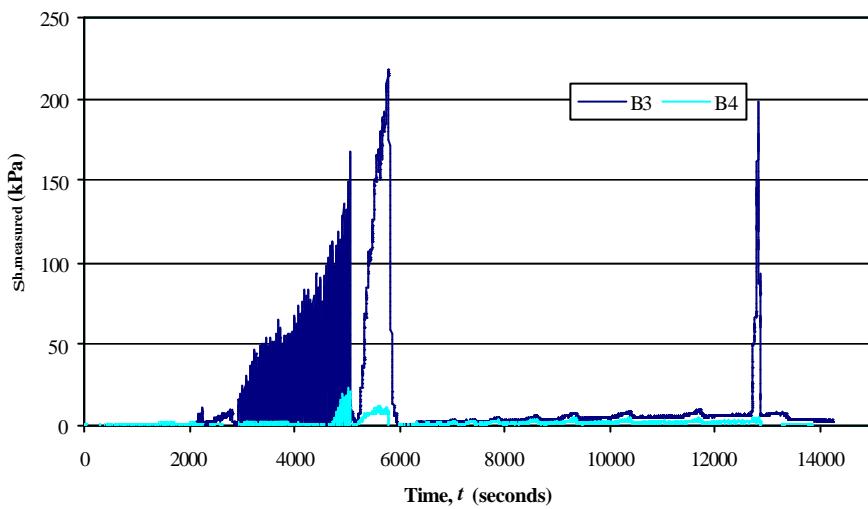


Figure 374 Test T9, B3, B4 pressure cells vs. time (entire test)

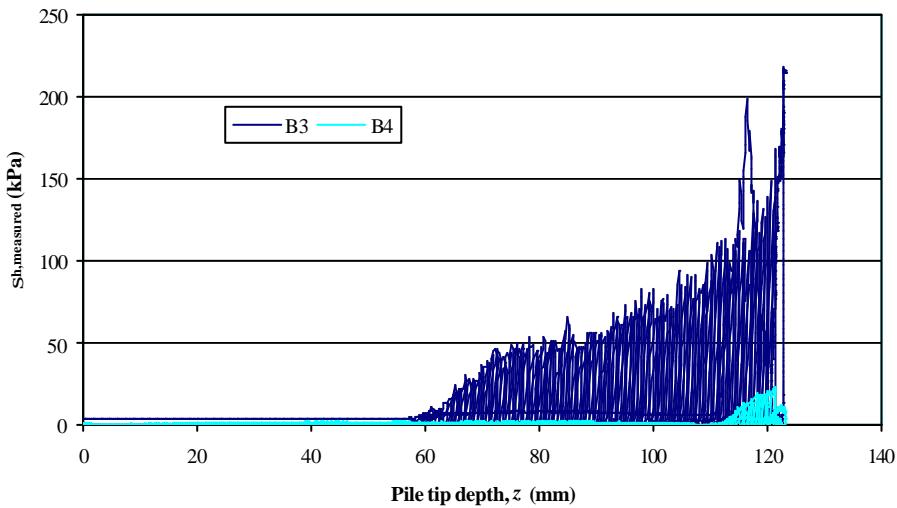


Figure 375 Test T9, B3, B4 pressure cells vs. pile tip depth (entire test)

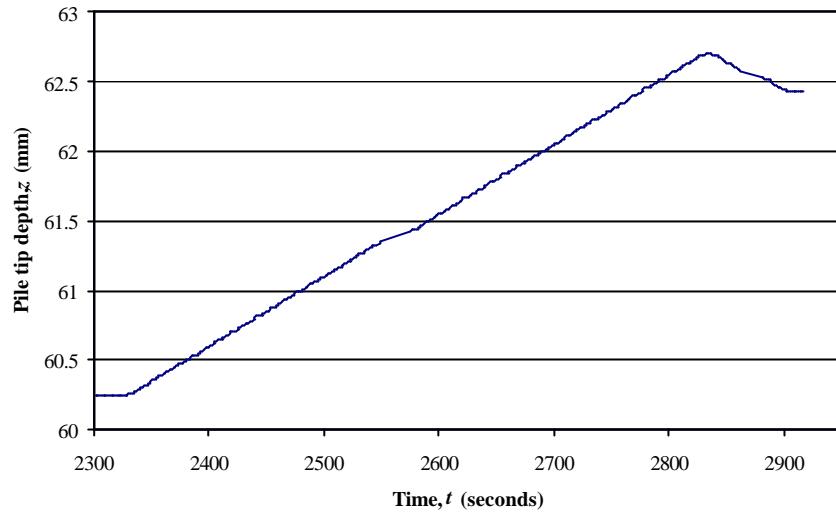


Figure 376 Test T9, Pile tip depth vs. time (load test 1: compression at L/2)

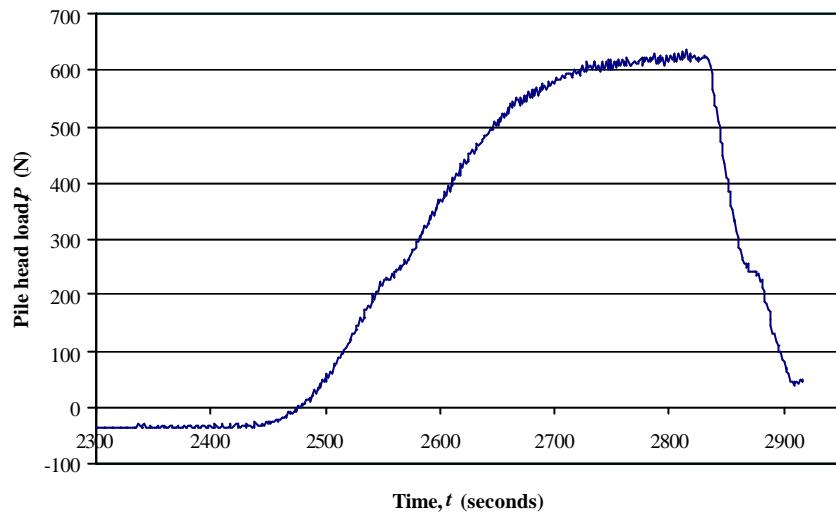


Figure 377 Test T9, Pile head load vs. time (load test 1: compression at L/2)

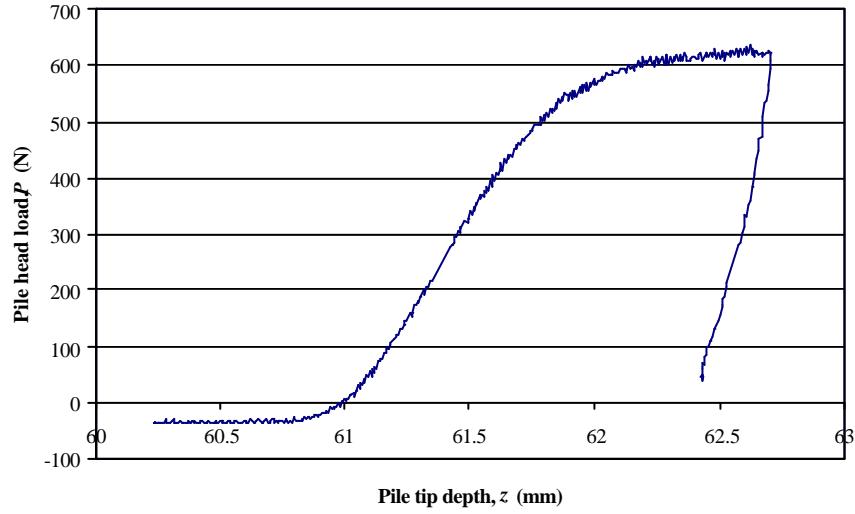


Figure 378 Test T9, Pile head load vs. pile tip depth (load test 1: compression at L/2)

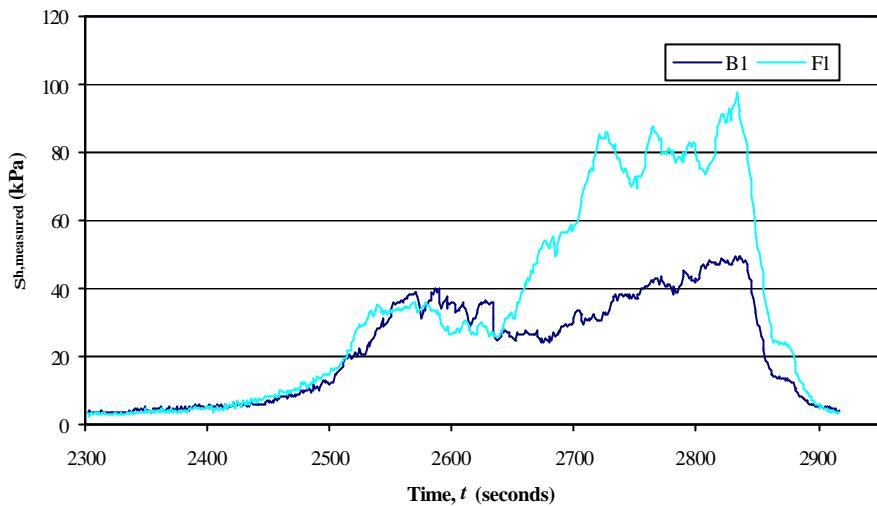


Figure 379 Test T9, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

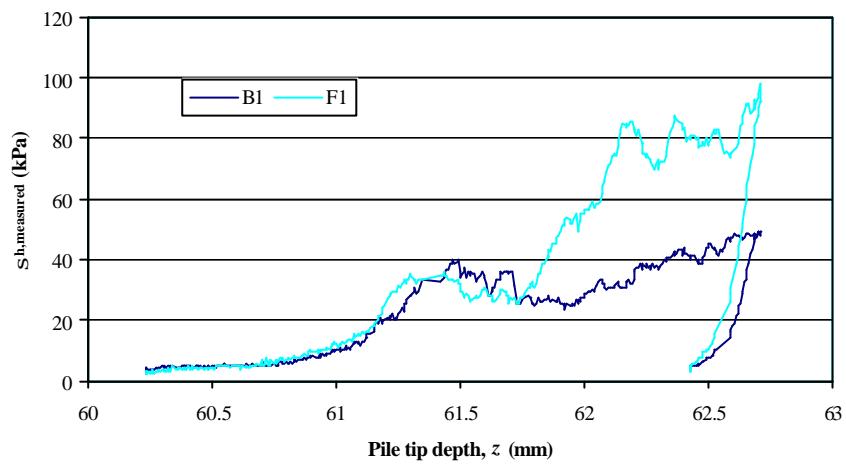


Figure 380 Test T9, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

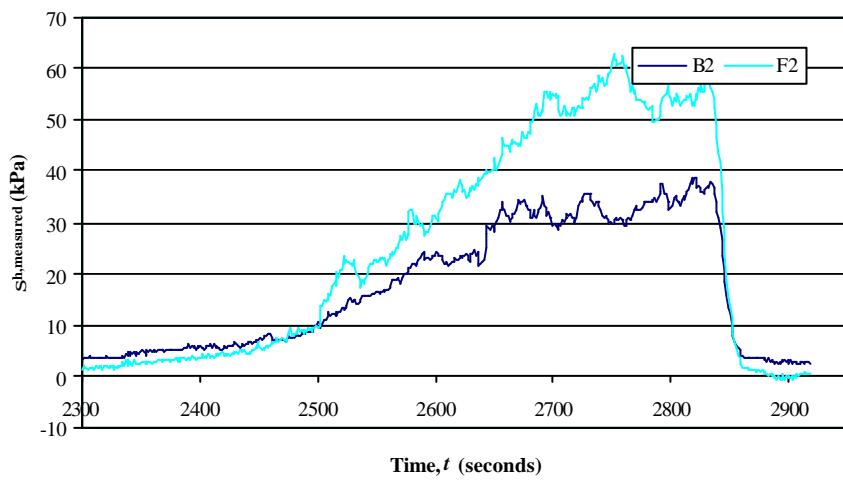


Figure 381 Test T9, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

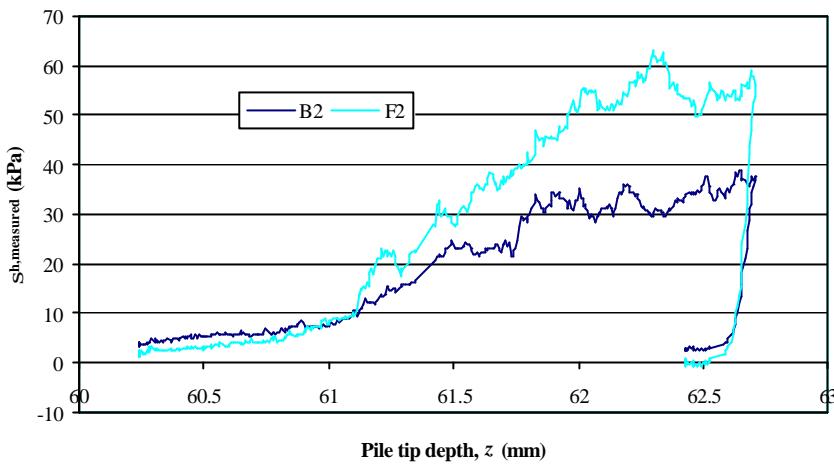


Figure 382 Test T9, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

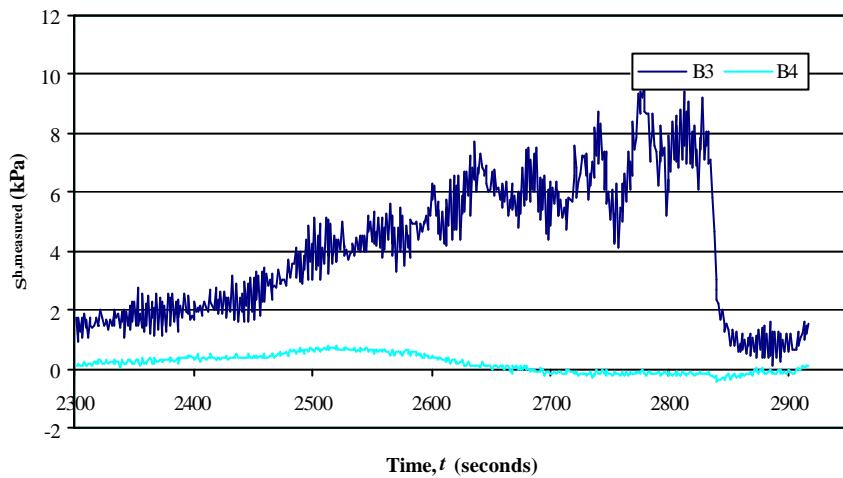


Figure 383 Test T9, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

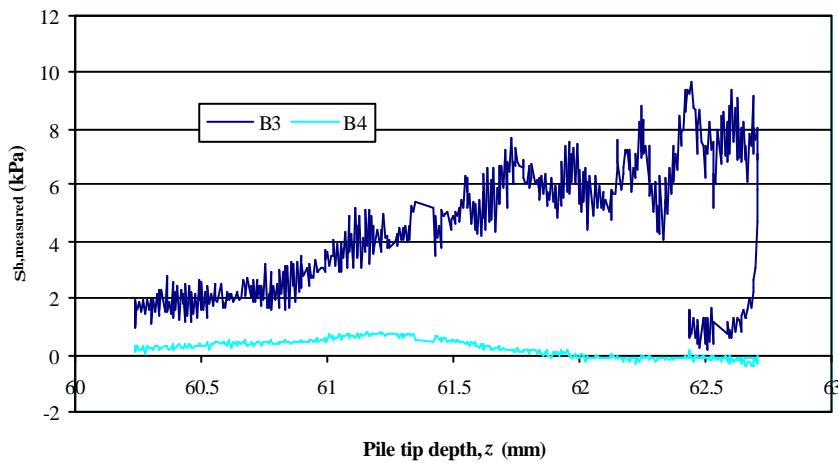


Figure 384 Test T9, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

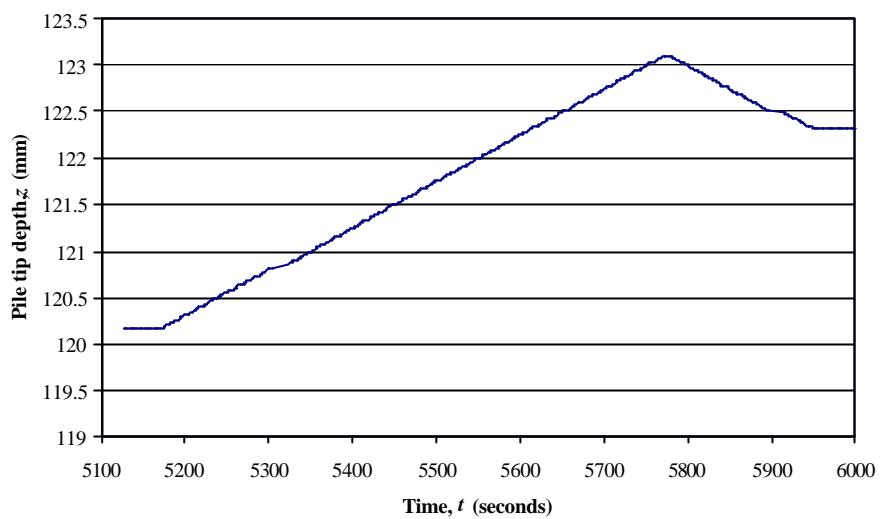


Figure 385 Test T9, Pile tip depth vs. time (load test 2: compression at L)

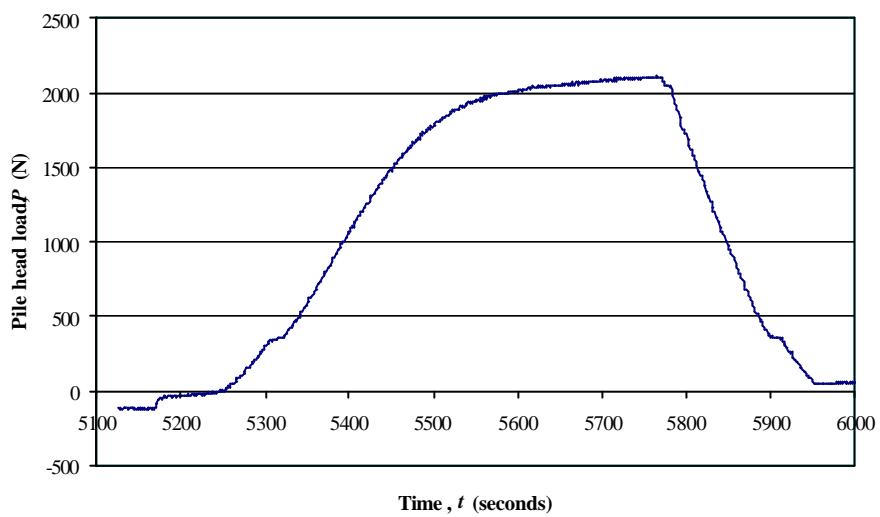


Figure 386 Test T9, Pile head load vs. time (load test 2: compression at L)

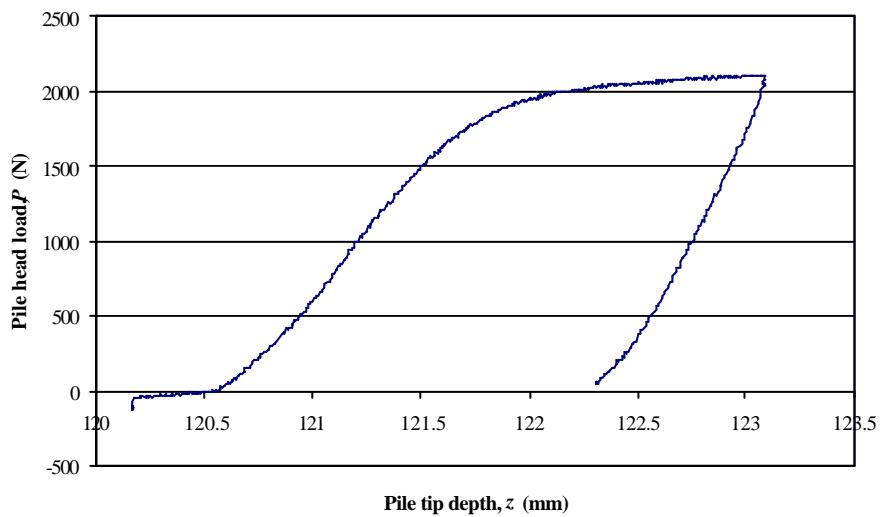


Figure 387 Test T9, Pile head load vs. pile tip depth (load test 2: compression at L)

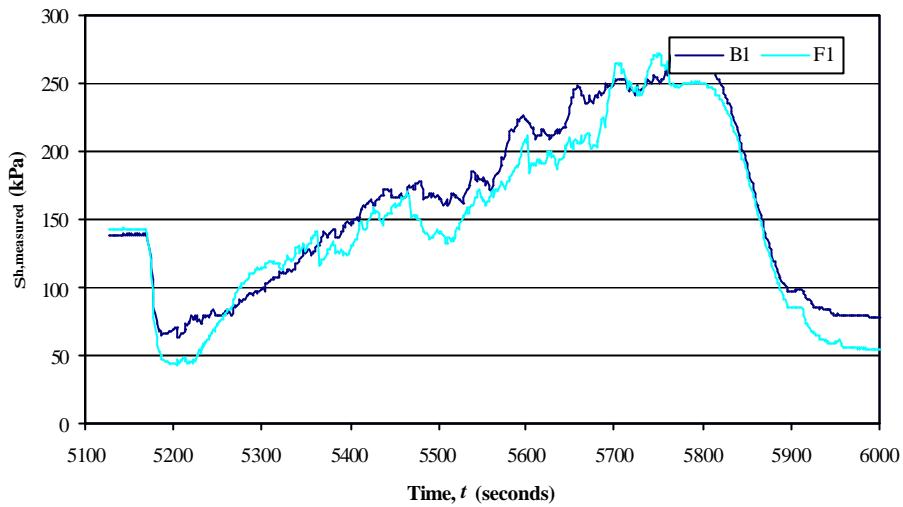


Figure 388 Test T9, B1, F1 pressure cells vs. time (load test 2: compression at L)

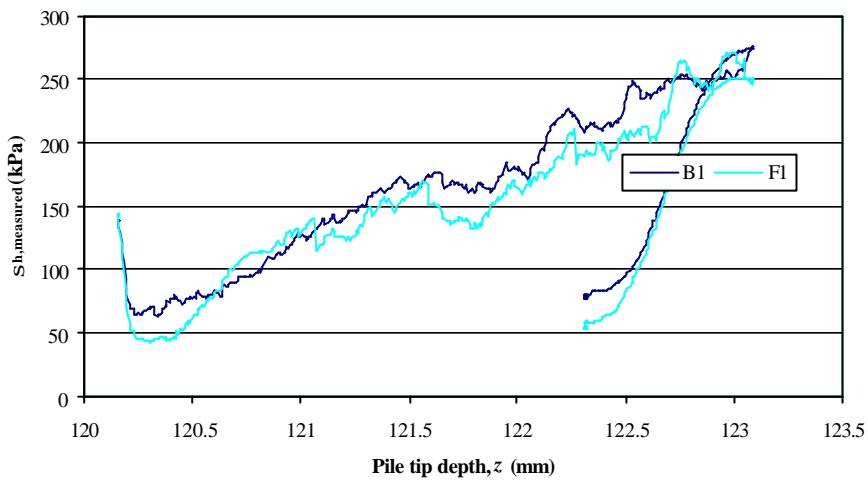


Figure 389 Test T9, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

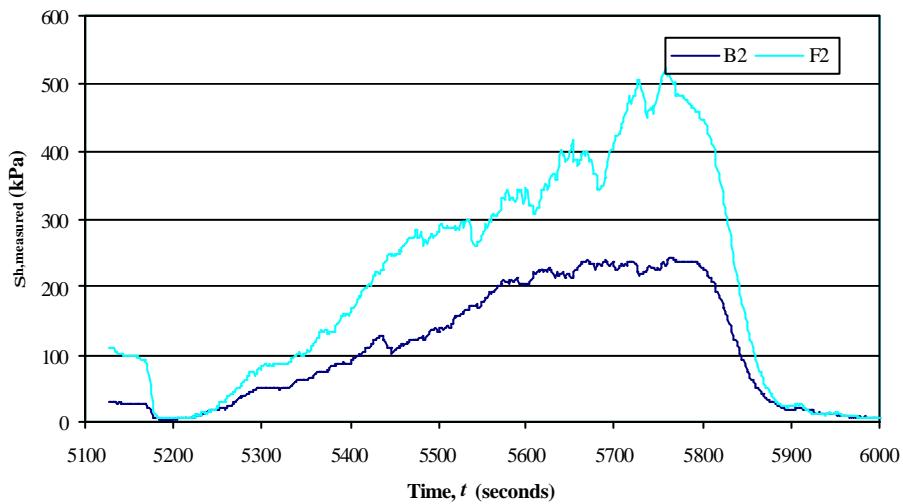


Figure 390 Test T9, B2, F2 pressure cells vs. time (load test 2: compression at L)

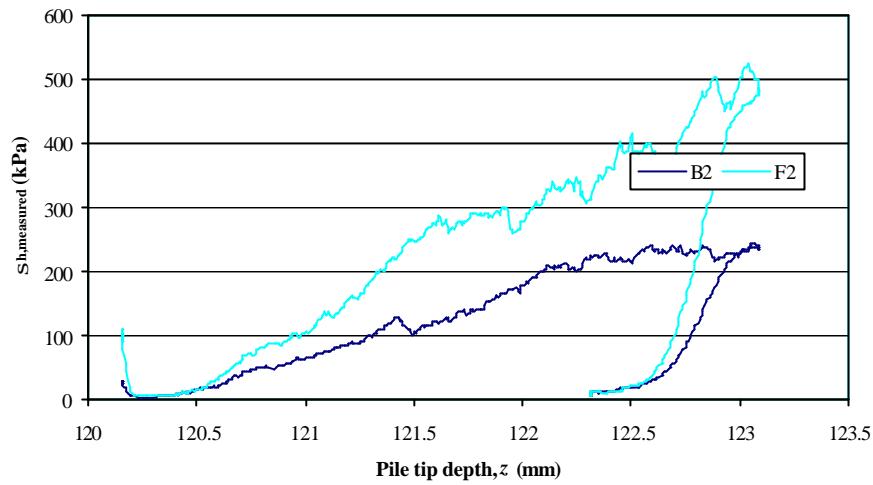


Figure 391 Test T9, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

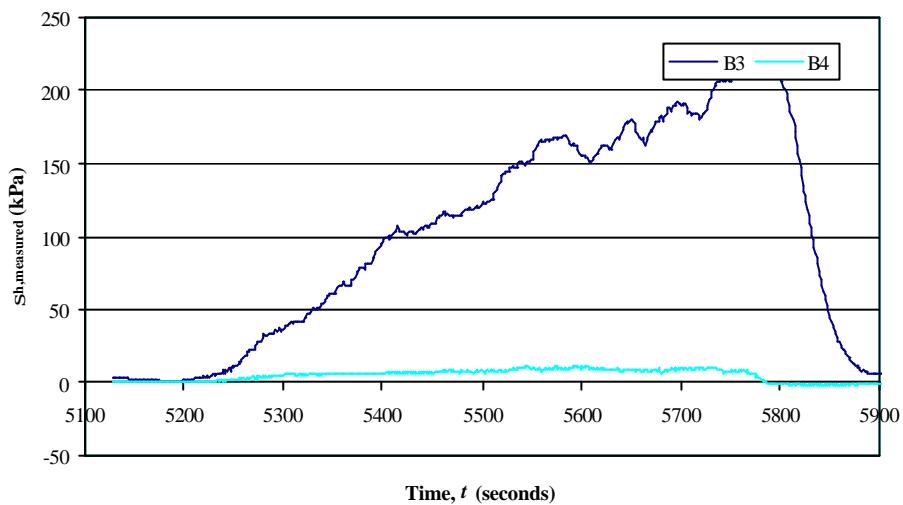


Figure 392 Test T9, B3, B4 pressure cells vs. time (load test 2: compression at L)

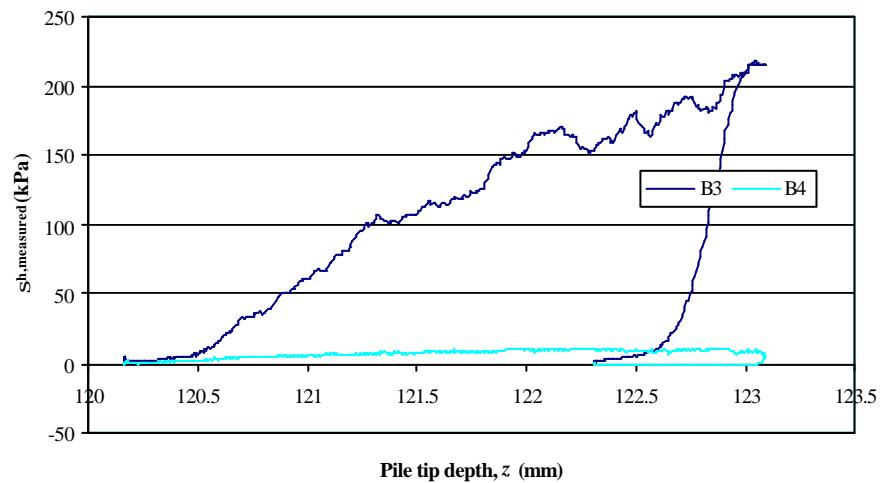


Figure 393 Test T9, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

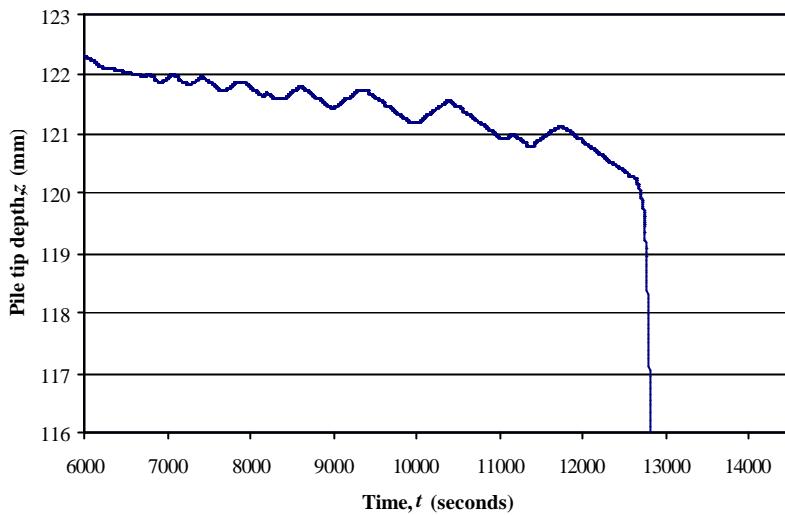


Figure 394 Test T9, Pile tip depth vs. time (load test 3: cyclic tension at L)

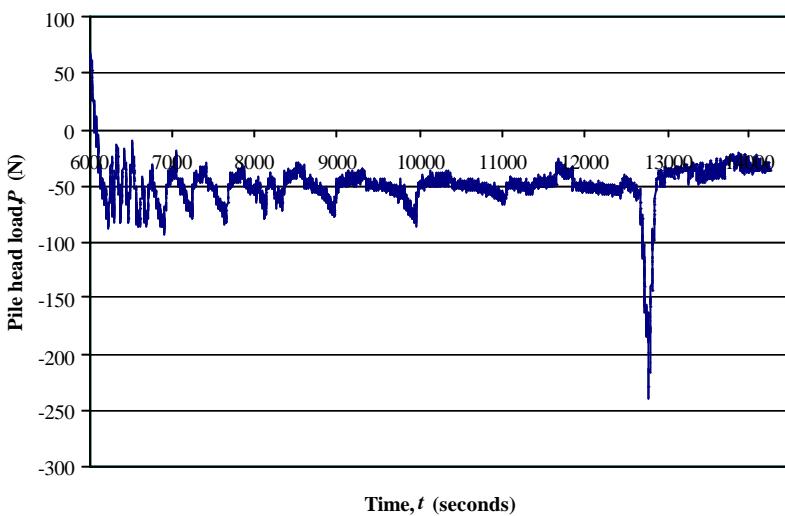


Figure 395 Test T9, Pile head load vs. time (load test 3: cyclic tension at L)

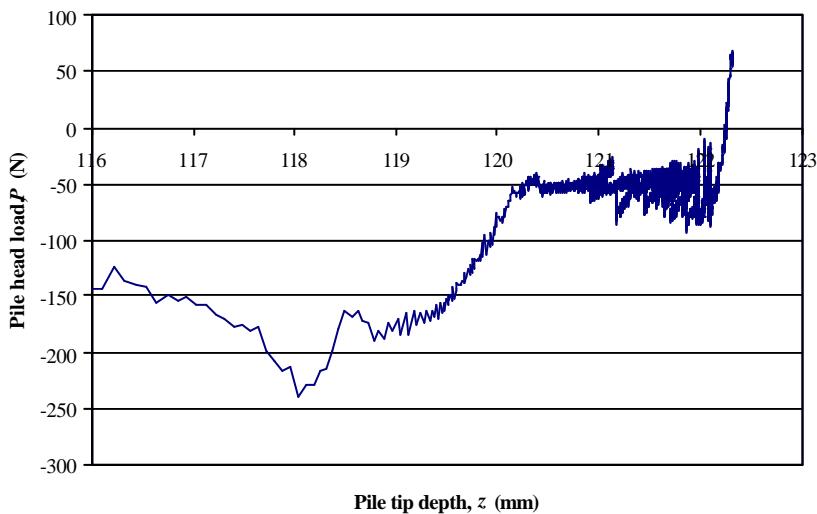


Figure 396 Test T9, Pile head load vs. pile tip depth (load test 3: cyclic tension at L)

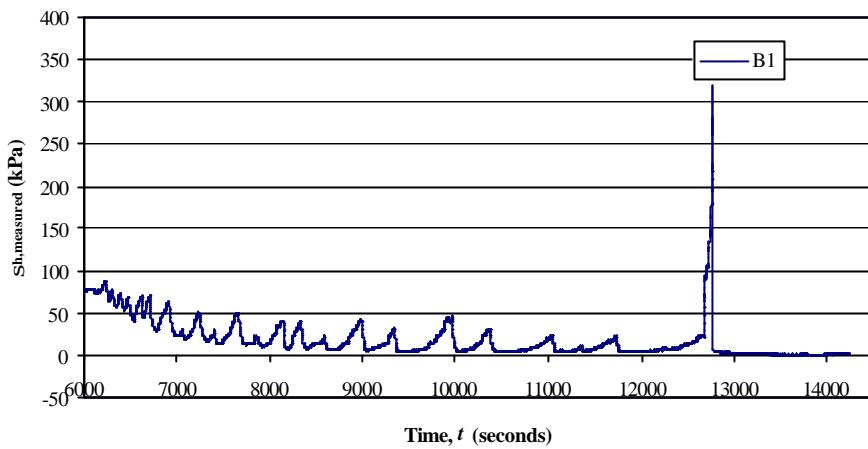


Figure 397 Test T9, B1 pressure cell vs. time (load test 3: cyclic tension at L)

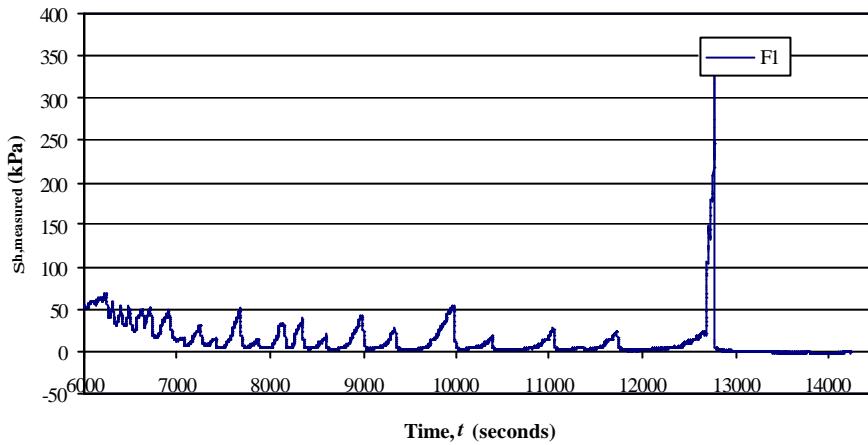


Figure 398 Test T9, F1 pressure cell vs. time (load test 3: cyclic tension at L)

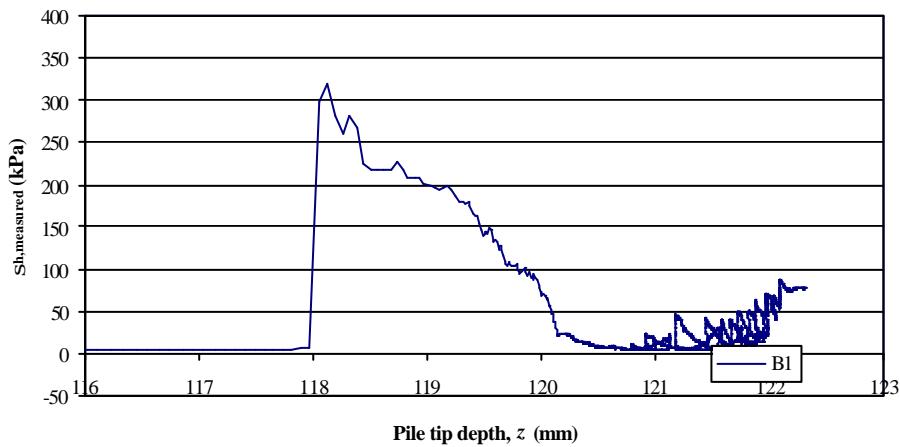


Figure 399 Test T9, B1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

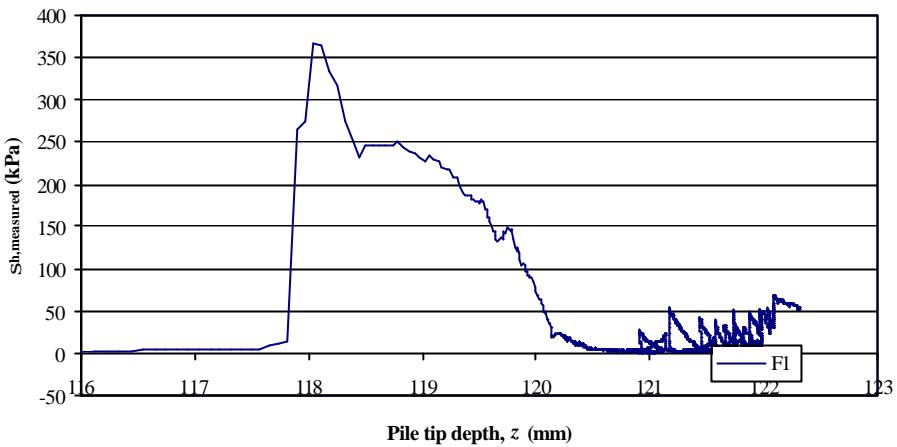


Figure 400 Test T9, F1 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

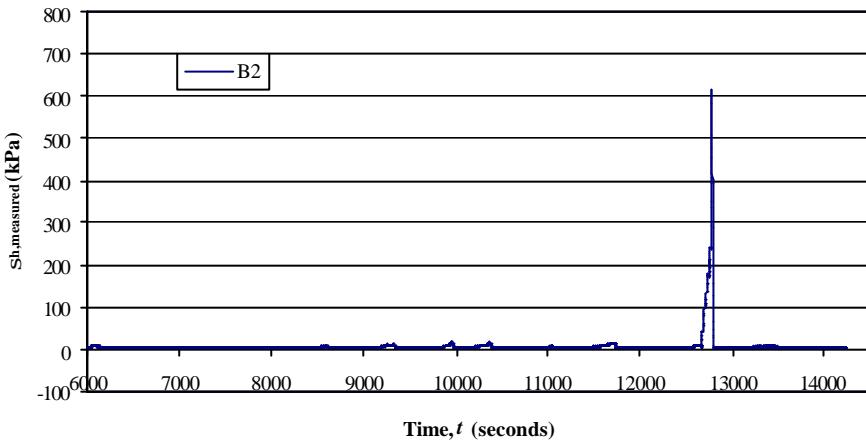


Figure 401 Test T9, B2 pressure cell vs. time (load test 3: cyclic tension at L)

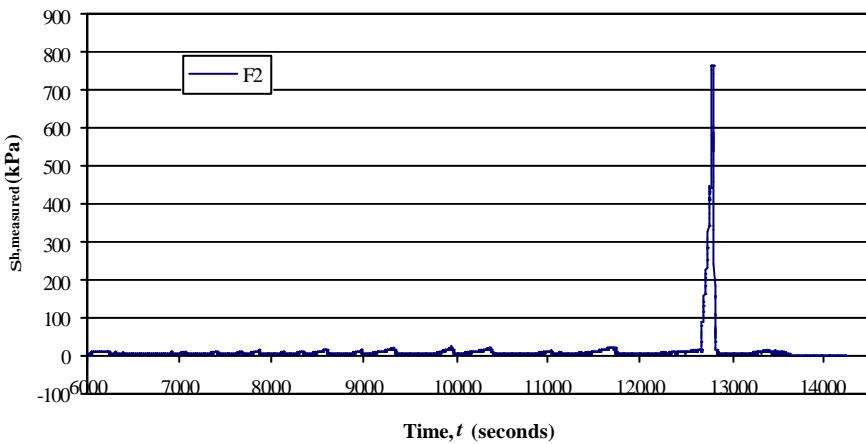


Figure 402 Test T9, F2 pressure cell vs. time (load test 3: cyclic tension at L)

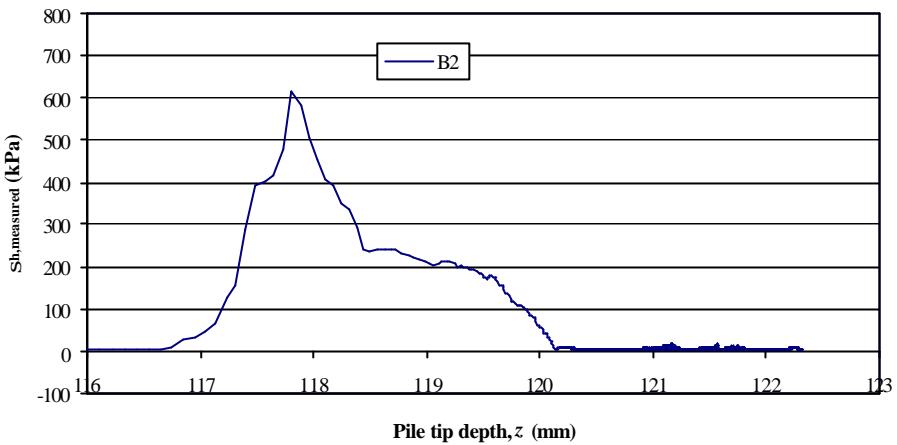


Figure 403 Test T9, B2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

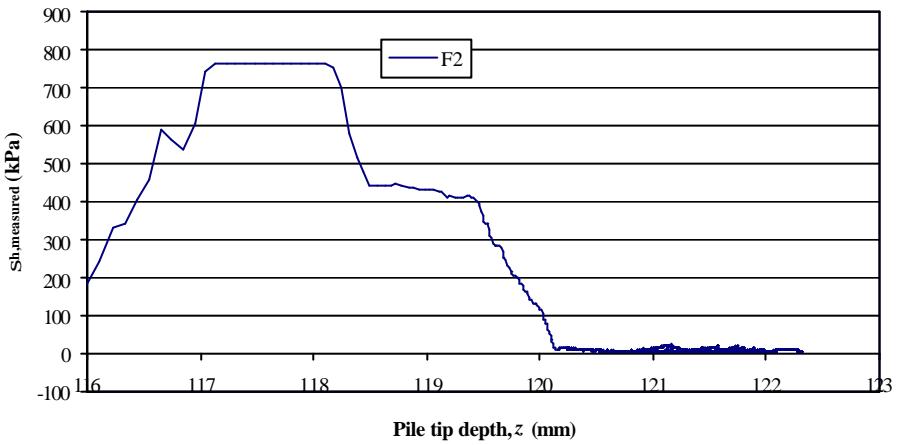


Figure 404 Test T9, F2 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

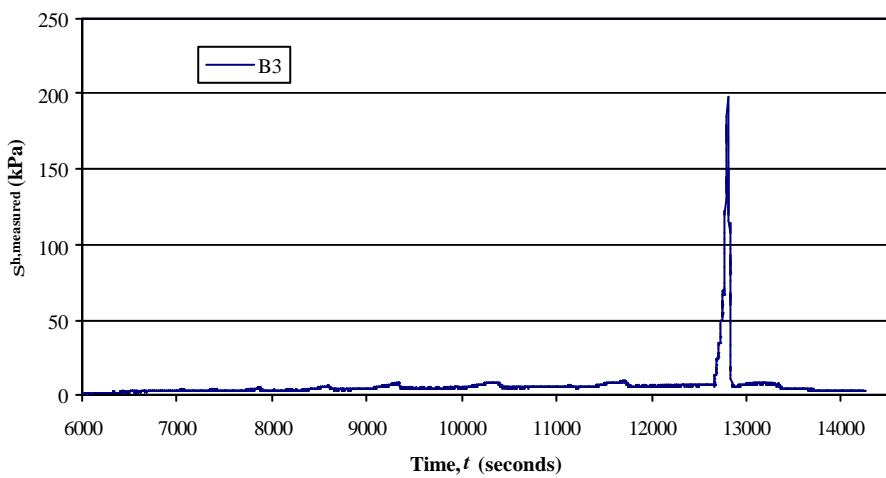


Figure 405 Test T9, B3 pressure cell vs. time (load test 3: cyclic tension at L)

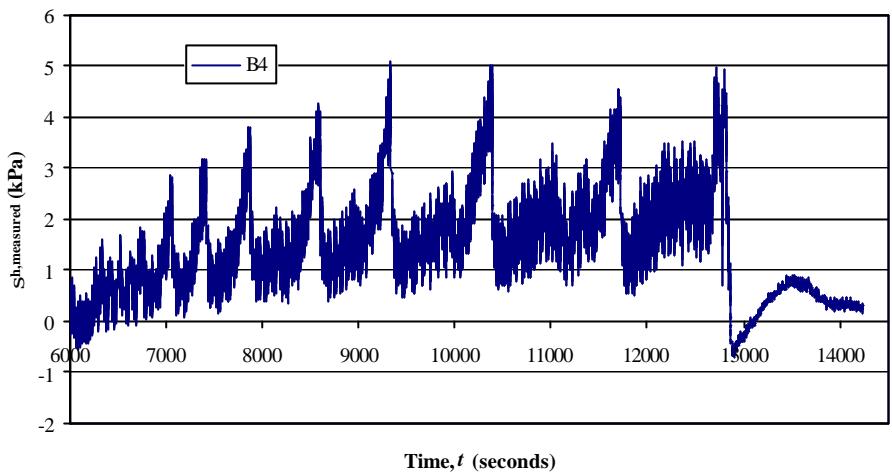


Figure 406 Test T9, B4 pressure cell vs. time (load test 3: cyclic tension at L)

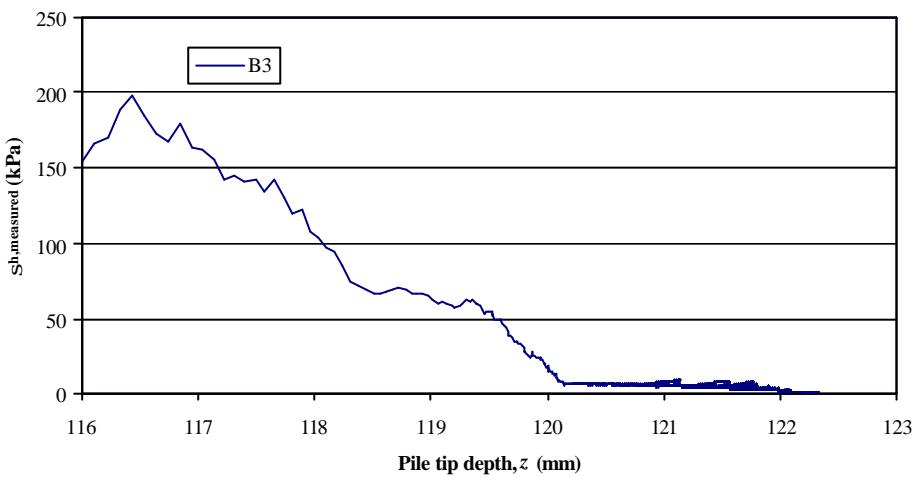


Figure 407 Test T9, B3 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

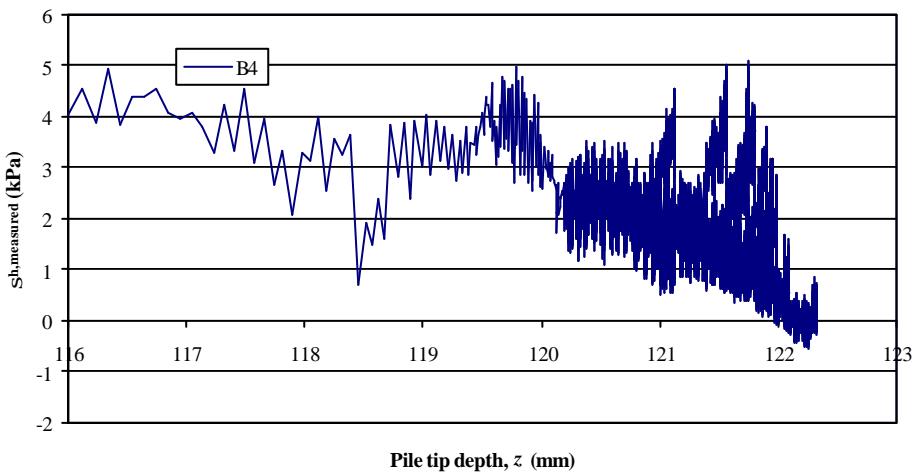


Figure 408 Test T9, B4 pressure cell vs. pile tip depth (load test 3: cyclic tension at L)

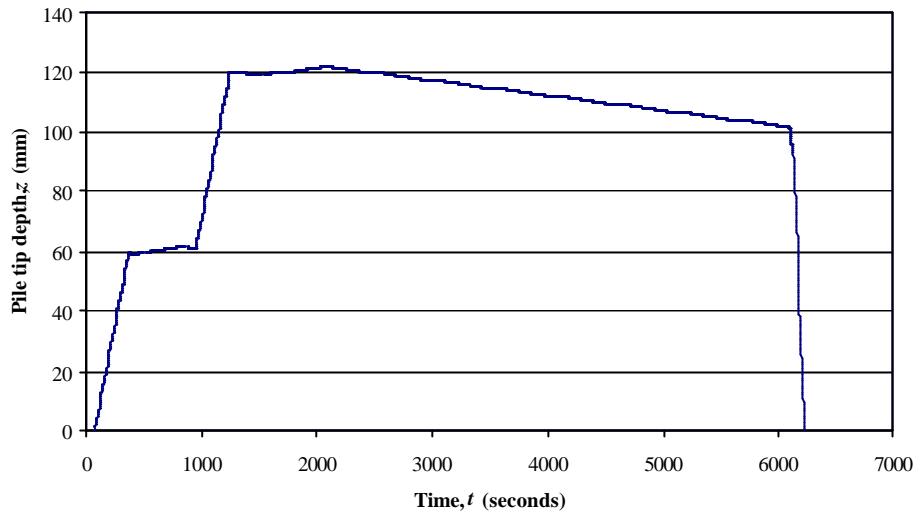


Figure 409 Test T10, Pile tip depth vs. time (entire test)

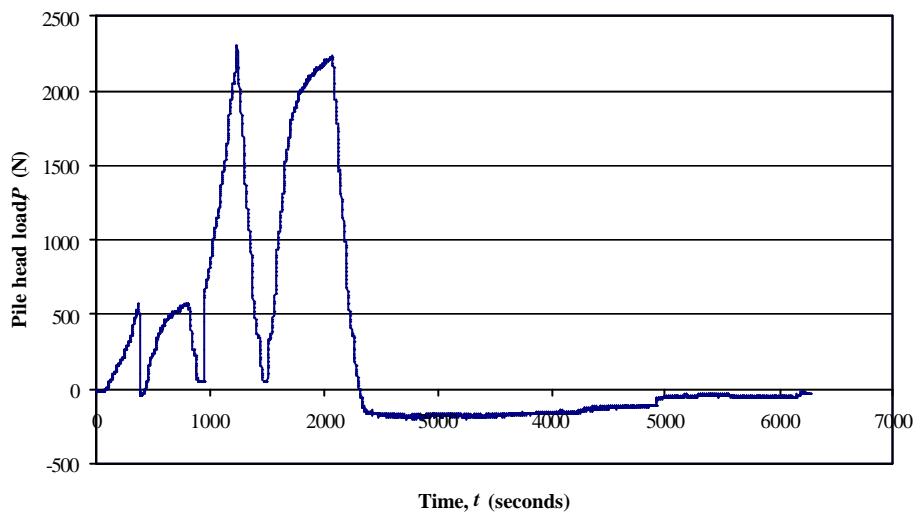


Figure 410 Test T10, Pile head load vs. time (entire test)

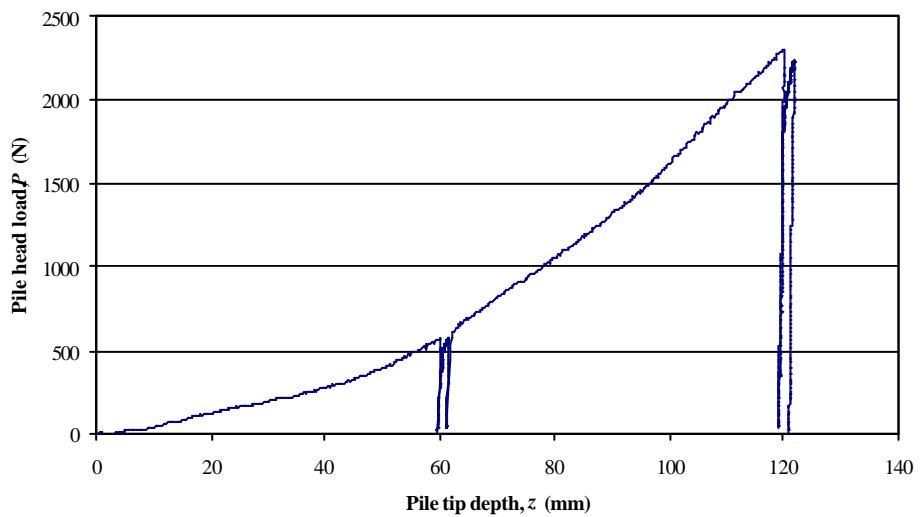


Figure 411 Test T10, Pile head load vs. pile tip depth (entire test)

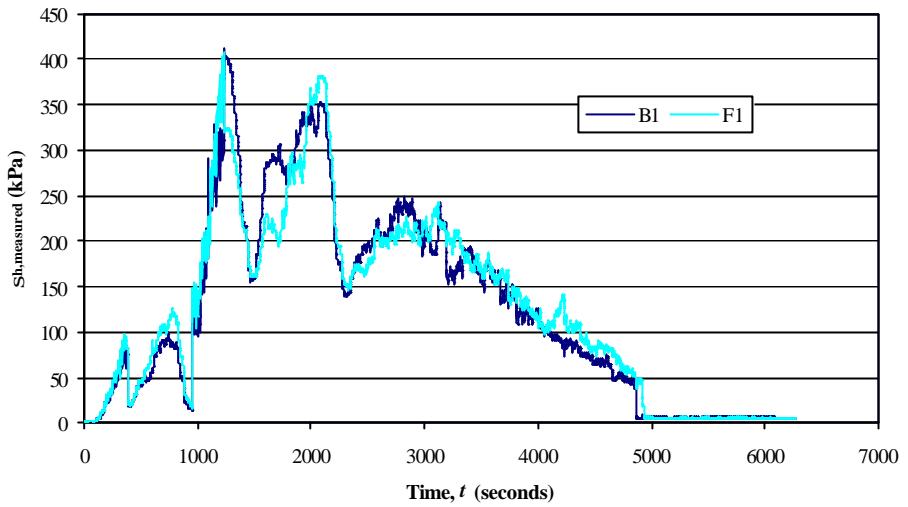


Figure 412 Test T10, B1, F1 pressure cells vs. time (entire test)

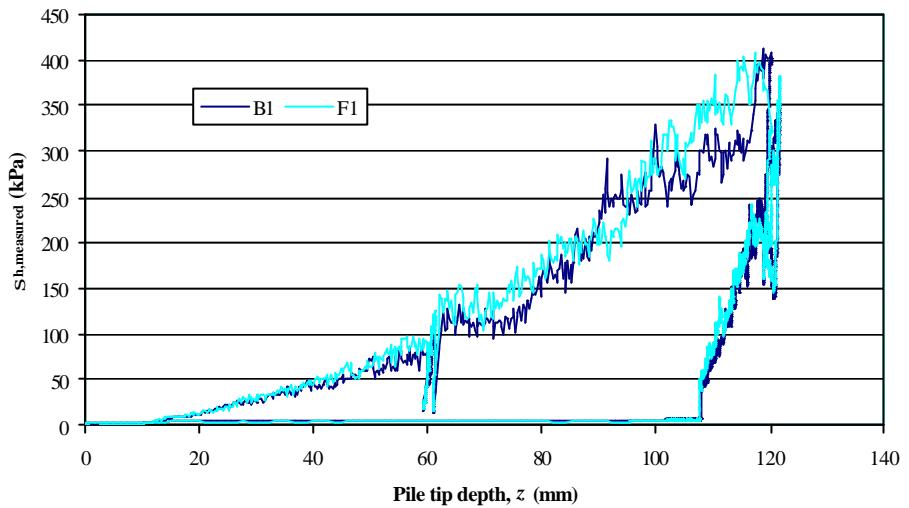


Figure 413 Test T10, B1, F1 pressure cells vs. pile tip depth (entire test)

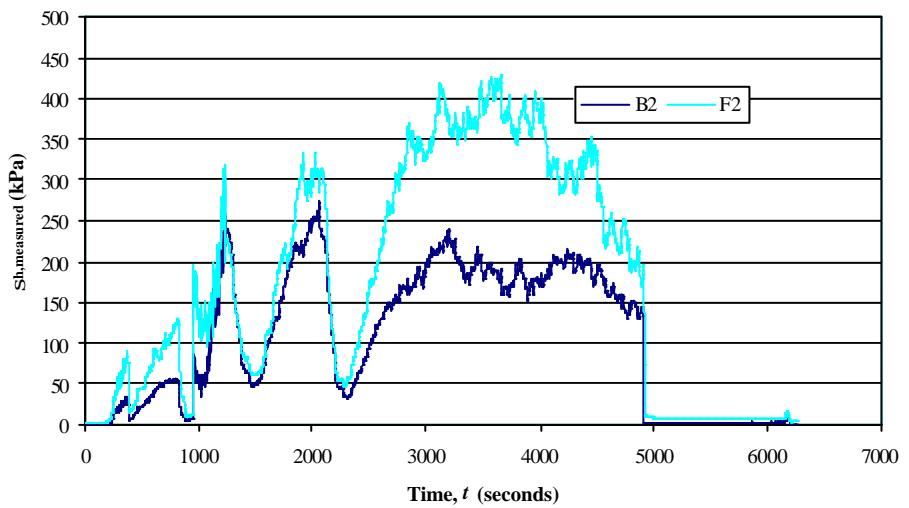


Figure 414 Test T10, B2, F2 pressure cells vs. time (entire test)

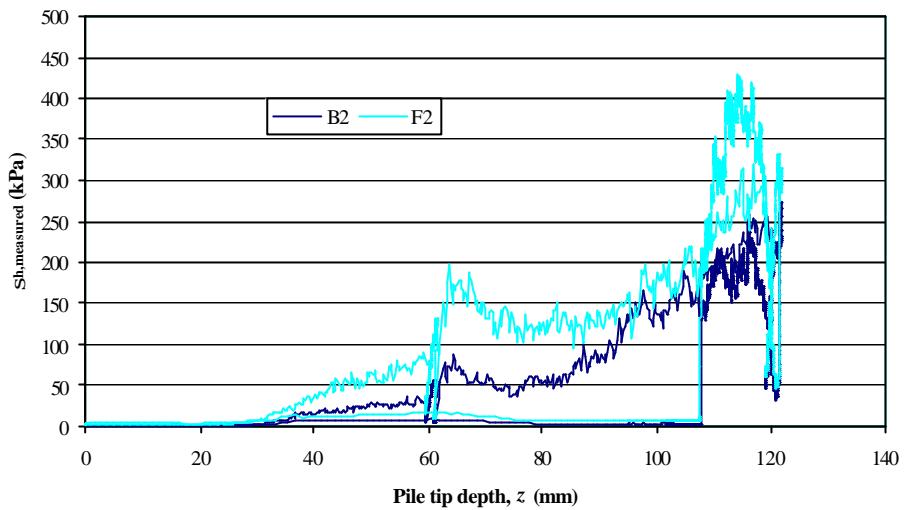


Figure 415 Test T10, B2, F2 pressure cells vs. pile tip depth (entire test)

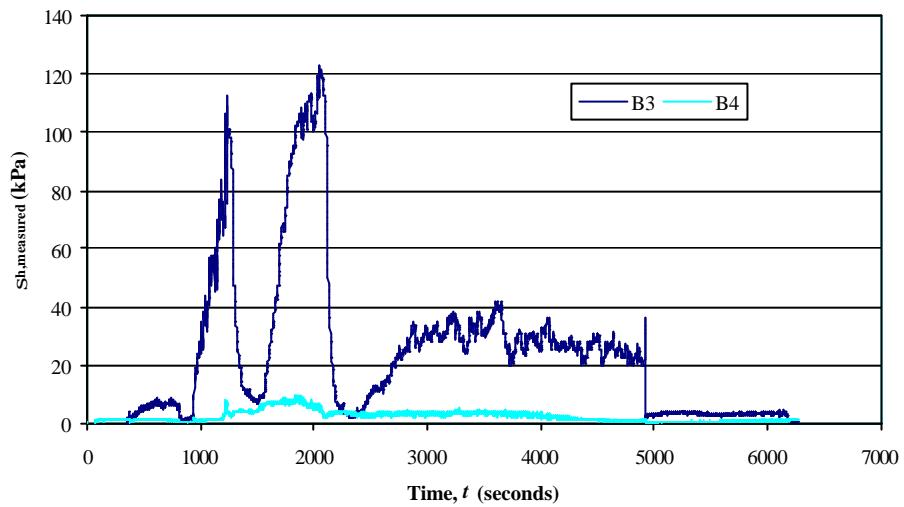


Figure 416 Test T10, B3, B4 pressure cells vs. time (entire test)

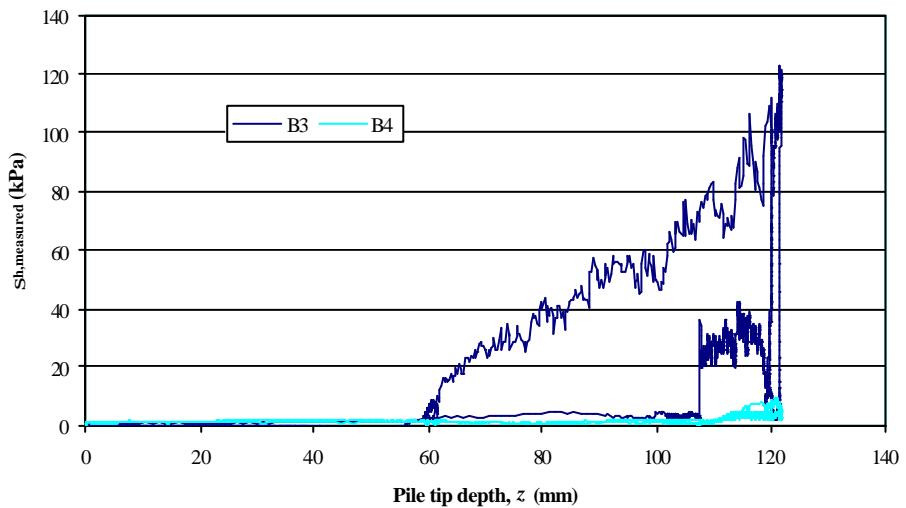


Figure 417 Test T10, B3, B4 pressure cells vs. pile tip depth (entire test)

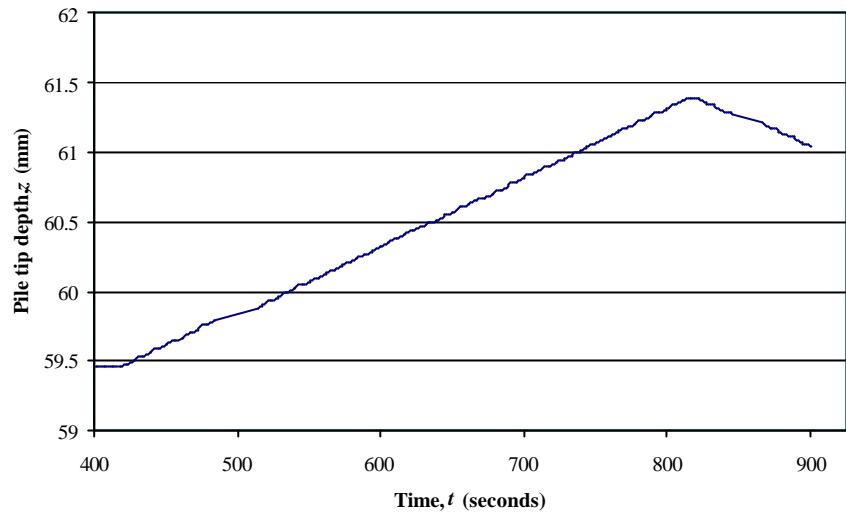


Figure 418 Test T10, Pile tip depth vs. time (load test 1: compression at L/2)

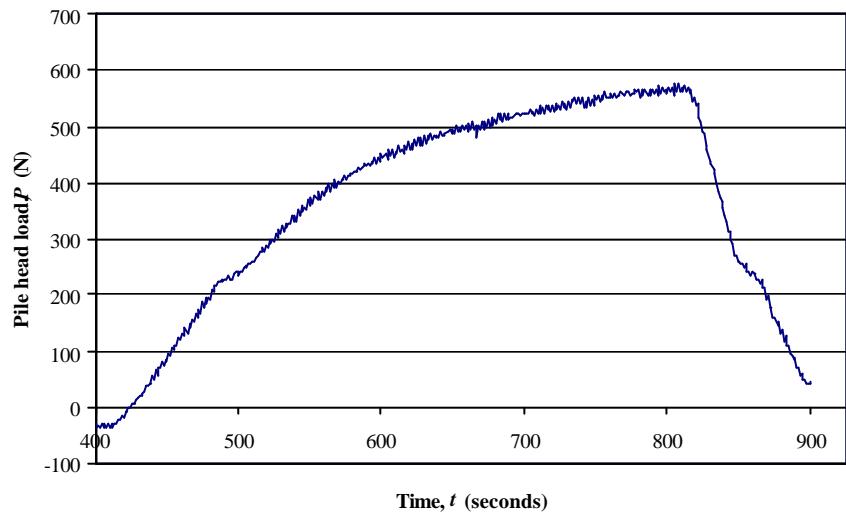


Figure 419 Test T10, Pile head load vs. time (load test 1: compression at L/2)

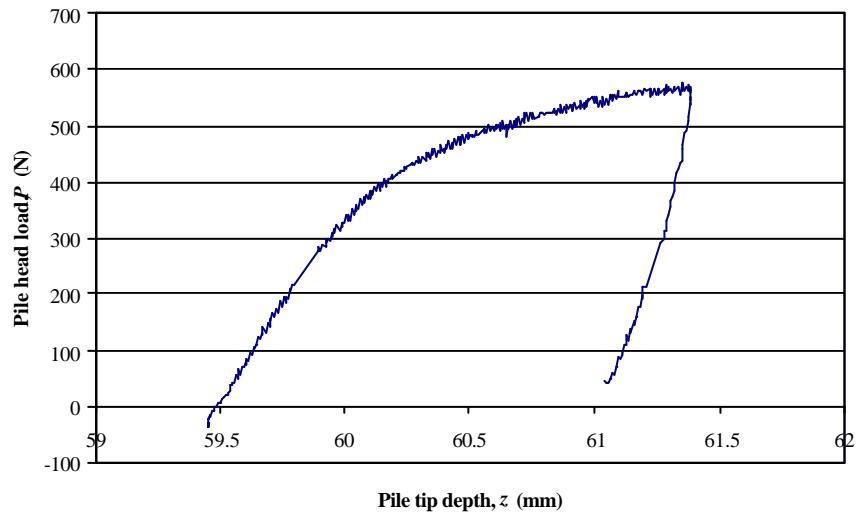


Figure 420 Test T10, Pile head load vs. pile tip depth (load test 1: compression at L/2)

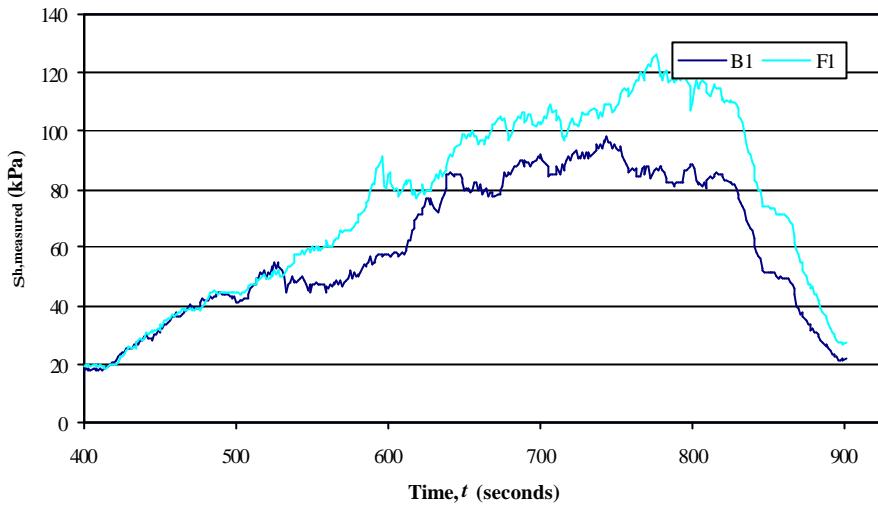


Figure 421 Test T10, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

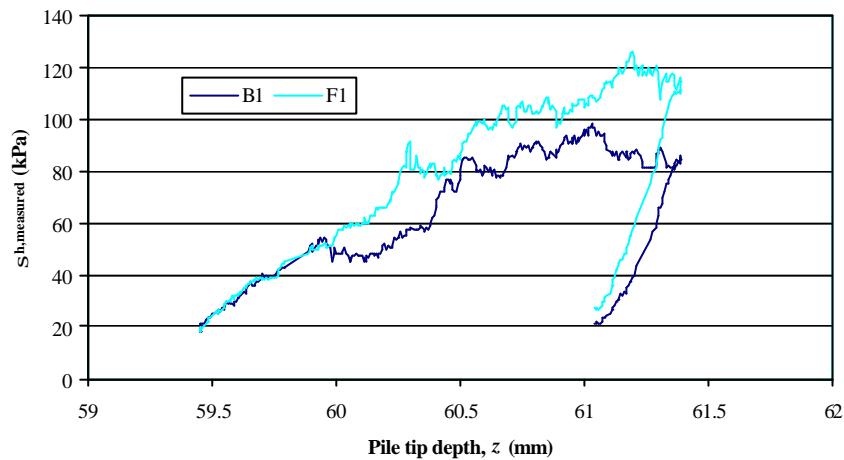


Figure 422 Test T10, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

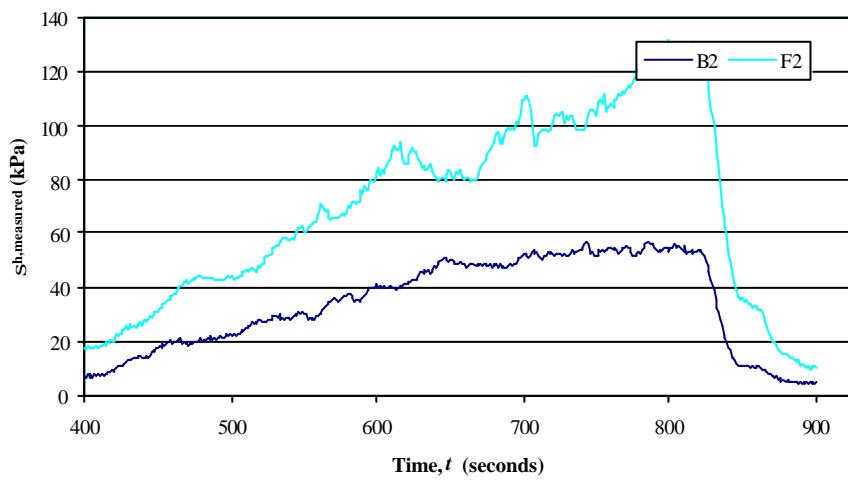


Figure 423 Test T10, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

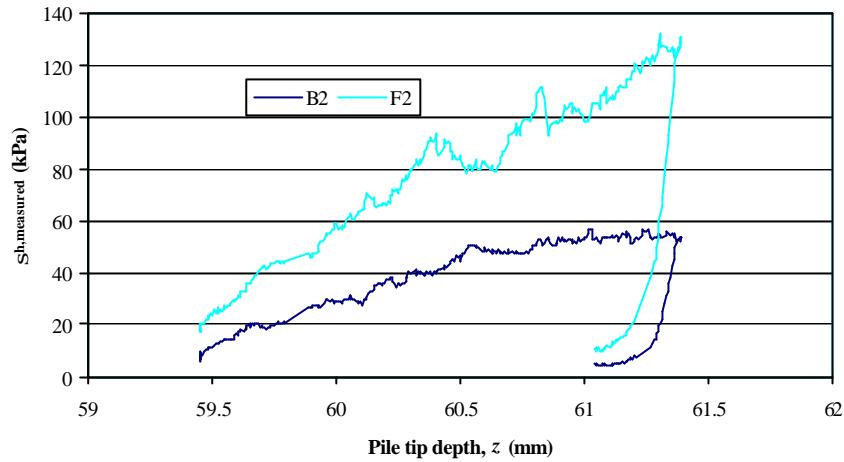


Figure 424 Test T10, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

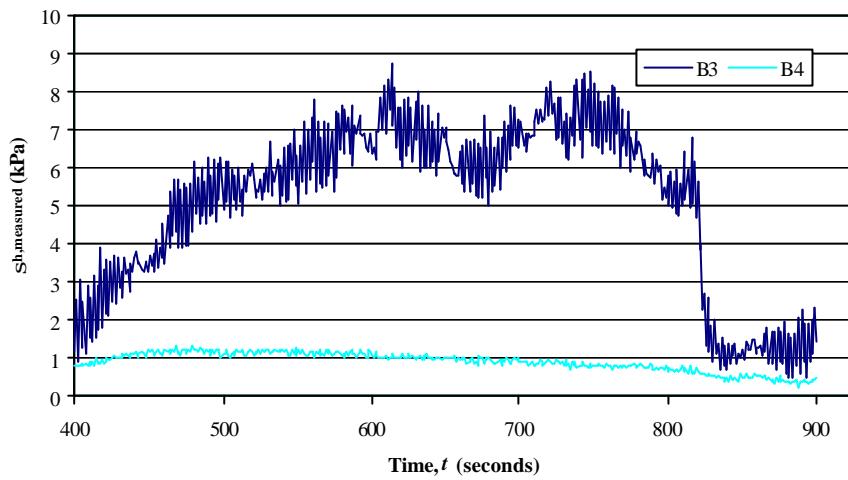


Figure 425 Test T10, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

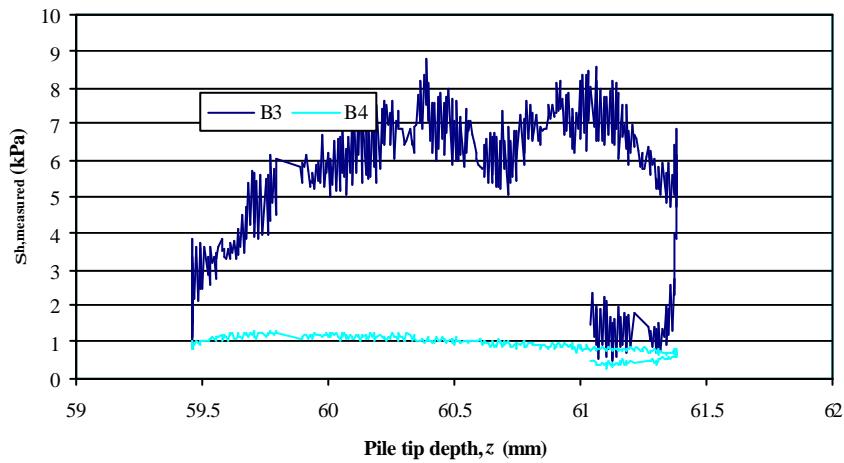


Figure 426 Test T10, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

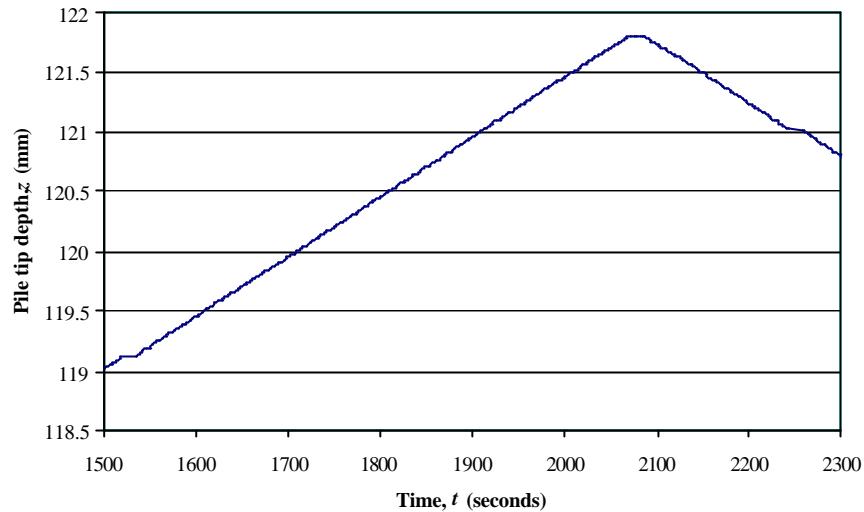


Figure 427 Test T10, Pile tip depth vs. time (load test 2: compression at L)

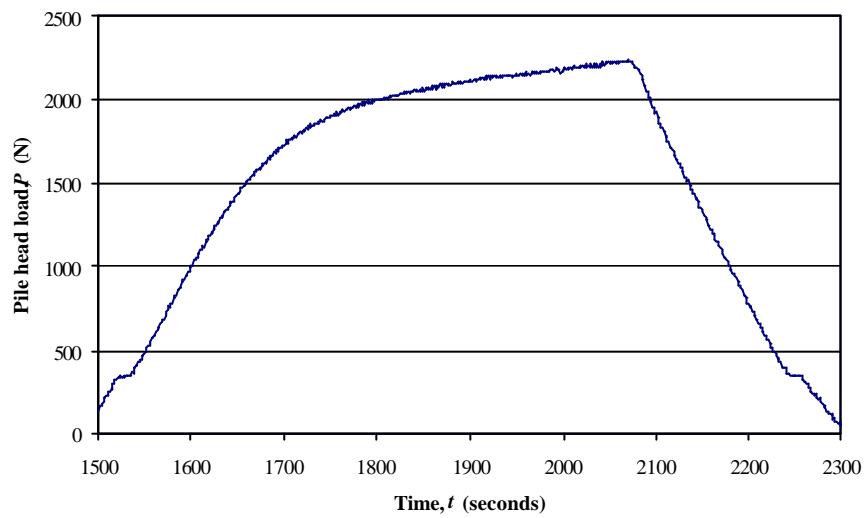


Figure 428 Test T10, Pile head load vs. time (load test 2: compression at L)

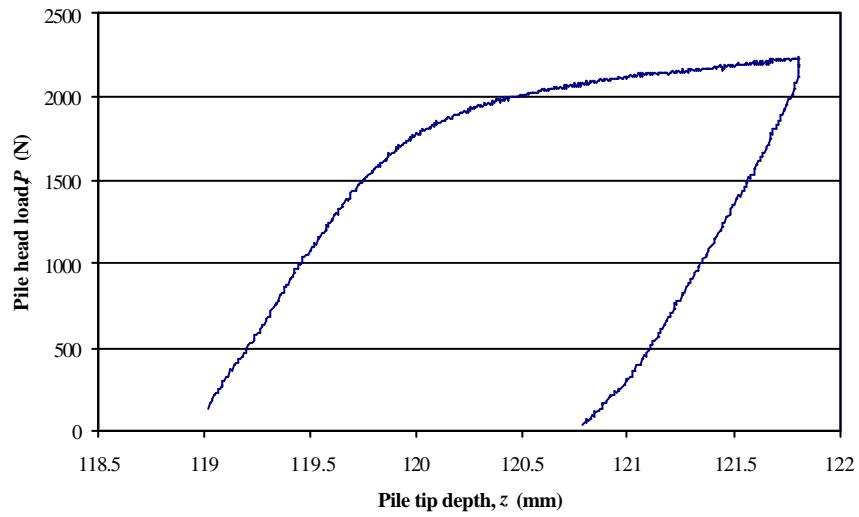


Figure 429 Test T10, Pile head load vs. pile tip depth (load test 2: compression at L)

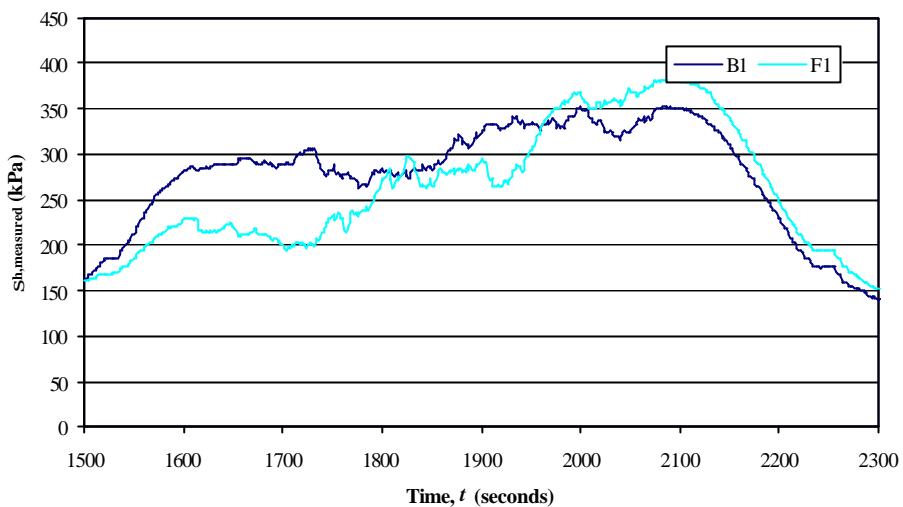


Figure 430 Test T10, B1, F1 pressure cells vs. time (load test 2: compression at L)

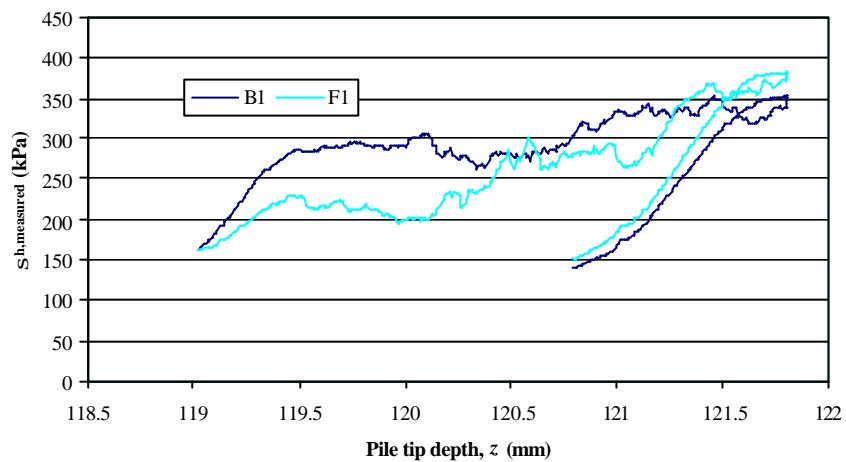


Figure 431 Test T10, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

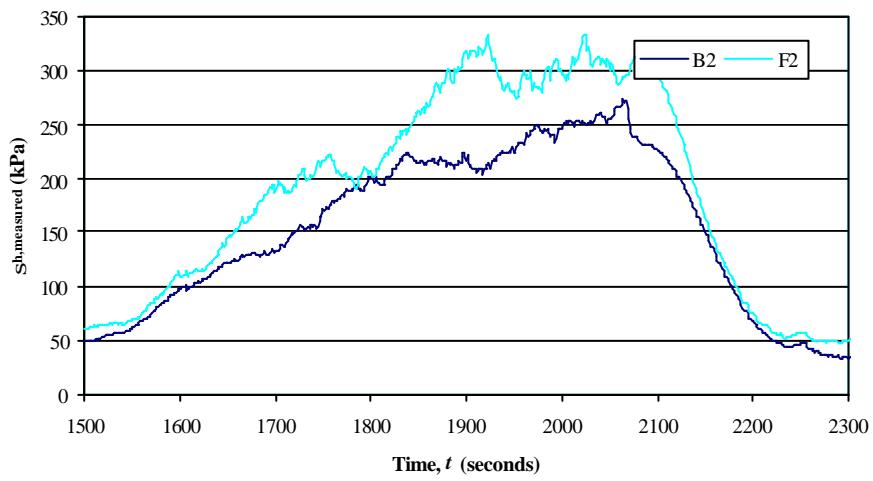


Figure 432 Test T10, B2, F2 pressure cells vs. time (load test 2: compression at L)

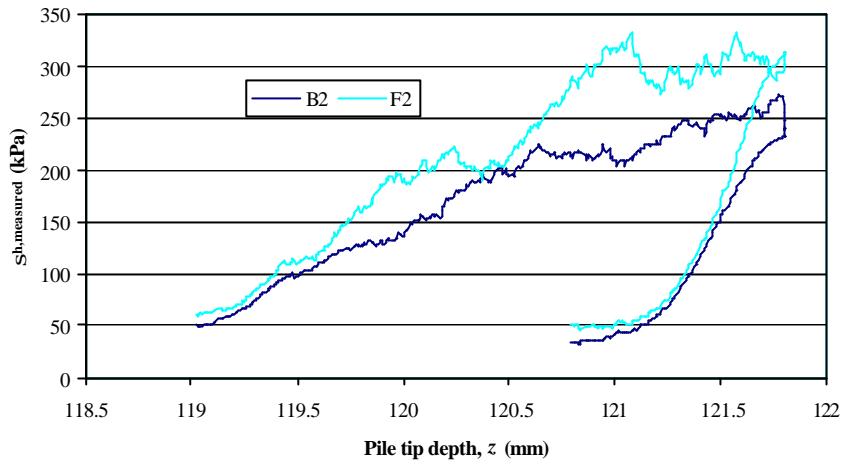


Figure 433 Test T10, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

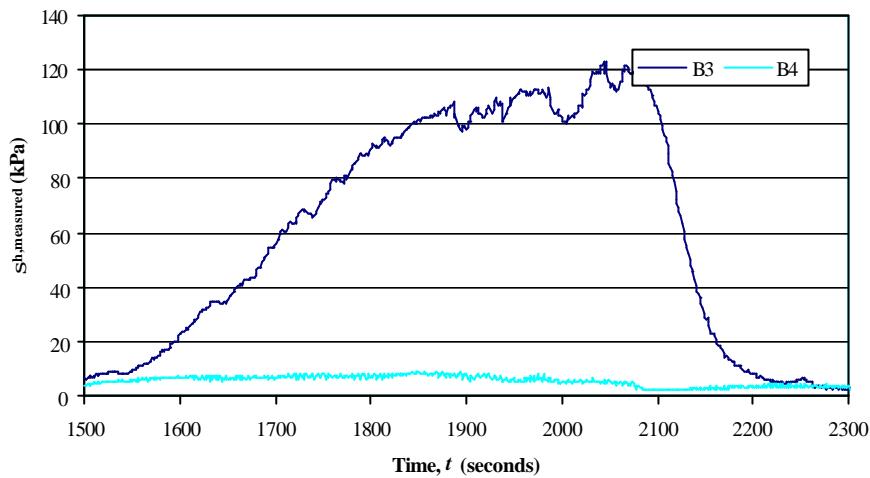


Figure 434 Test T10, B3, B4 pressure cells vs. time (load test 2: compression at L)

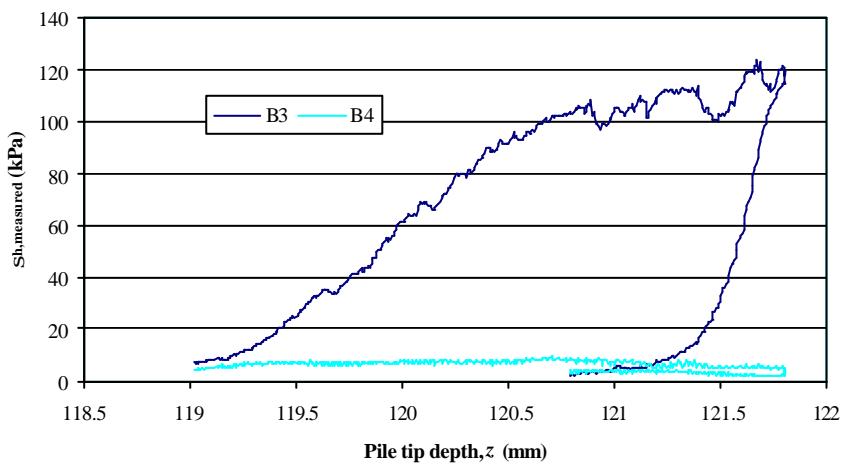


Figure 435 Test T10, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

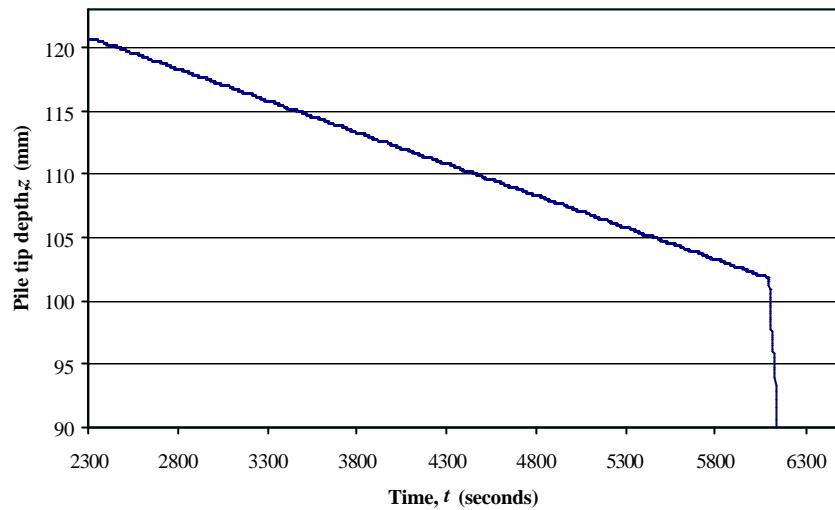


Figure 436 Test T10, Pile tip depth vs. time (load test 3: tension at L)

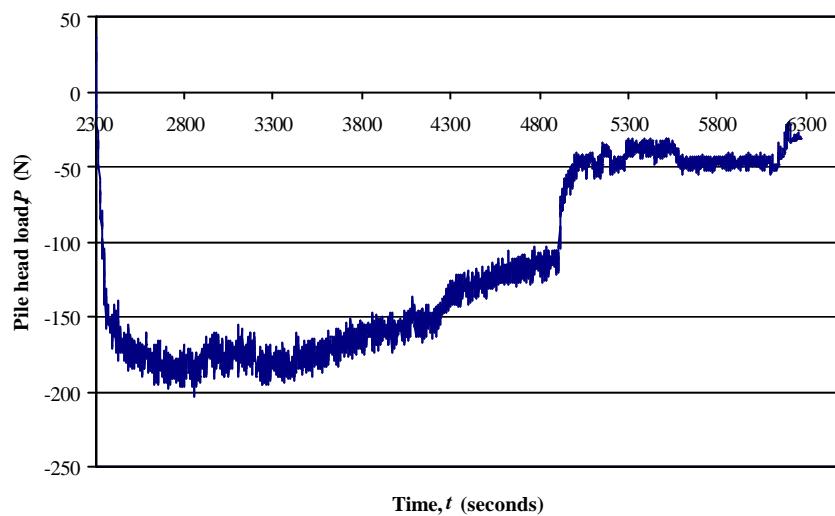


Figure 437 Test T10, Pile head load vs. time (load test 3: tension at L)

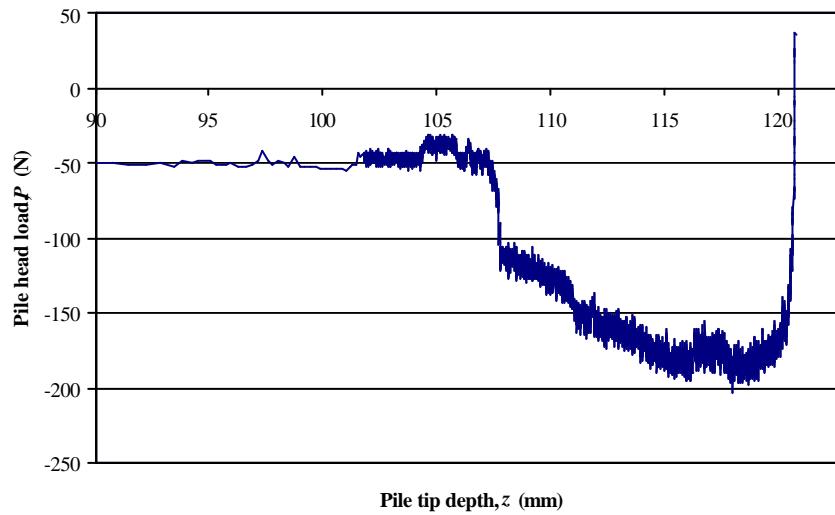


Figure 438 Test T10, Pile head load vs. pile tip depth (load test 3: tension at L)

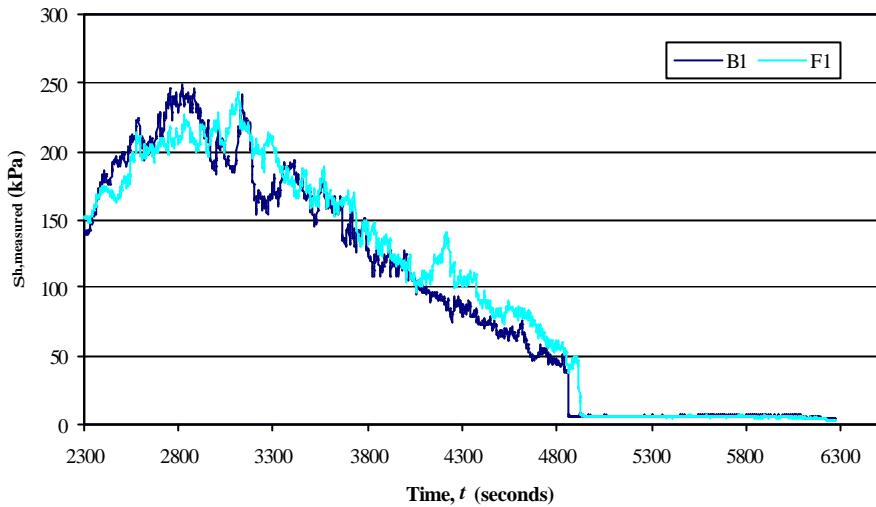


Figure 439 Test T10, B1, F1 pressure cells vs. time (load test 3: tension at L)

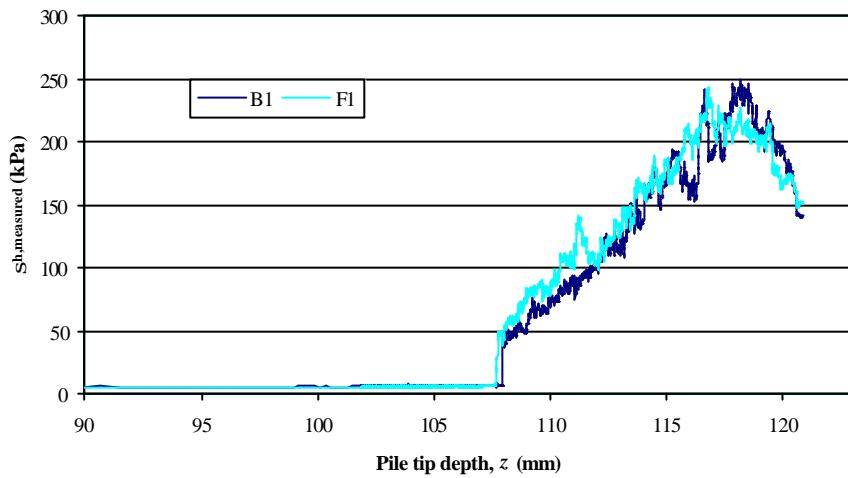


Figure 440 Test T10, B1, F1 pressure cells vs. pile tip depth (load test 3: tension at L)

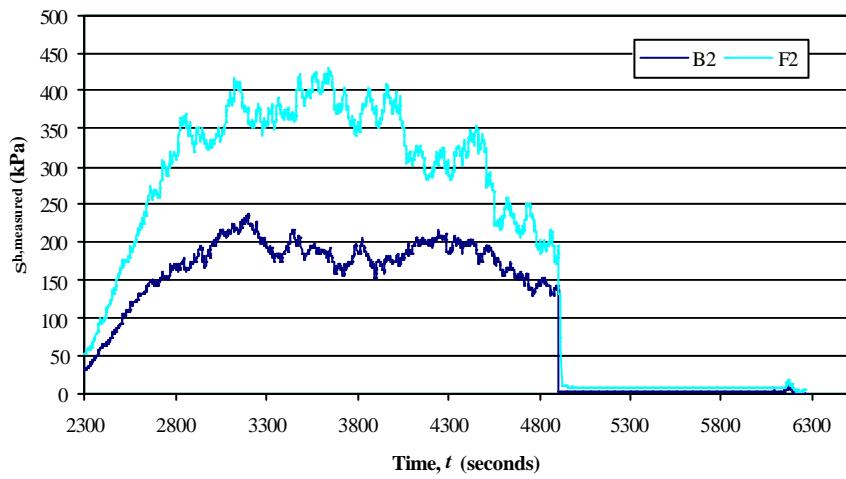


Figure 441 Test T10, B2, F2 pressure cells vs. time (load test 3: tension at L)

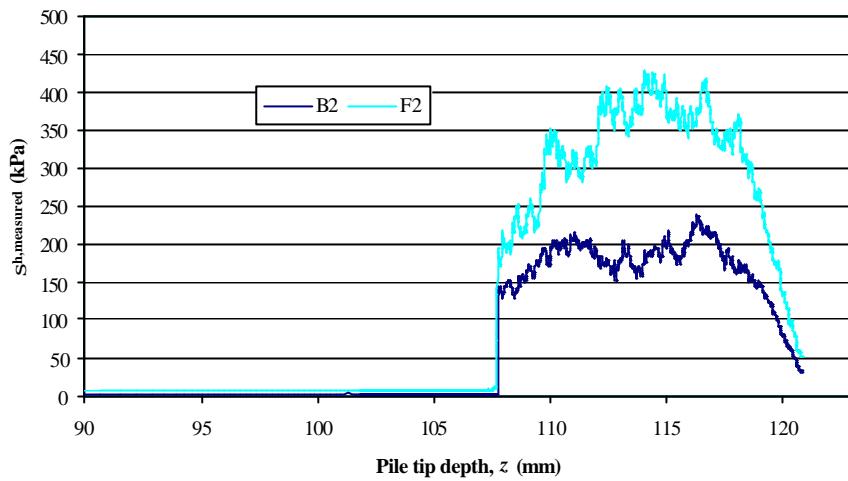


Figure 442 Test T10, B2, F2 pressure cells vs. pile tip depth (load test 3: tension at L)

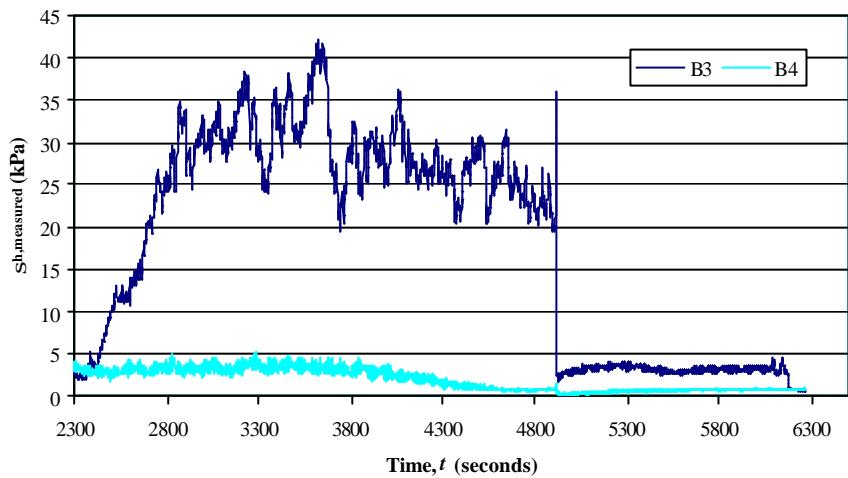


Figure 443 Test T10, B3, B4 pressure cells vs. time (load test 3: tension at L)

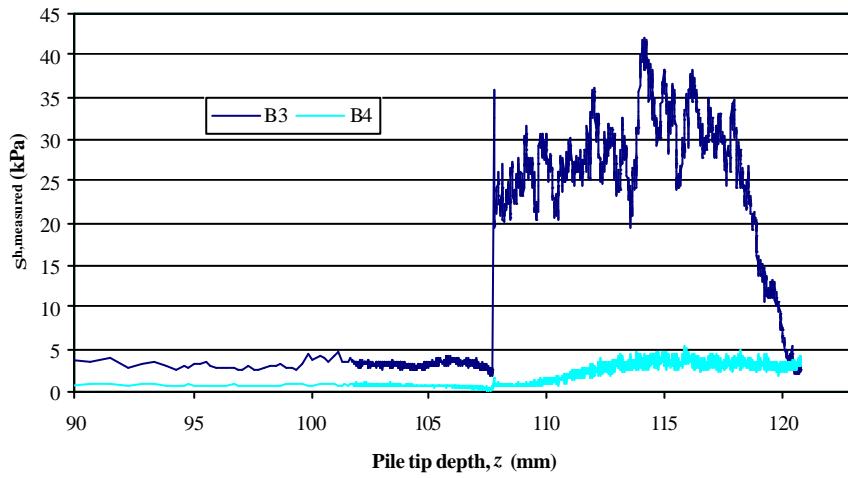


Figure 444 Test T10, B3, B4 pressure cells vs. pile tip depth (load test 3: tension at L)

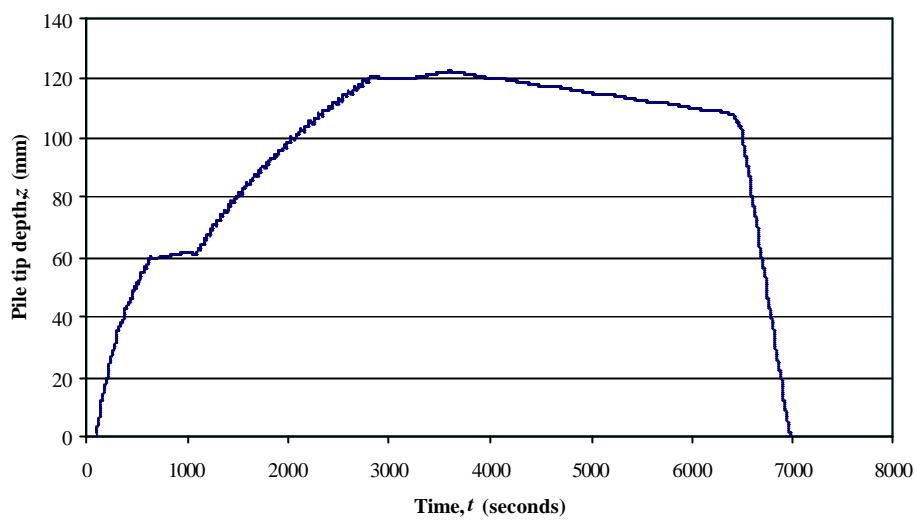


Figure 445 Test T11, Pile tip depth vs. time (entire test)

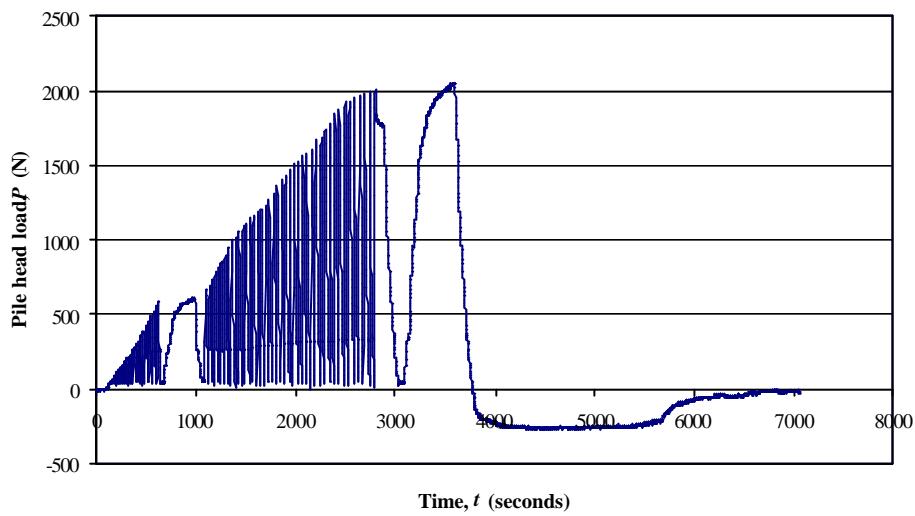


Figure 446 Test T11, Pile head load vs. time (entire test)

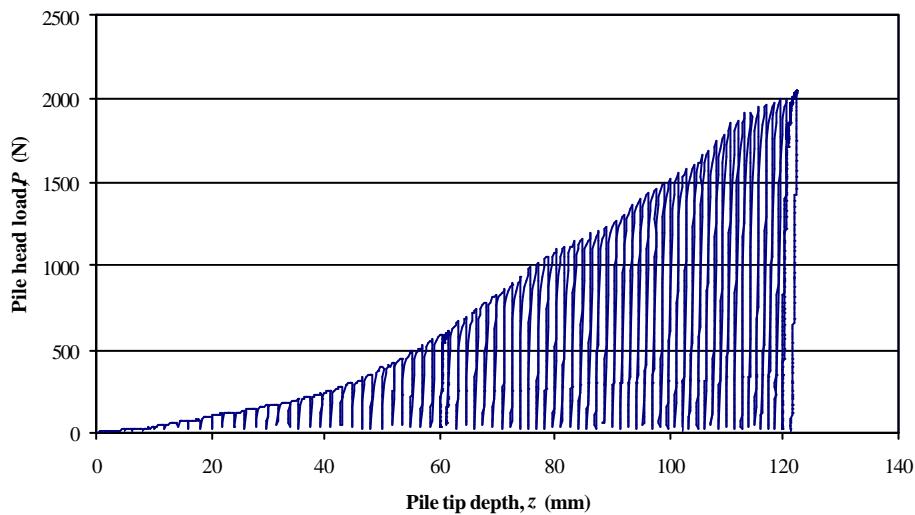


Figure 447 Test T11, Pile head load vs. pile tip depth (entire test)

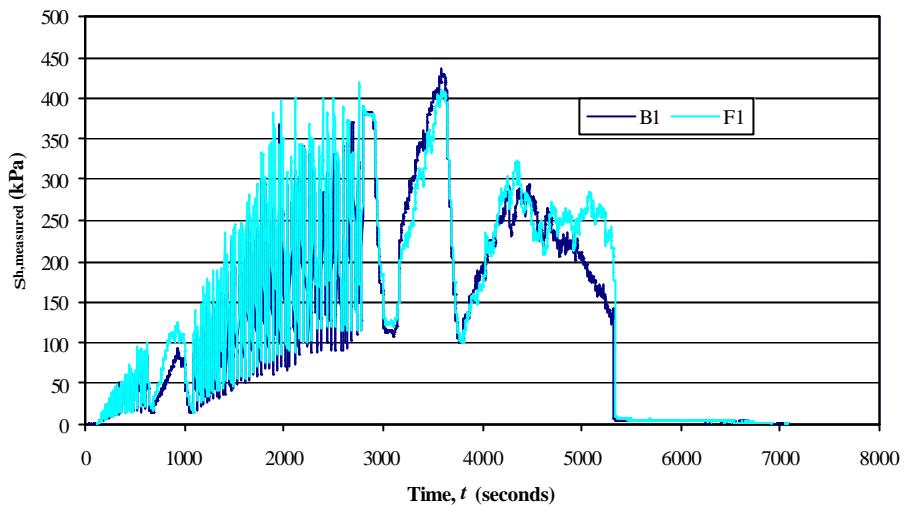


Figure 448 Test T11, B1, F1 pressure cells vs. time (entire test)

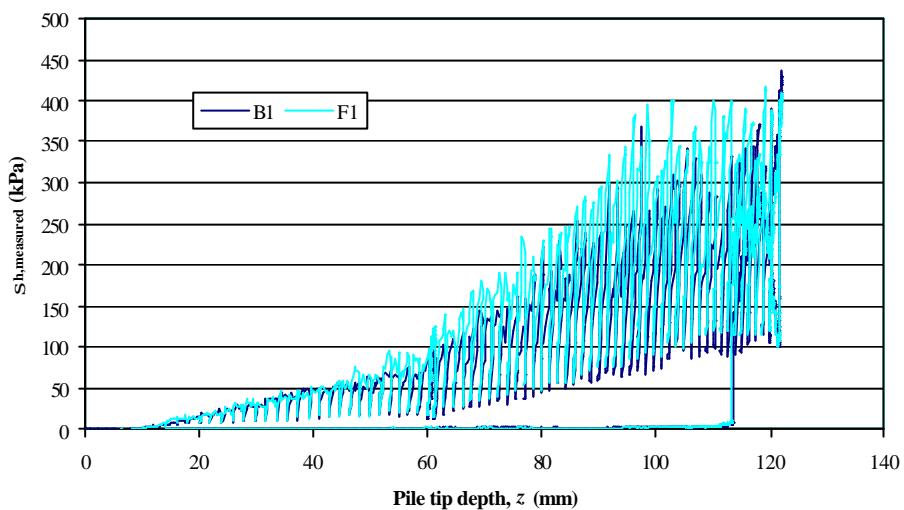


Figure 449 Test T11, B1, F1 pressure cells vs. pile tip depth (entire test)

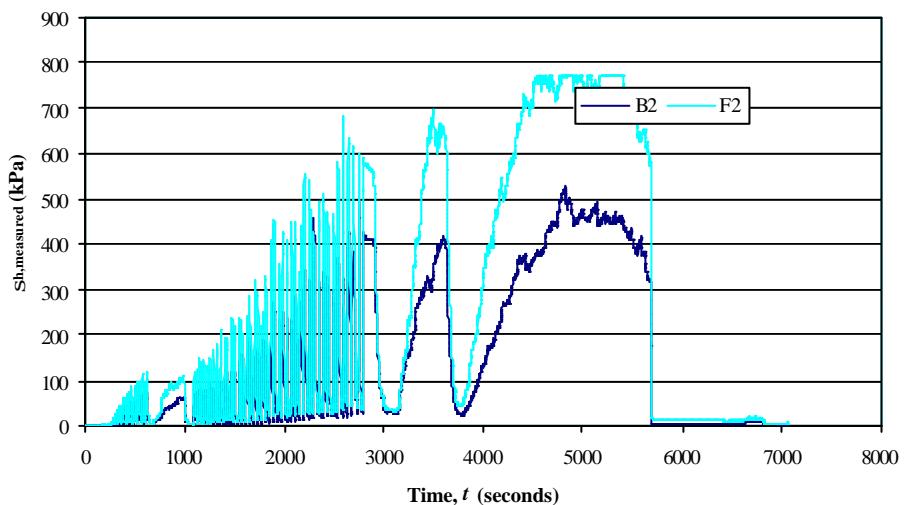


Figure 450 Test T11, B2, F2 pressure cells vs. time (entire test)

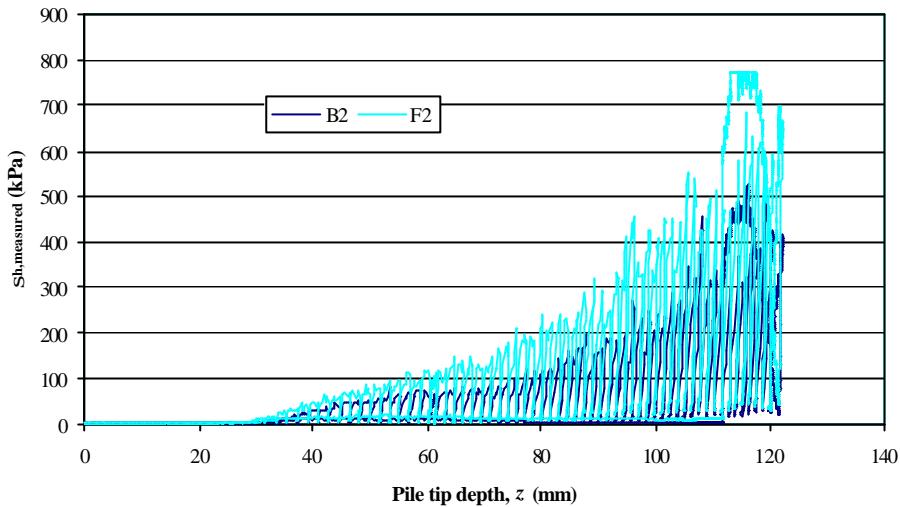


Figure 451 Test T11, B2, F2 pressure cells vs. pile tip depth (entire test)

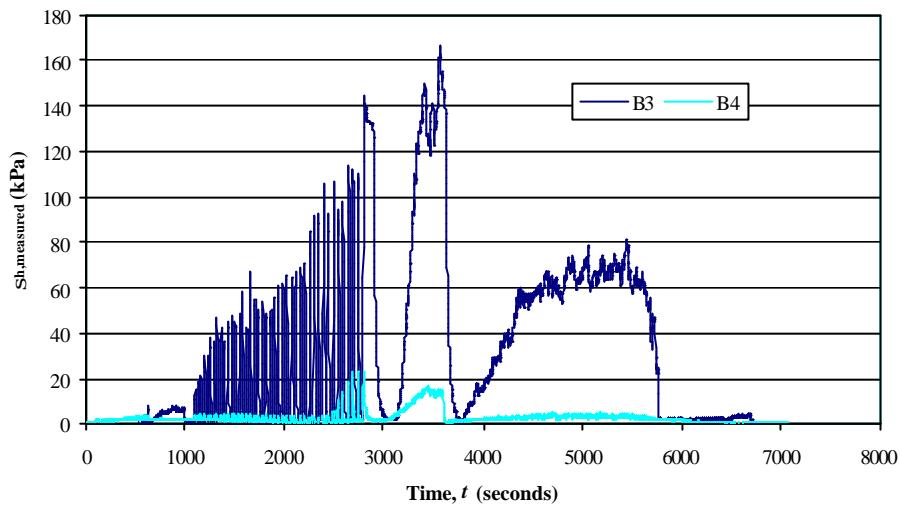


Figure 452 Test T11, B3, B4 pressure cells vs. time (entire test)

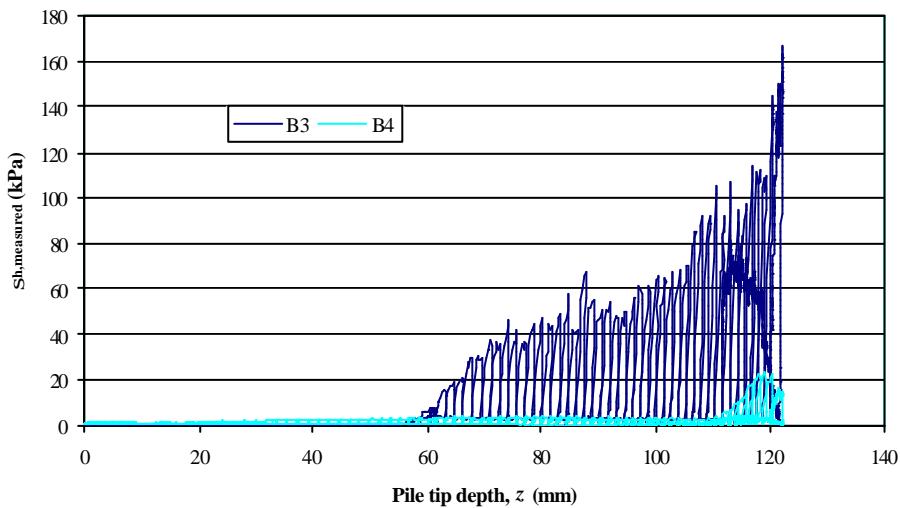


Figure 453 Test T11, B3, B4 pressure cells vs. pile tip depth (entire test)

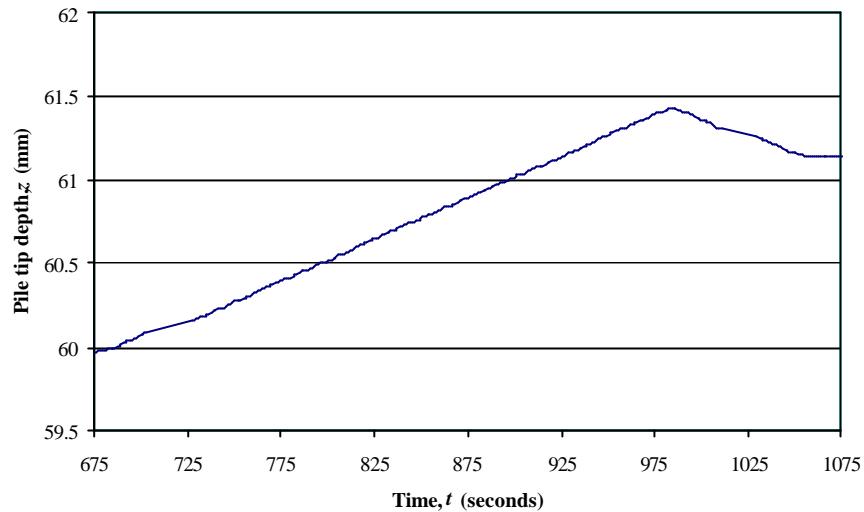


Figure 454 Test T11, Pile tip depth vs. time (load test 1: compression at L/2)

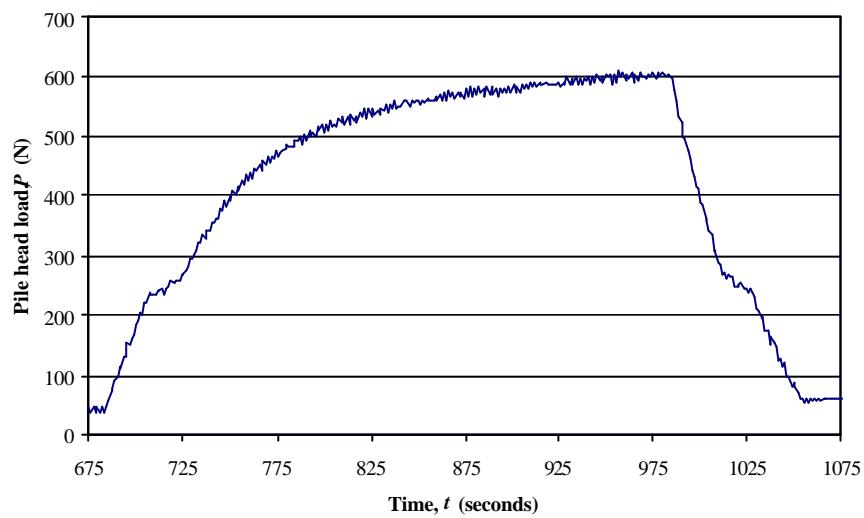


Figure 455 Test T11, Pile head load vs. time (load test 1: compression at L/2)

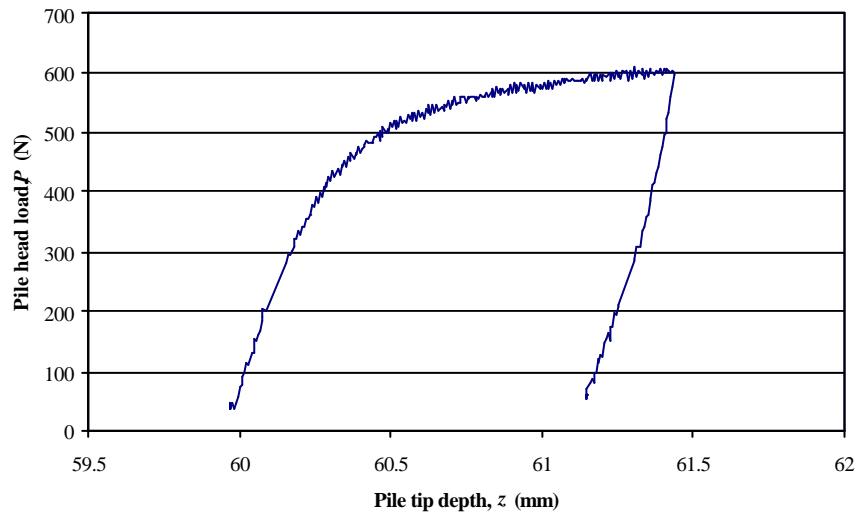


Figure 456 Test T11, Pile head load vs. pile tip depth (load test 1: compression at L/2)

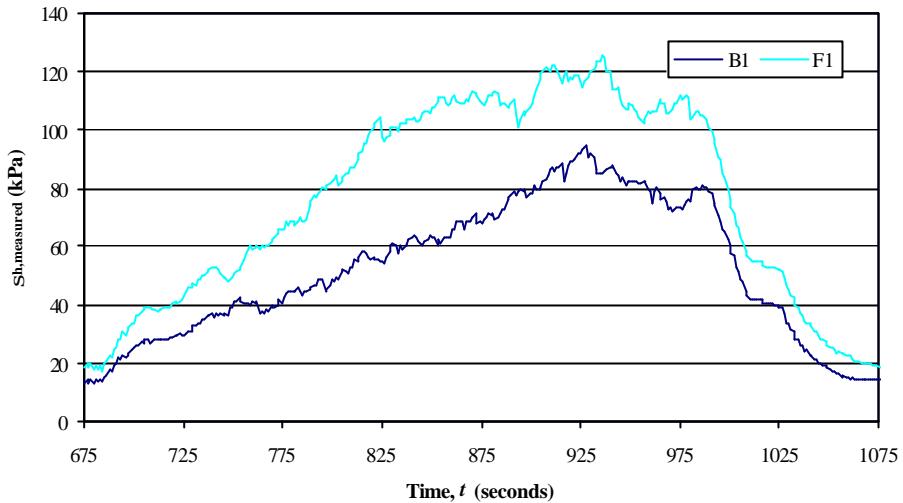


Figure 457 Test T11, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

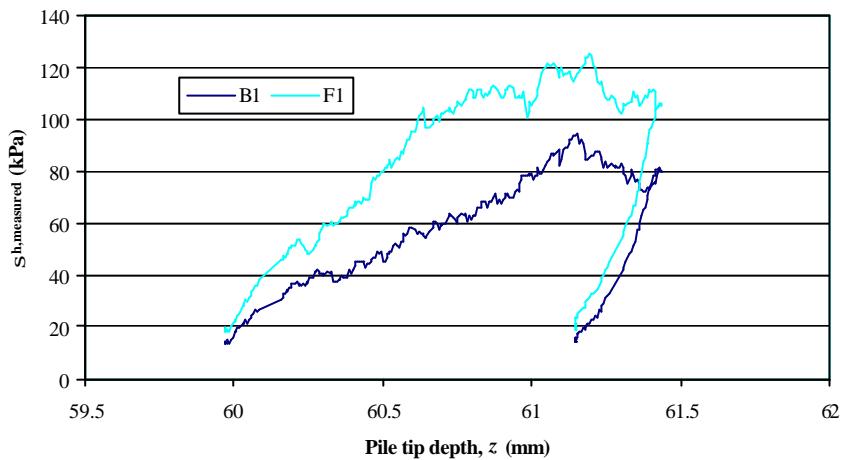


Figure 458 Test T11, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

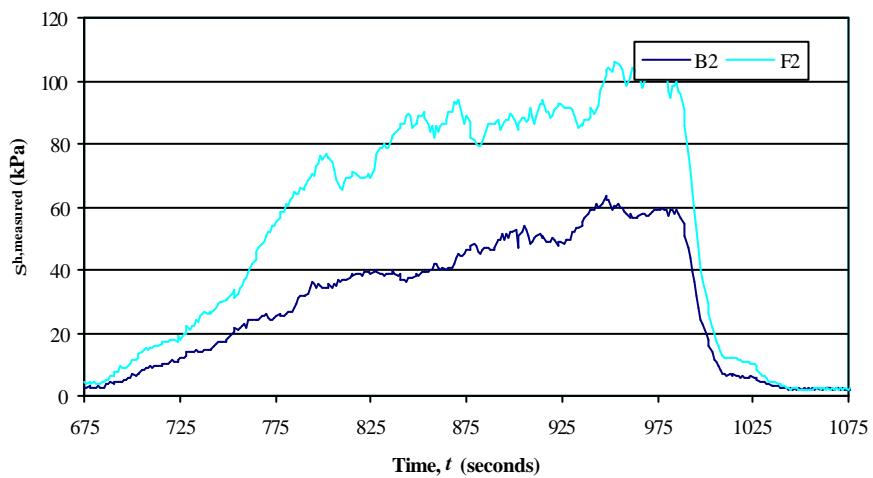


Figure 459 Test T11, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

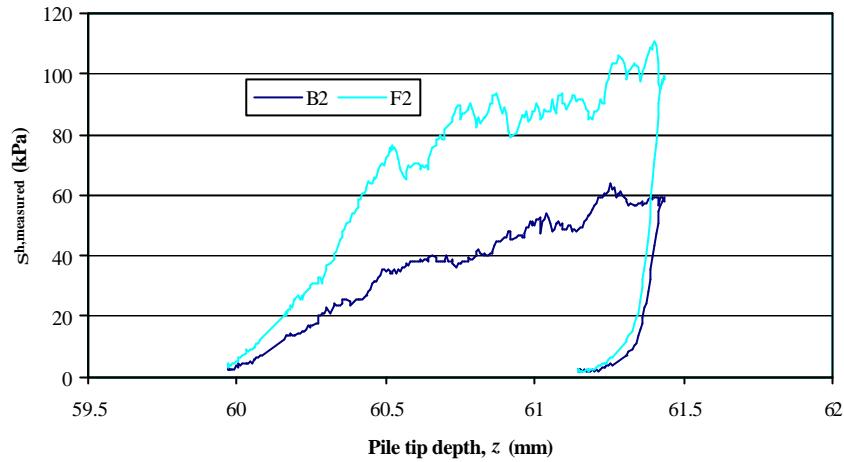


Figure 460 Test T11, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

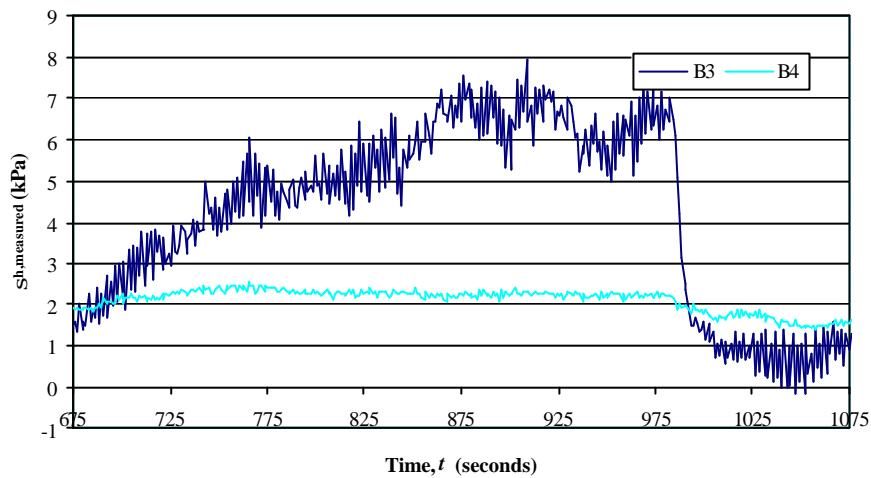


Figure 461 Test T11, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

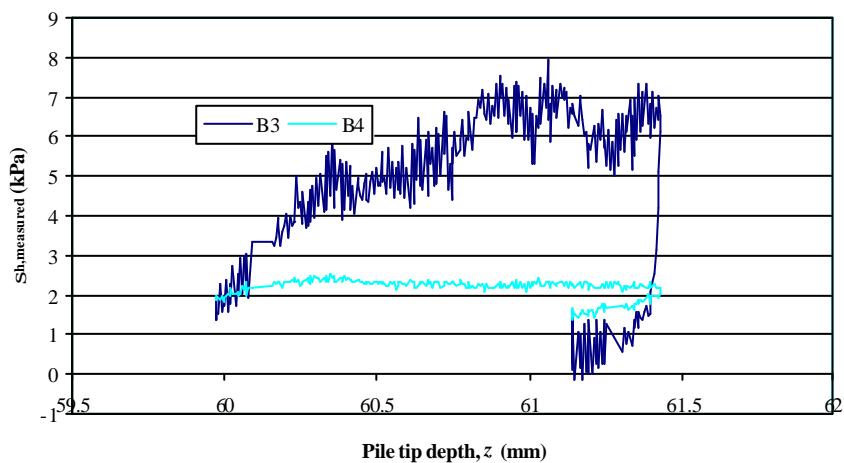


Figure 462 Test T11, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

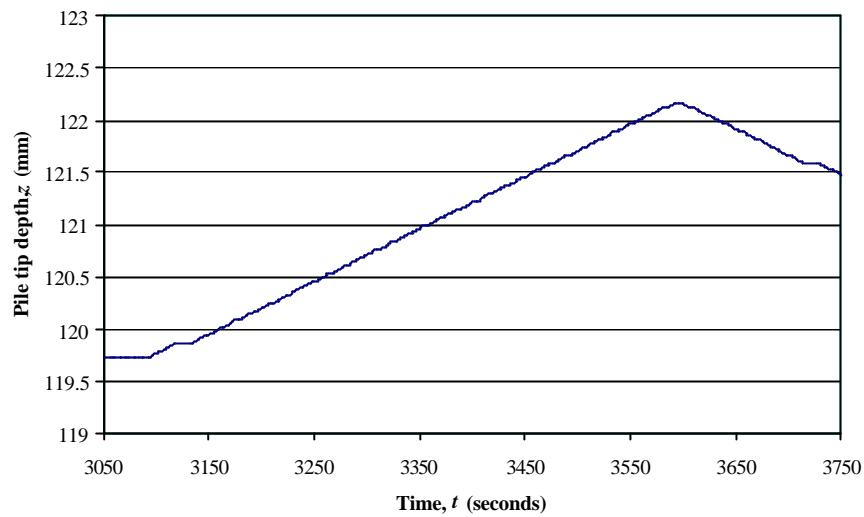


Figure 463 Test T11, Pile tip depth vs. time (load test 2: compression at L)

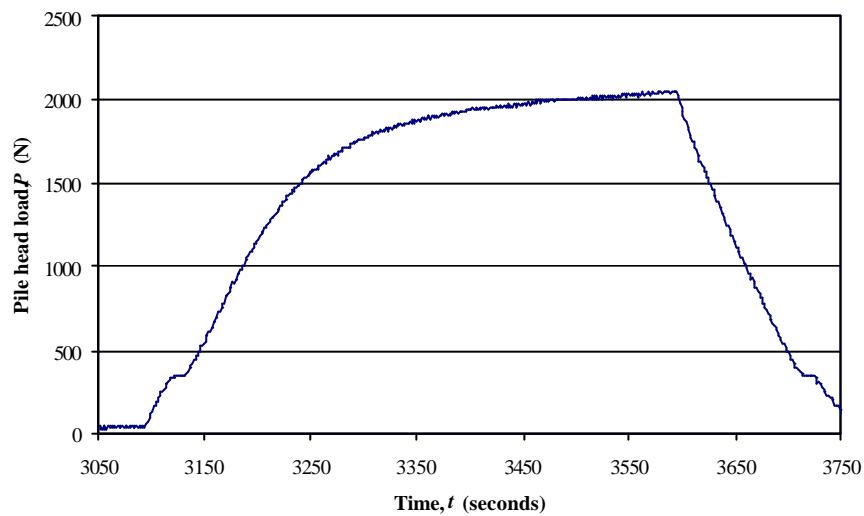


Figure 464 Test T11, Pile head load vs. time (load test 2: compression at L)

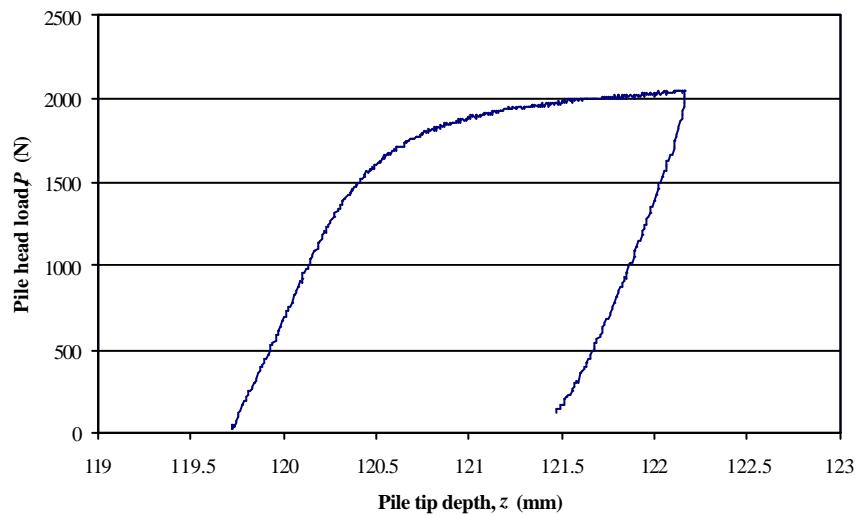


Figure 465 Test T11, Pile head load vs. pile tip depth (load test 2: compression at L)

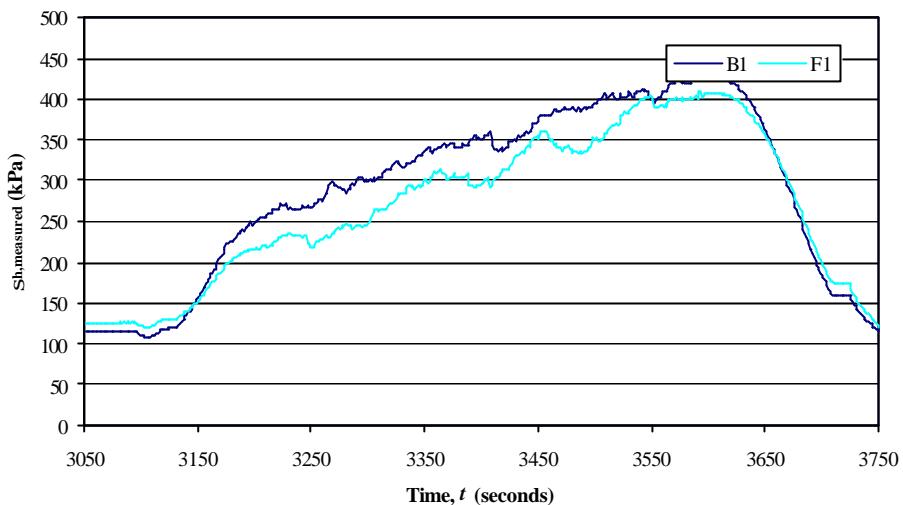


Figure 466 Test T11, B1, F1 pressure cells vs. time (load test 2: compression at L)

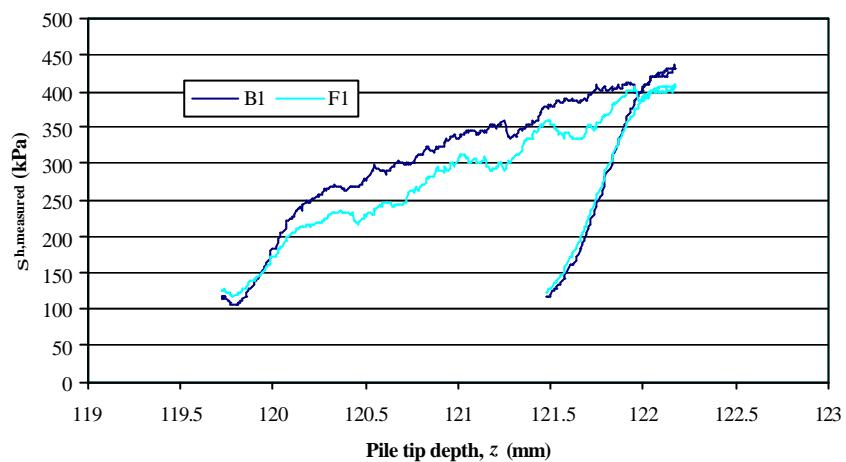


Figure 467 Test T11, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

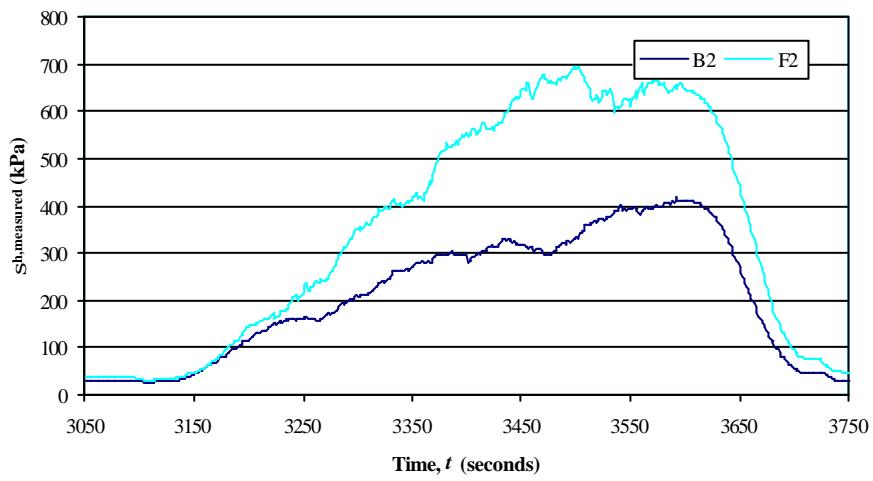


Figure 468 Test T11, B2, F2 pressure cells vs. time (load test 2: compression at L)

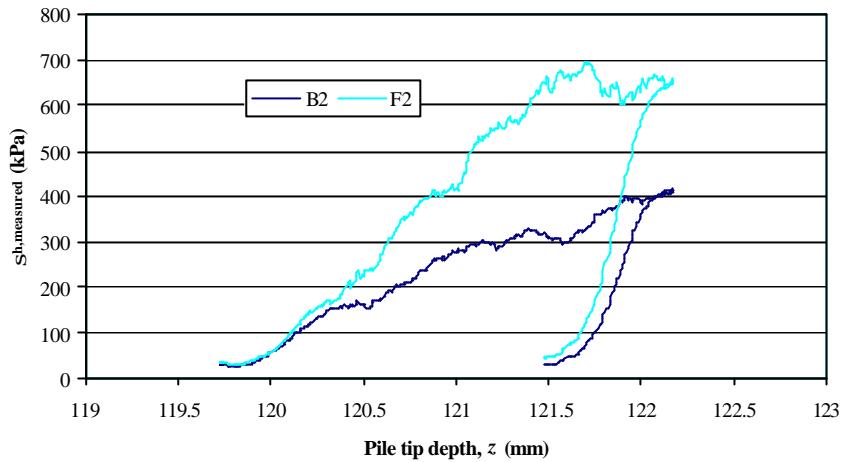


Figure 469 Test T11, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

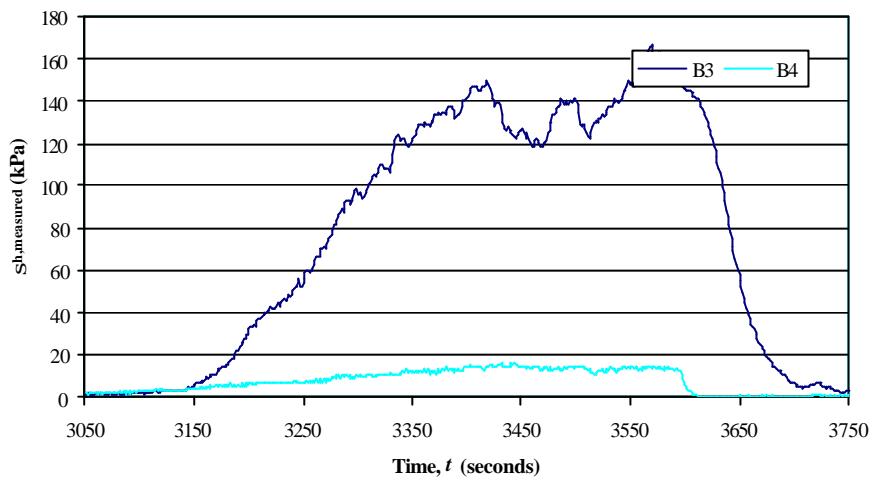


Figure 470 Test T11, B3, B4 pressure cells vs. time (load test 2: compression at L)

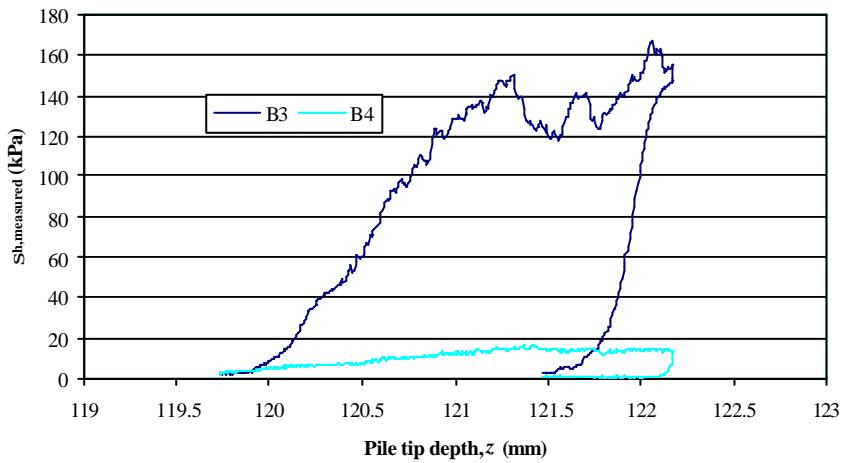


Figure 471 Test T11, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

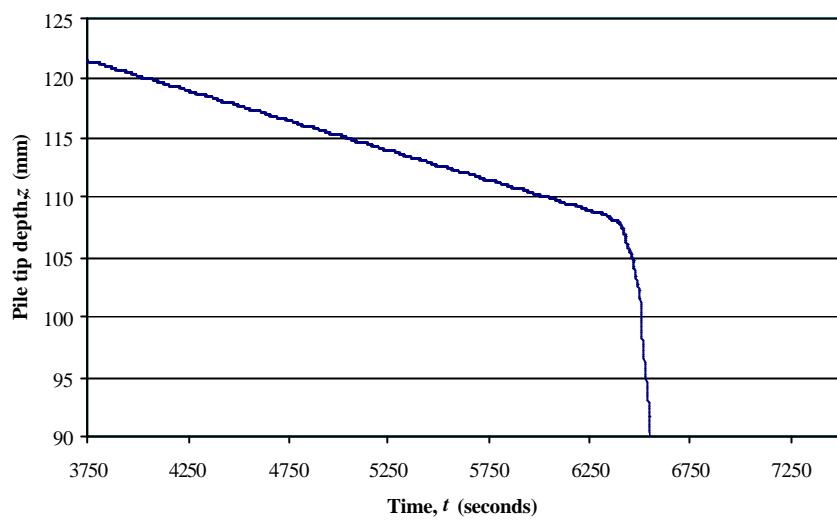


Figure 472 Test T11, Pile tip depth vs. time (load test 3: tension at L)

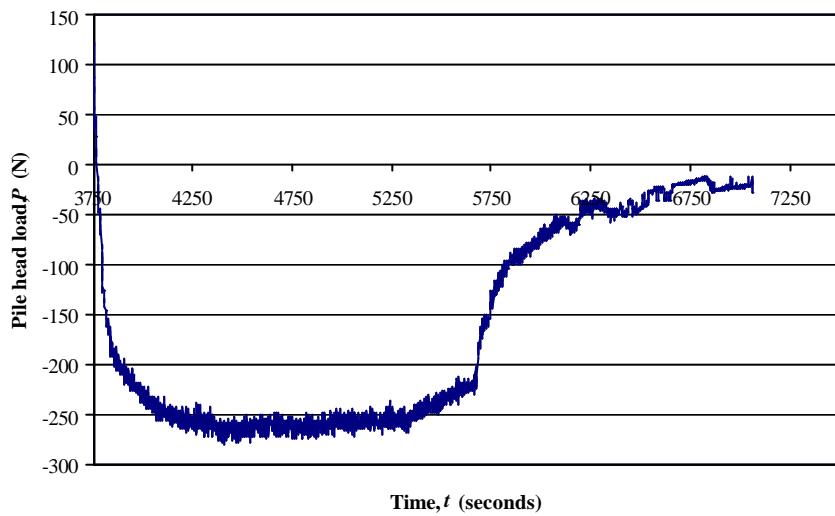


Figure 473 Test T11, Pile head load vs. time (load test 3: tension at L)

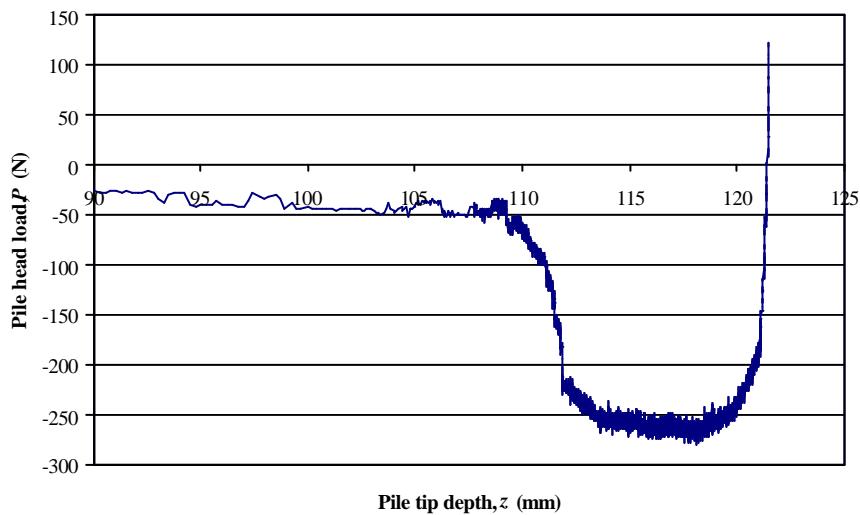


Figure 474 Test T11, Pile head load vs. pile tip depth (load test 3: tension at L)

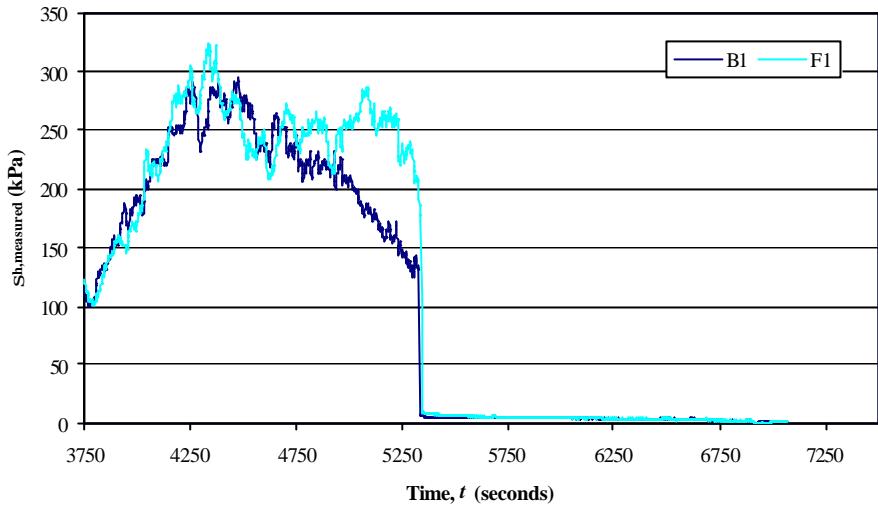


Figure 475 Test T11, B1, F1 pressure cells vs. time (load test 3: tension at L)

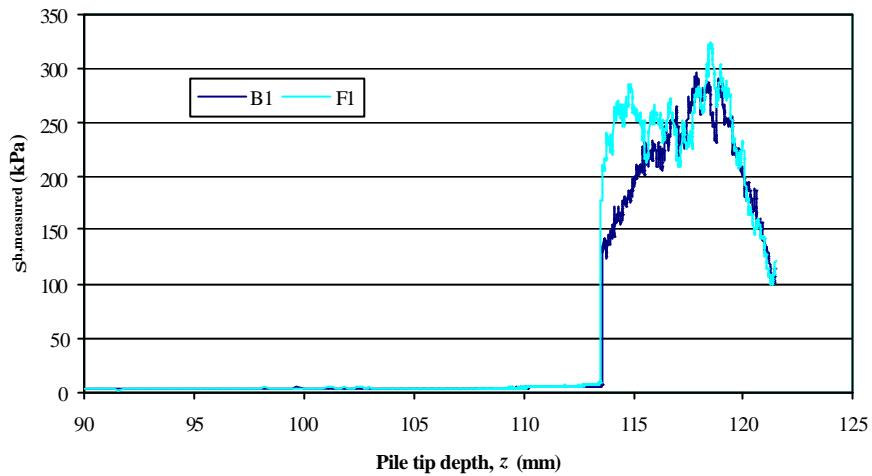


Figure 476 Test T11, B1, F1 pressure cells vs. pile tip depth (load test 3: tension at L)

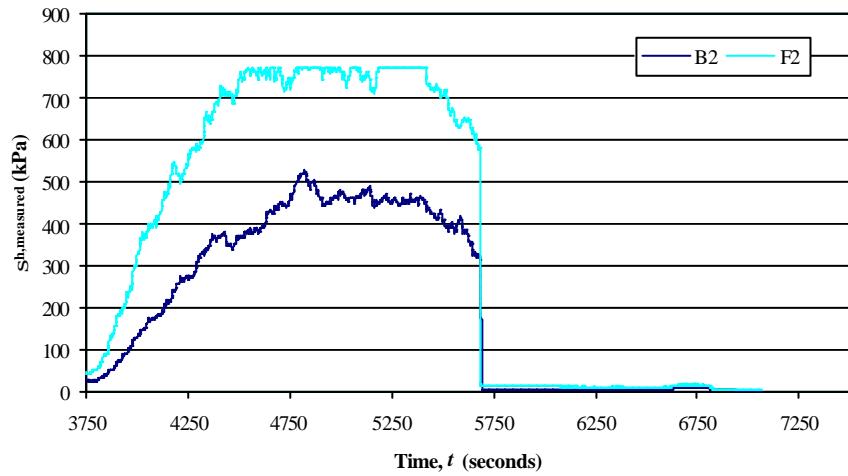


Figure 477 Test T11, B2, F2 pressure cells vs. time (load test 3: tension at L)

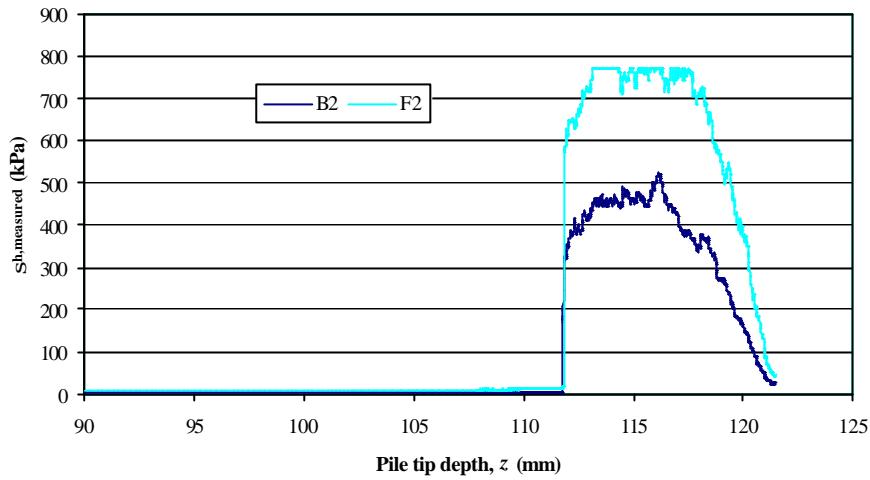


Figure 478 Test T11, B2, F2 pressure cells vs. pile tip depth (load test 3: tension at L)

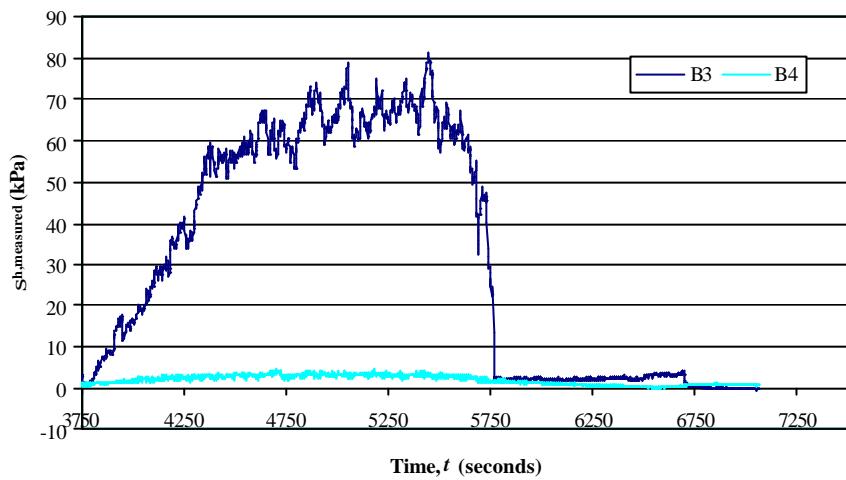


Figure 479 Test T11, B3, B4 pressure cells vs. time (load test 3: tension at L)

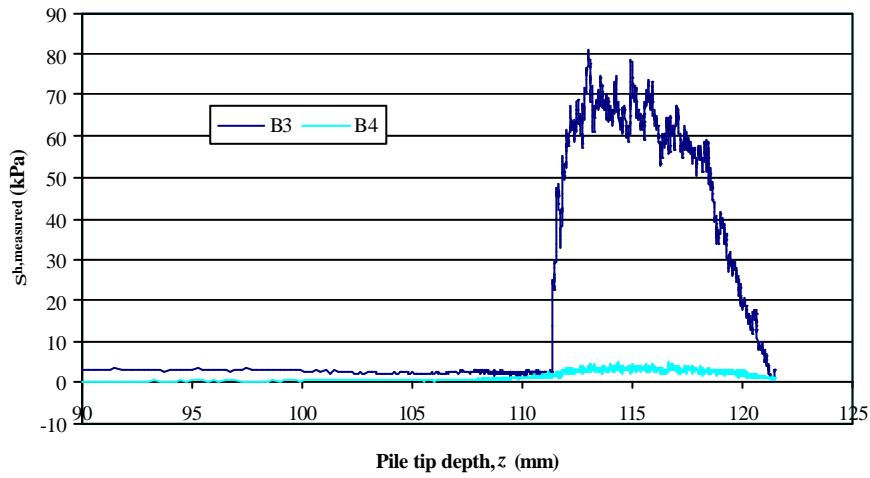


Figure 480 Test T11, B3, B4 pressure cells vs. pile tip depth (load test 3: tension at L)

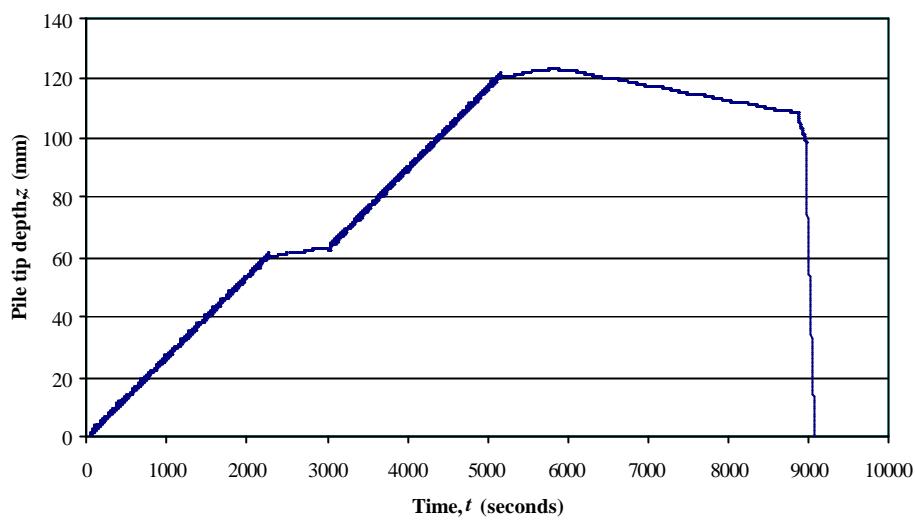


Figure 481 Test T12, Pile tip depth vs. time (entire test)

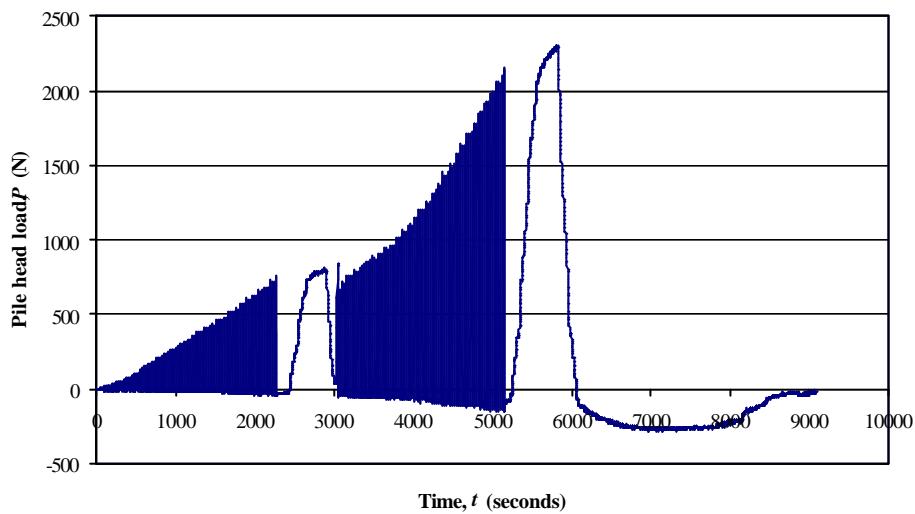


Figure 482 Test T12, Pile head load vs. time (entire test)

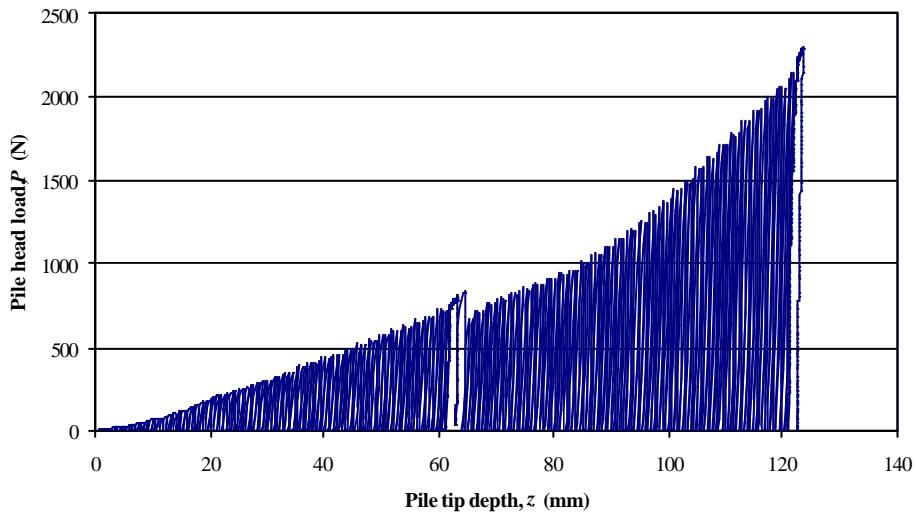


Figure 483 Test T12, Pile head load vs. pile tip depth (entire test)

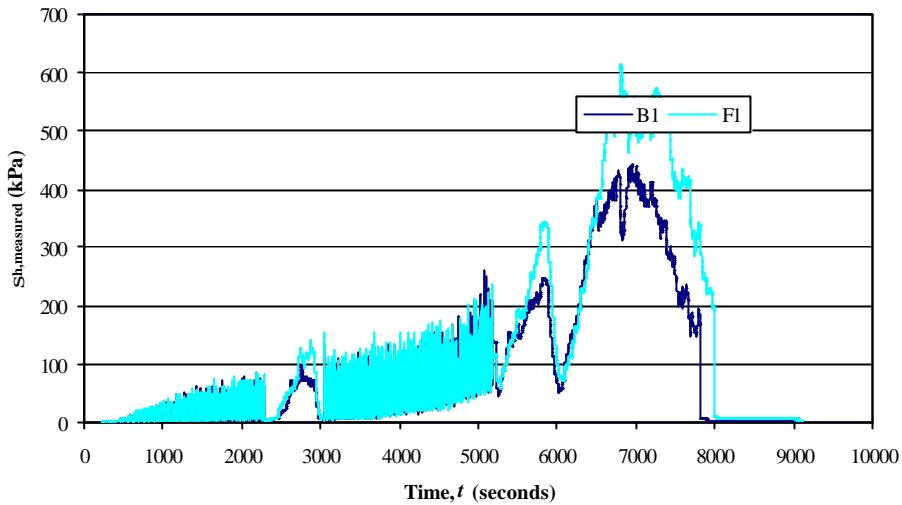


Figure 484 Test T12, B1, F1 pressure cells vs. time (entire test)

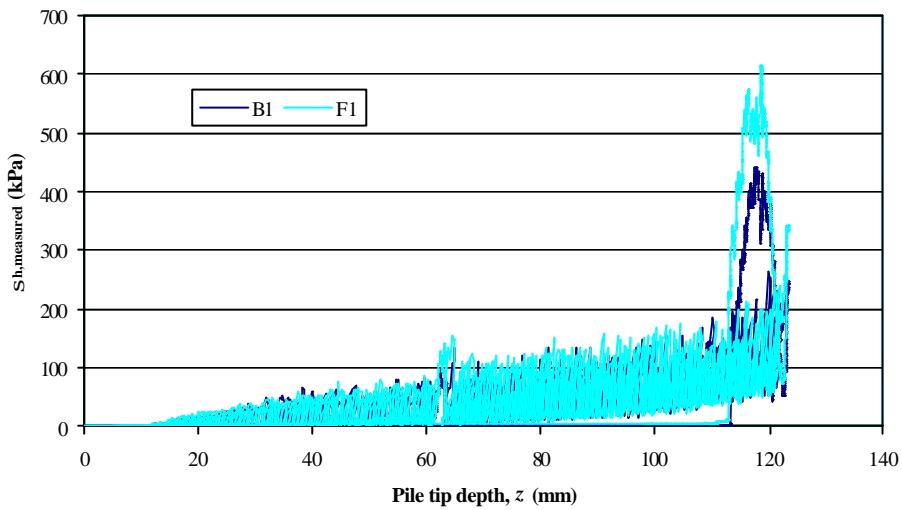


Figure 485 Test T12, B1, F1 pressure cells vs. pile tip depth (entire test)

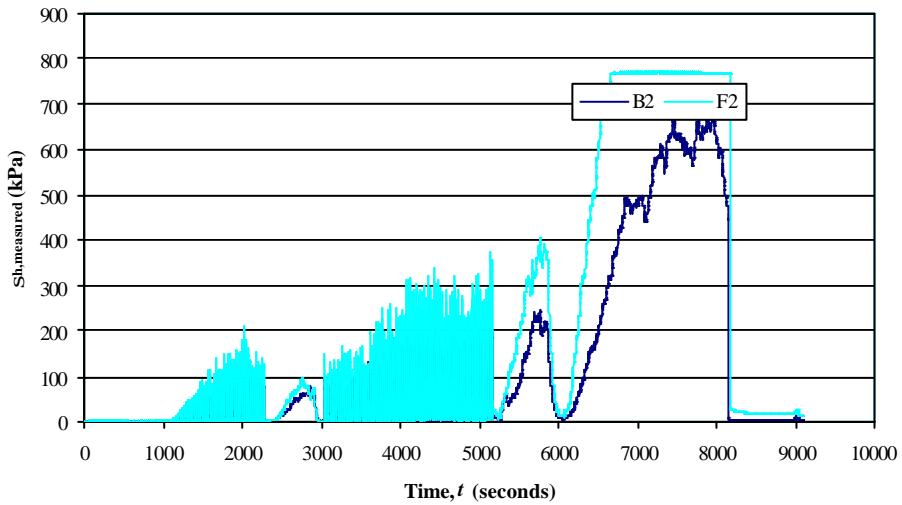


Figure 486 Test T12, B2, F2 pressure cells vs. time (entire test)

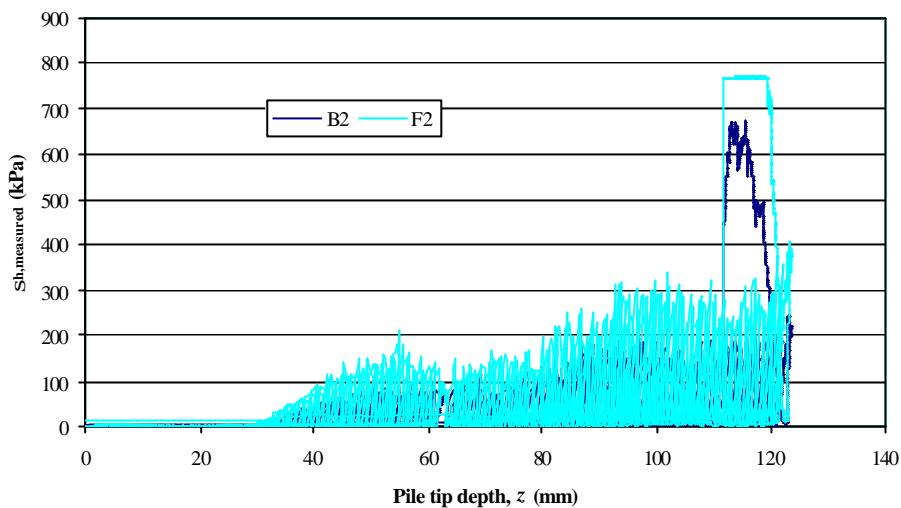


Figure 487 Test T12, B2, F2 pressure cells vs. pile tip depth (entire test)

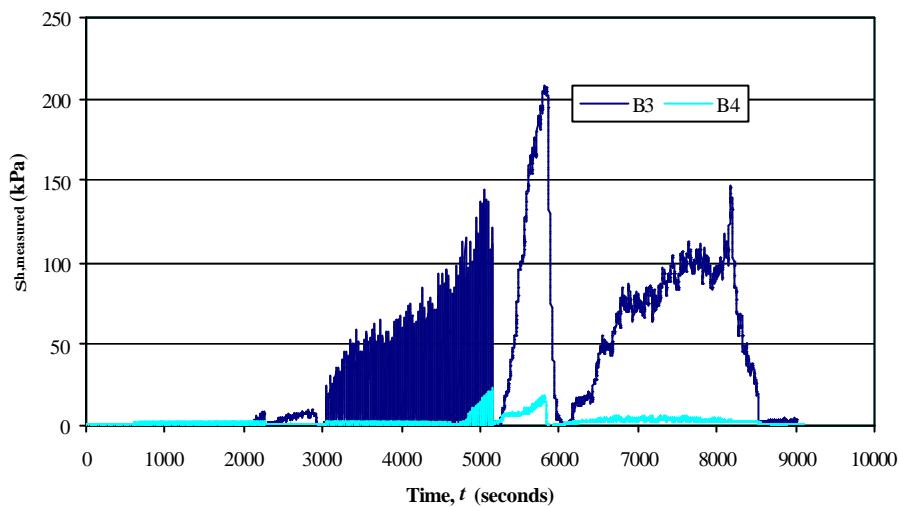


Figure 488 Test T12, B3, B4 pressure cells vs. time (entire test)

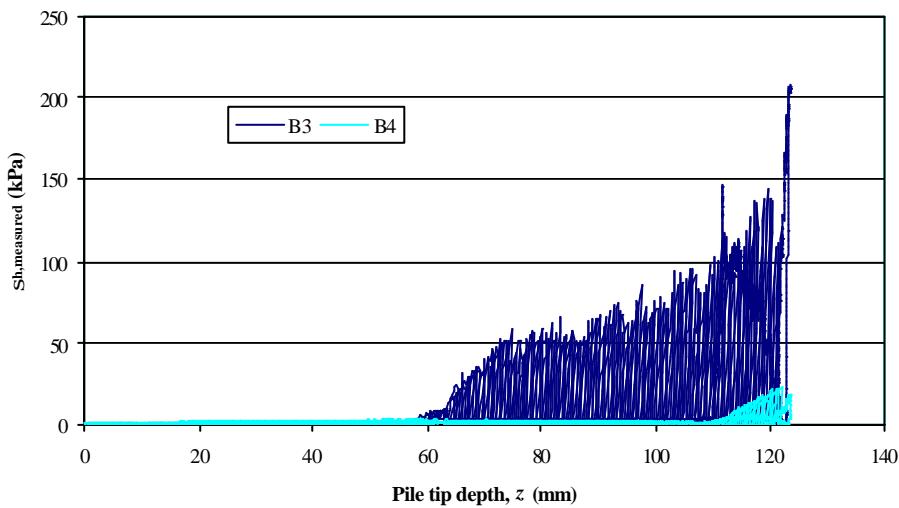


Figure 489 Test T12, B3, B4 pressure cells vs. pile tip depth (entire test)

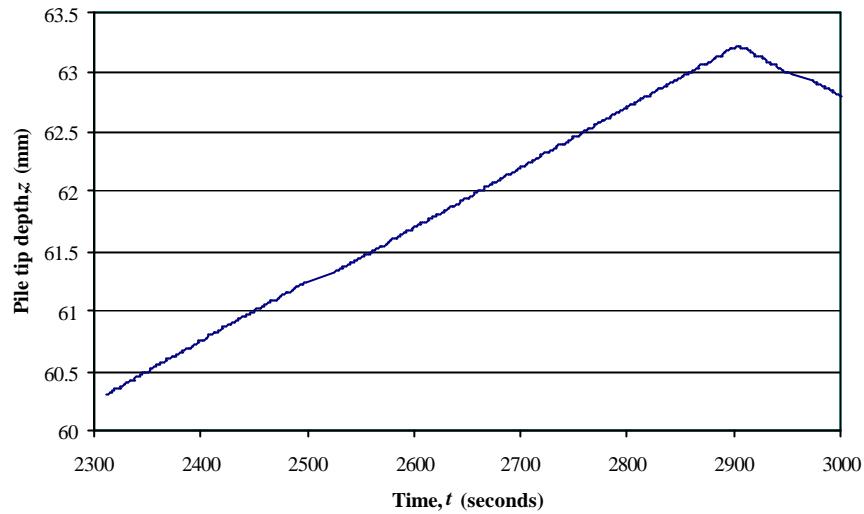


Figure 490 Test T12, Pile tip depth vs. time (load test 1: compression at L/2)

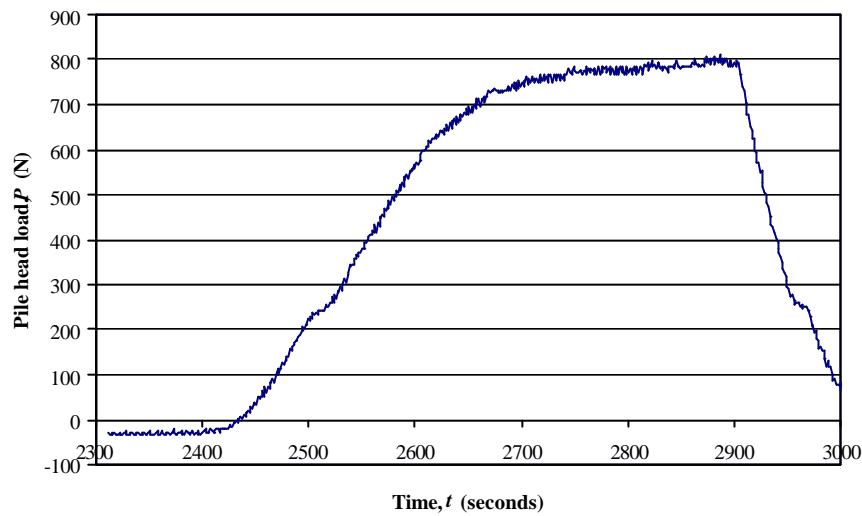


Figure 491 Test T12, Pile head load vs. time (load test 1: compression at L/2)

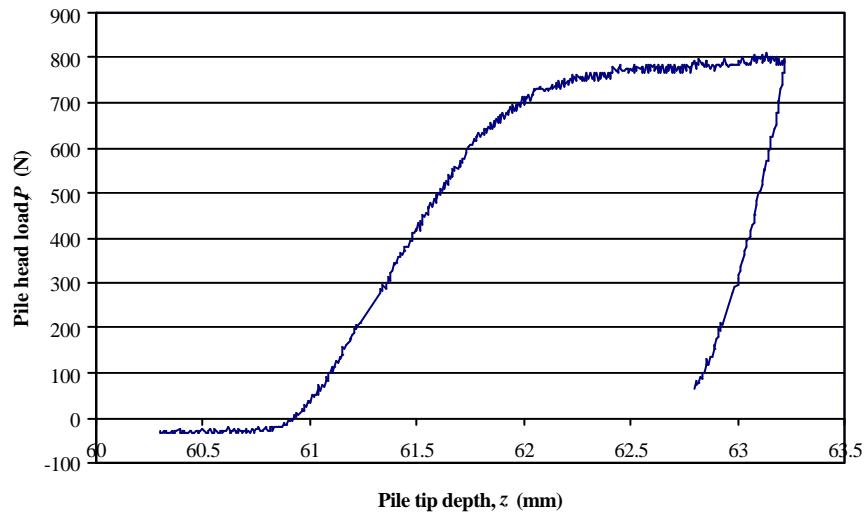


Figure 492 Test T12, Pile head load vs. pile tip depth (load test 1: compression at L/2)

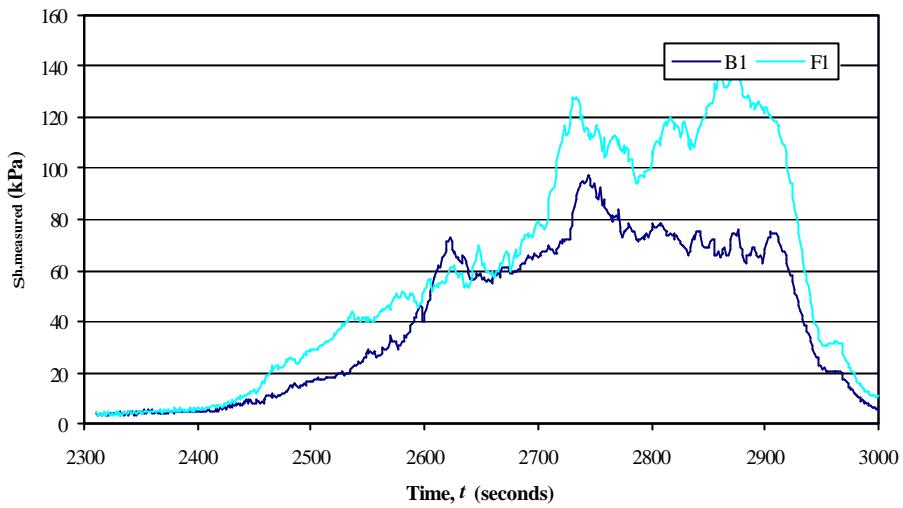


Figure 493 Test T12, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

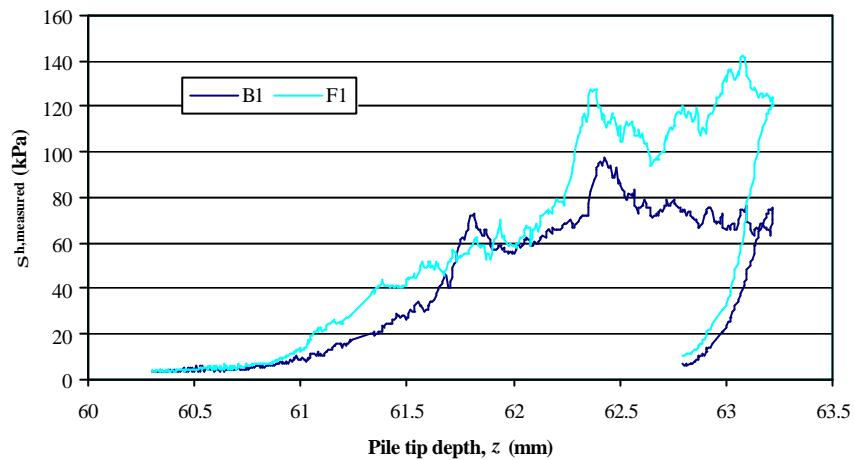


Figure 494 Test T12, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

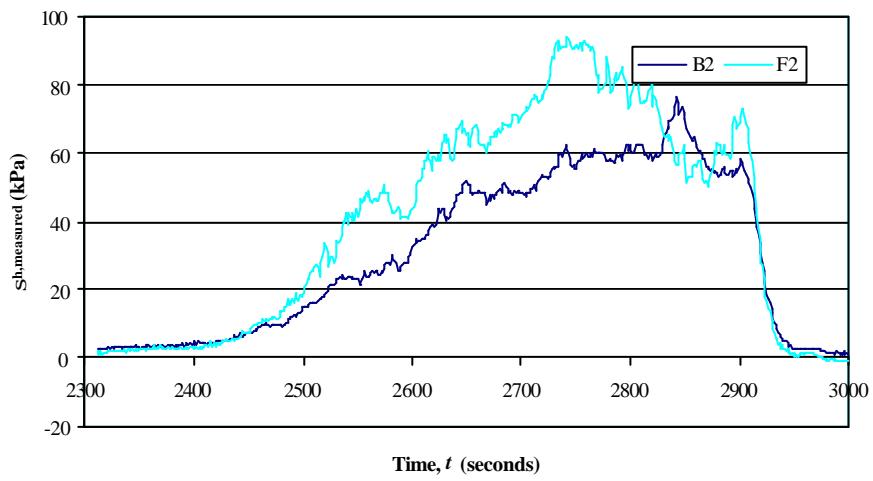


Figure 495 Test T12, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

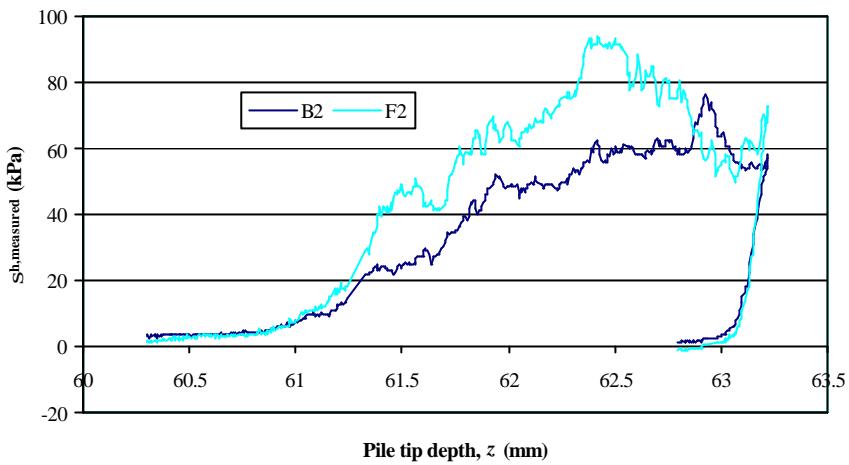


Figure 496 Test T12, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

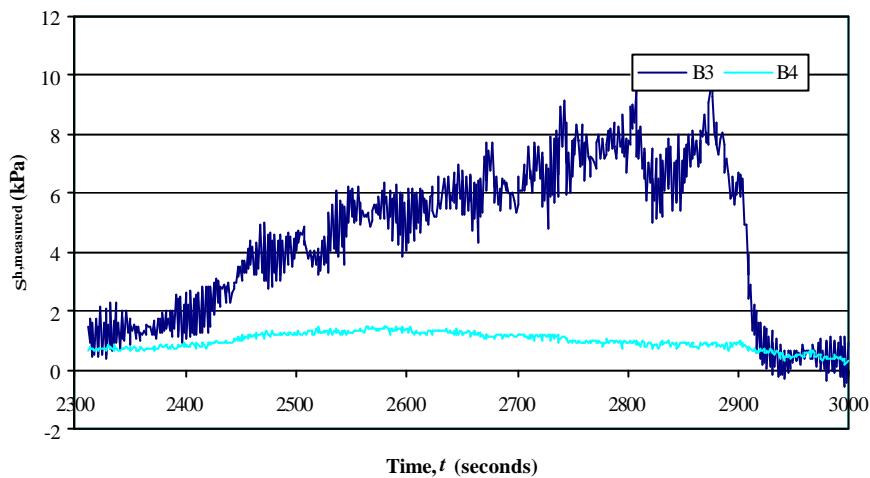


Figure 497 Test T12, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

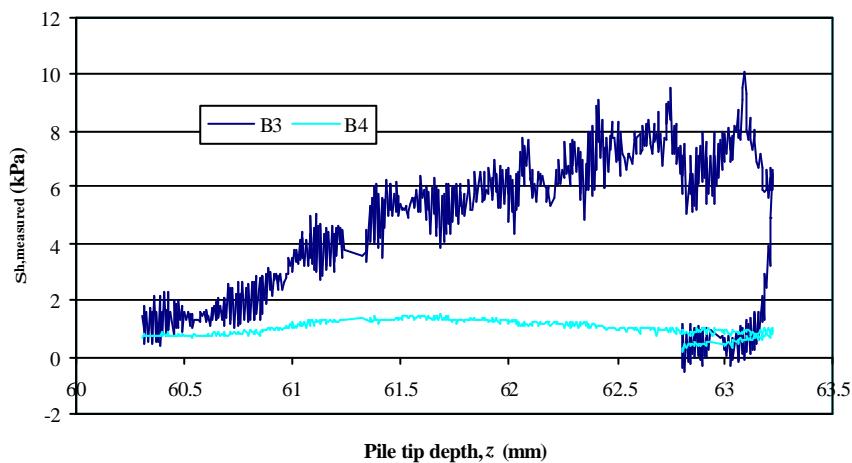


Figure 498 Test T12, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

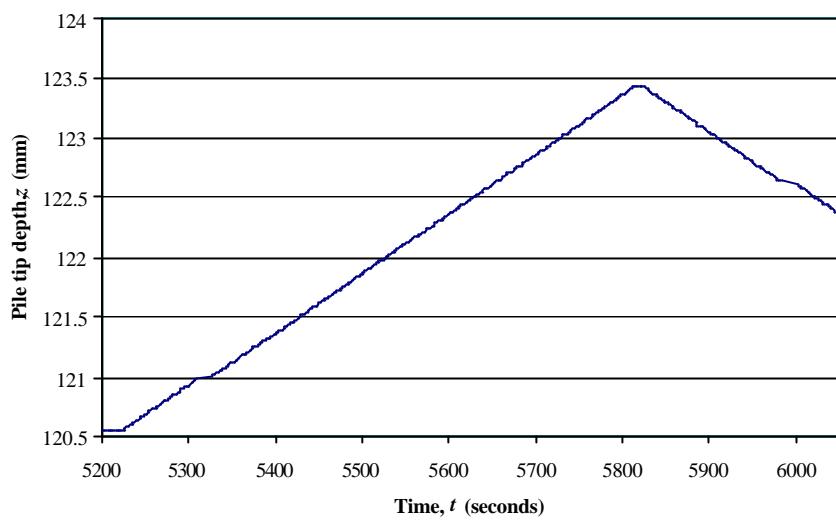


Figure 499 Test T12, Pile tip depth vs. time (load test 2: compression at L)

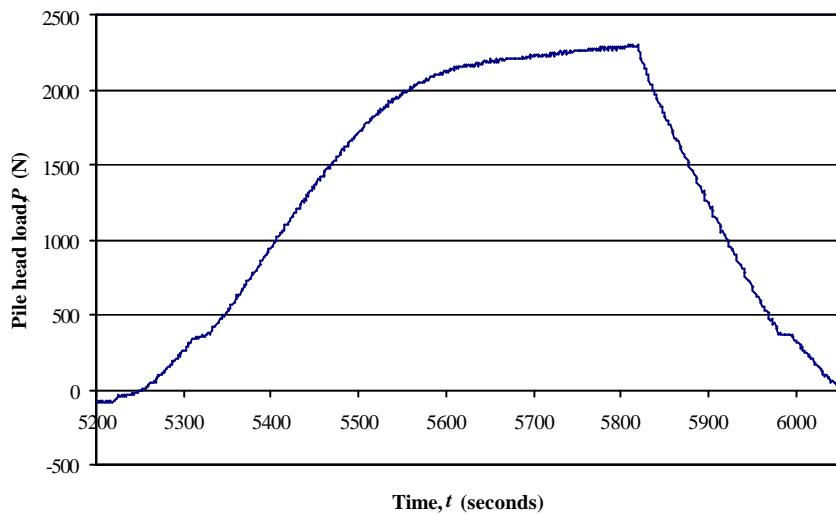


Figure 500 Test T12, Pile head load vs. time (load test 2: compression at L)

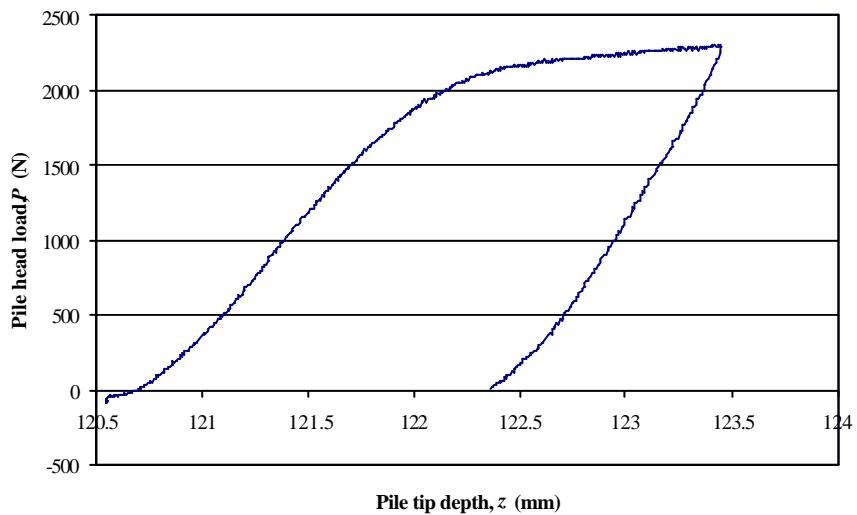


Figure 501 Test T12, Pile head load vs. pile tip depth (load test 2: compression at L)

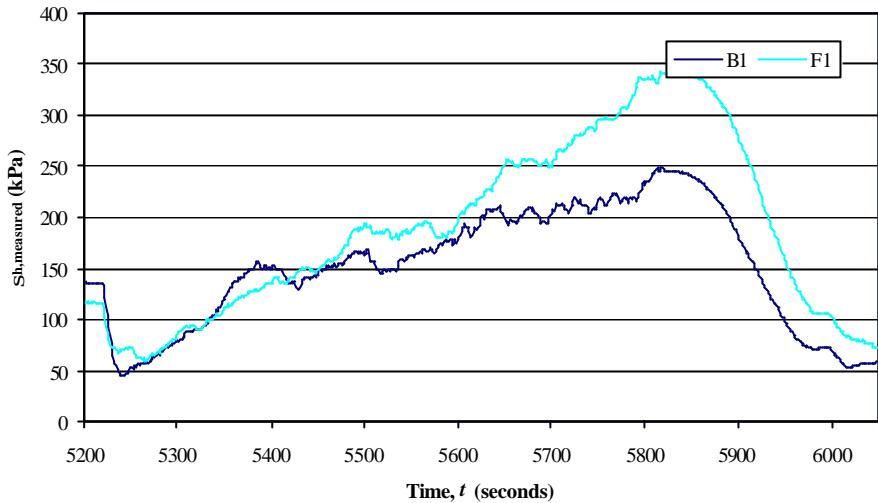


Figure 502 Test T12, B1, F1 pressure cells vs. time (load test 2: compression at L)

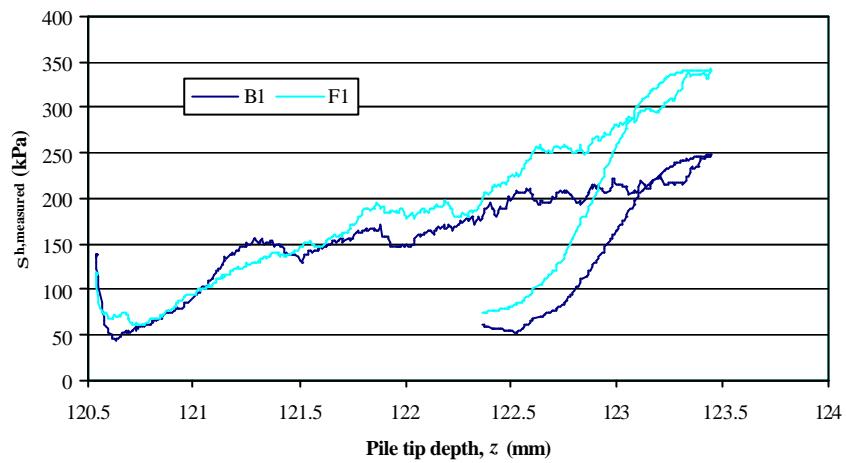


Figure 503 Test T12, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

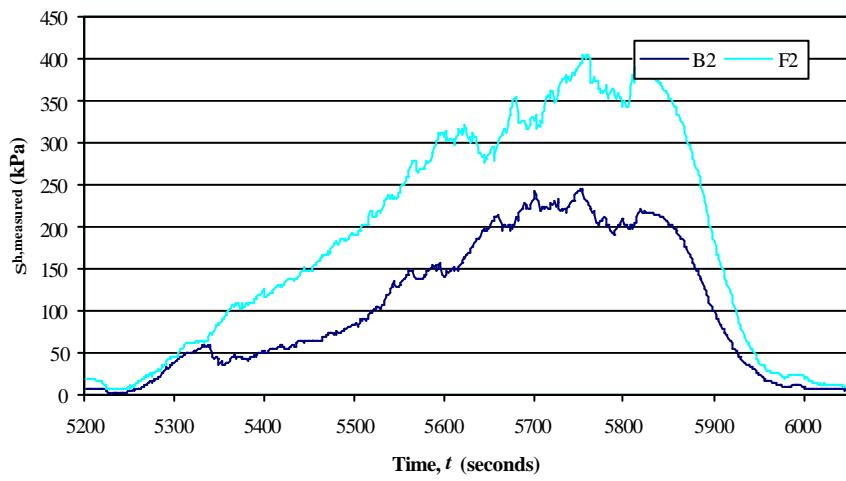


Figure 504 Test T12, B2, F2 pressure cells vs. time (load test 2: compression at L)

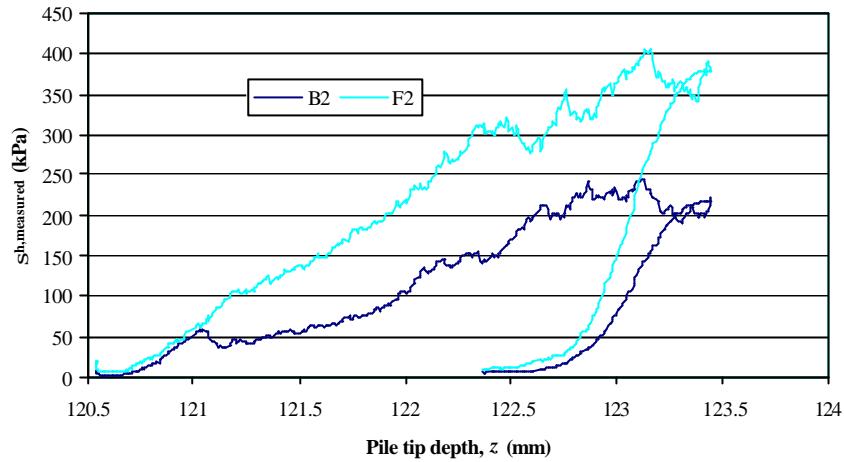


Figure 505 Test T12, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

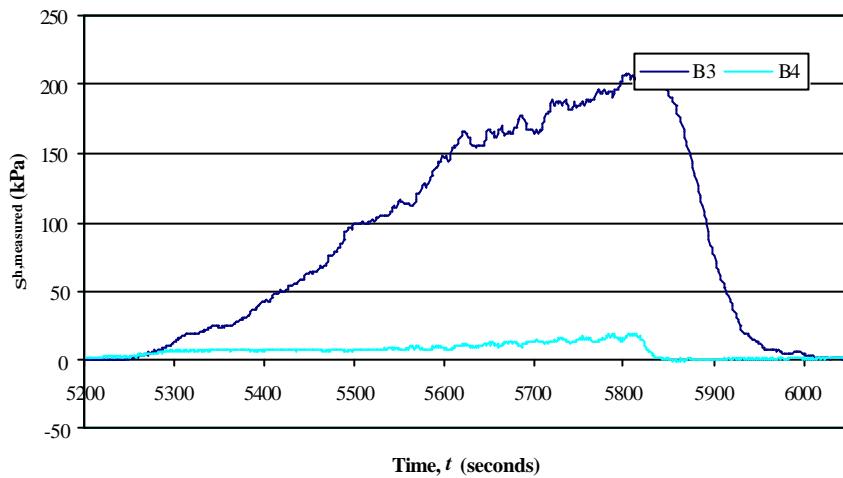


Figure 506 Test T12, B3, B4 pressure cells vs. time (load test 2: compression at L)

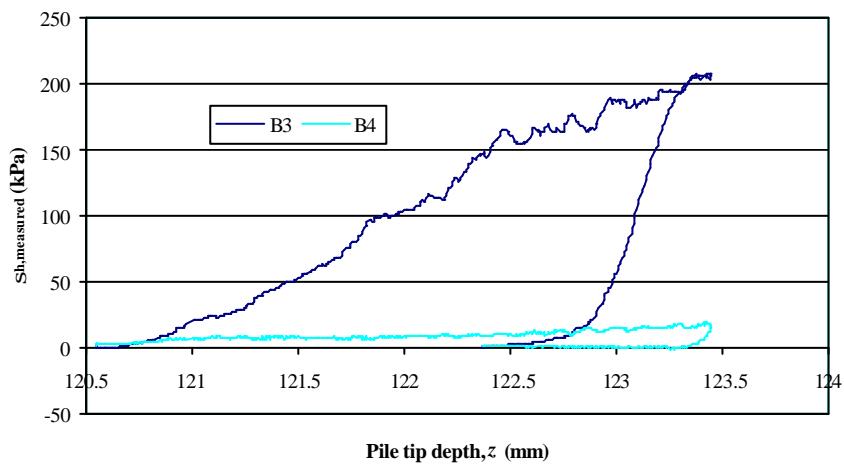


Figure 507 Test T12, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

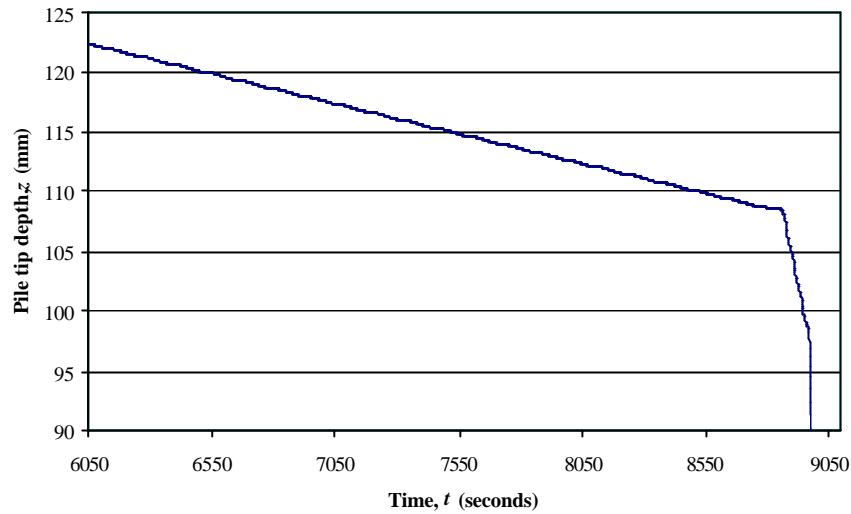


Figure 508 Test T12, Pile tip depth vs. time (load test 3: tension at L)

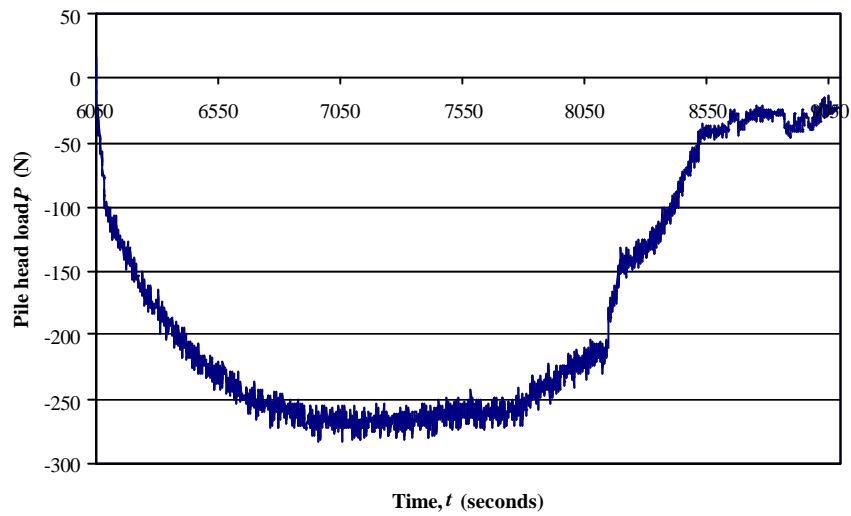


Figure 509 Test T12, Pile head load vs. time (load test 3: tension at L)

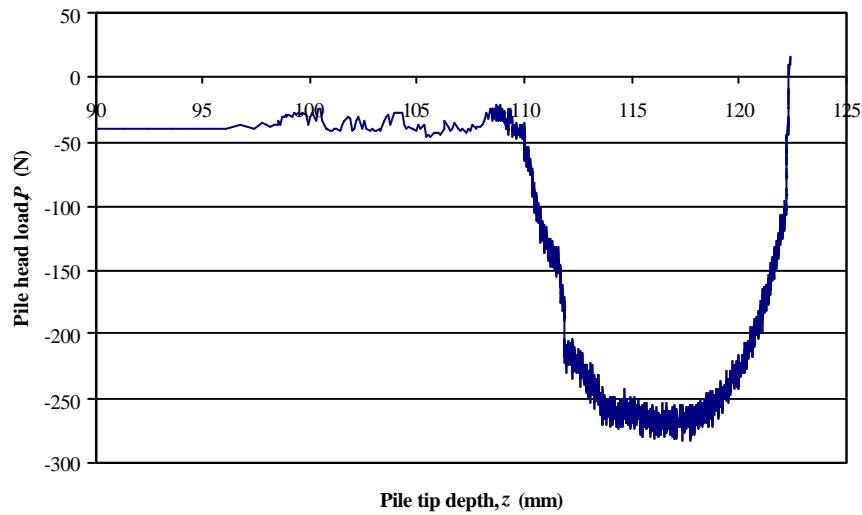


Figure 510 Test T12, Pile head load vs. pile tip depth (load test 3: tension at L)

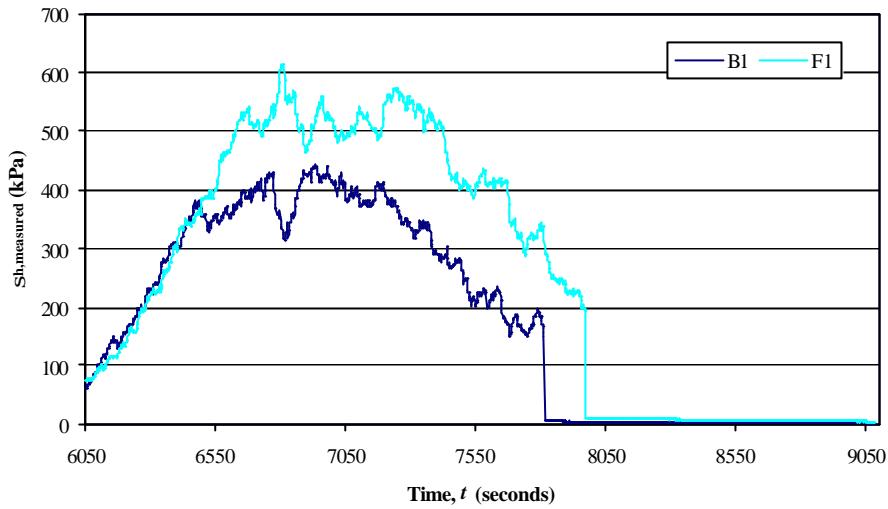


Figure 511 Test T12, B1, F1 pressure cells vs. time (load test 3: tension at L)

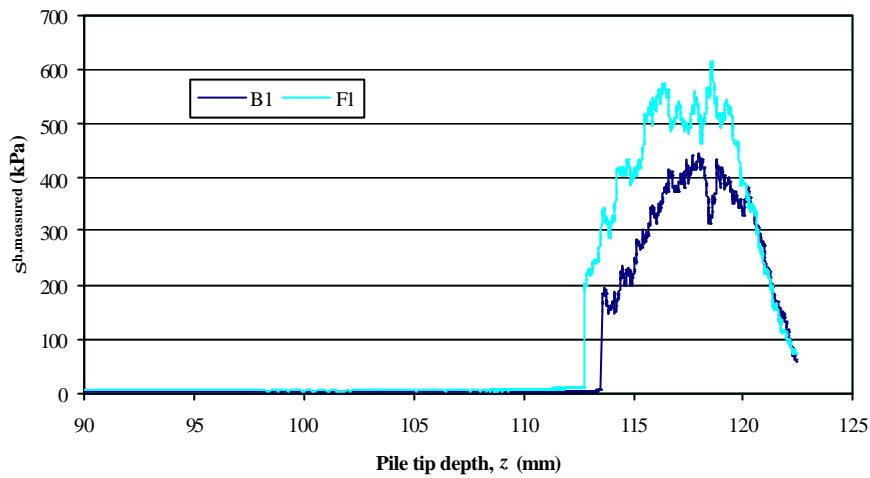


Figure 512 Test T12, B1, F1 pressure cells vs. pile tip depth (load test 3: tension at L)

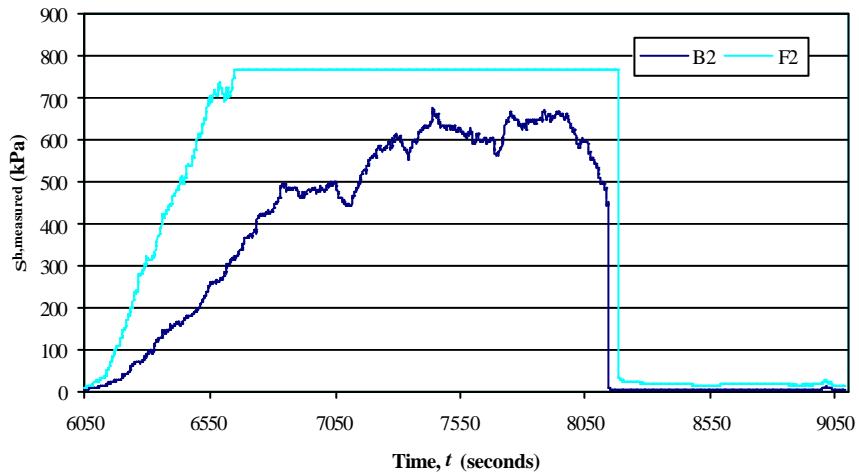


Figure 513 Test T12, B2, F2 pressure cells vs. time (load test 3: tension at L)

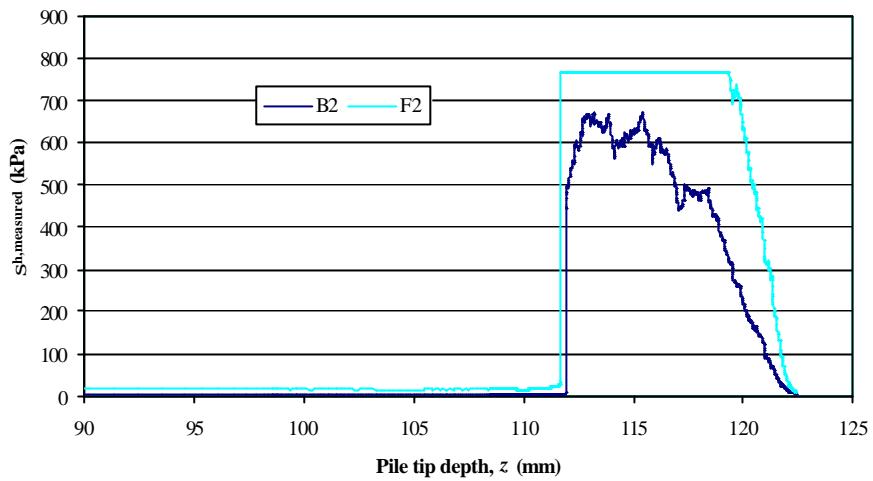


Figure 514 Test T12, B2, F2 pressure cells vs. pile tip depth (load test 3: tension at L)

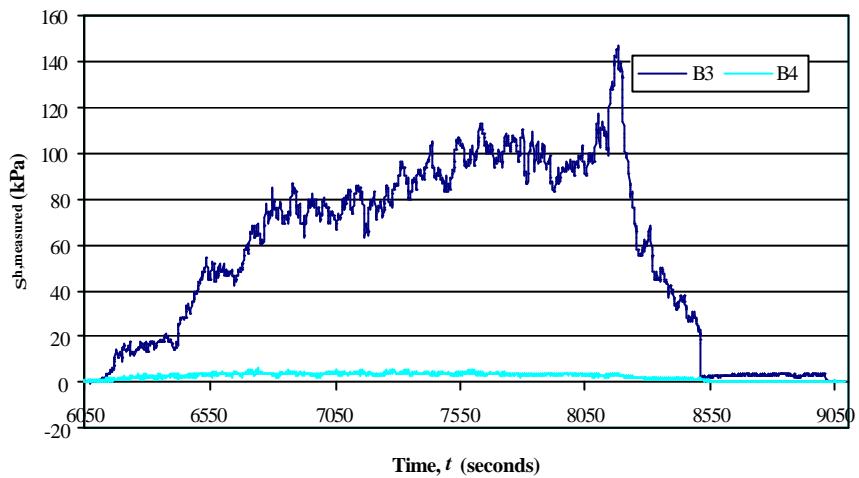


Figure 515 Test T12, B3, B4 pressure cells vs. time (load test 3: tension at L)

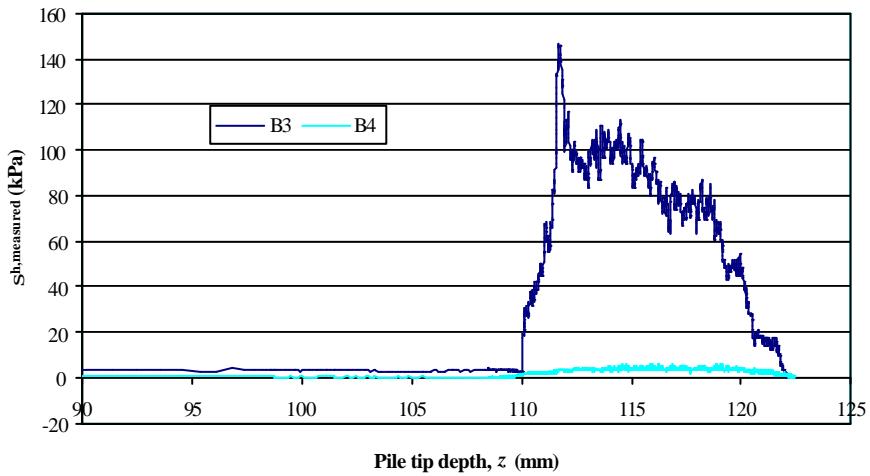


Figure 516 Test T12, B3, B4 pressure cells vs. pile tip depth (load test 3: tension at L)

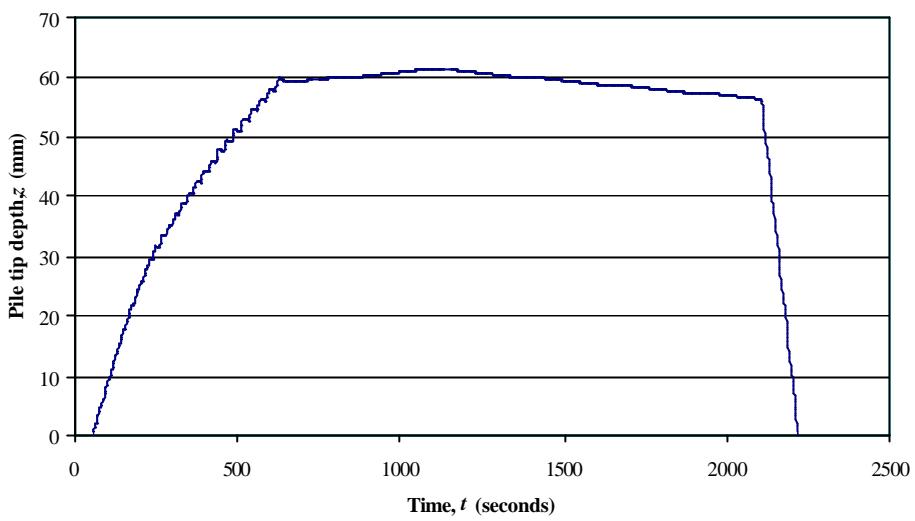


Figure 517 Test T13, Pile tip depth vs. time (entire test)

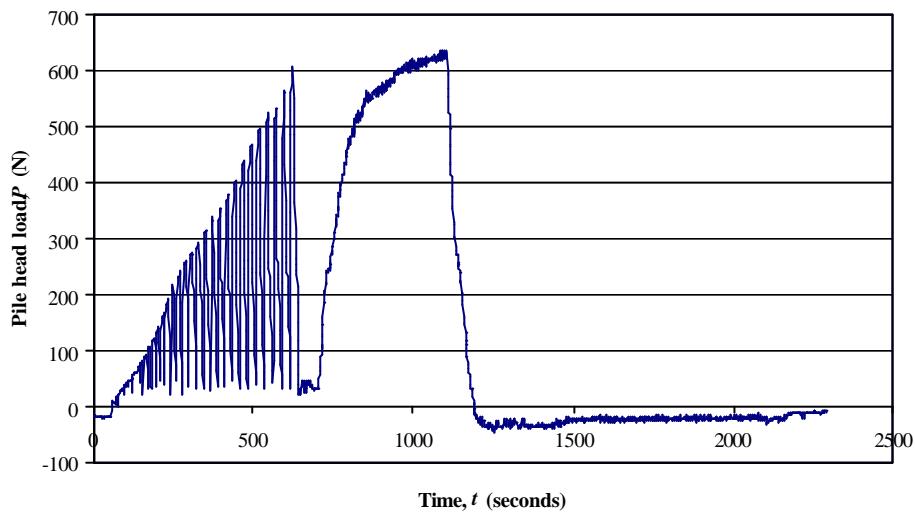


Figure 518 Test T13, Pile head load vs. time (entire test)

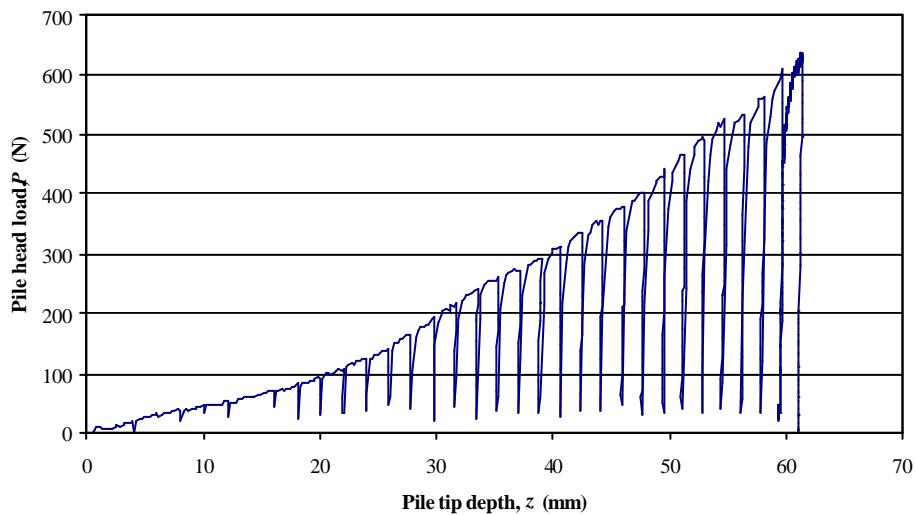


Figure 519 Test T13, Pile head load vs. pile tip depth (entire test)

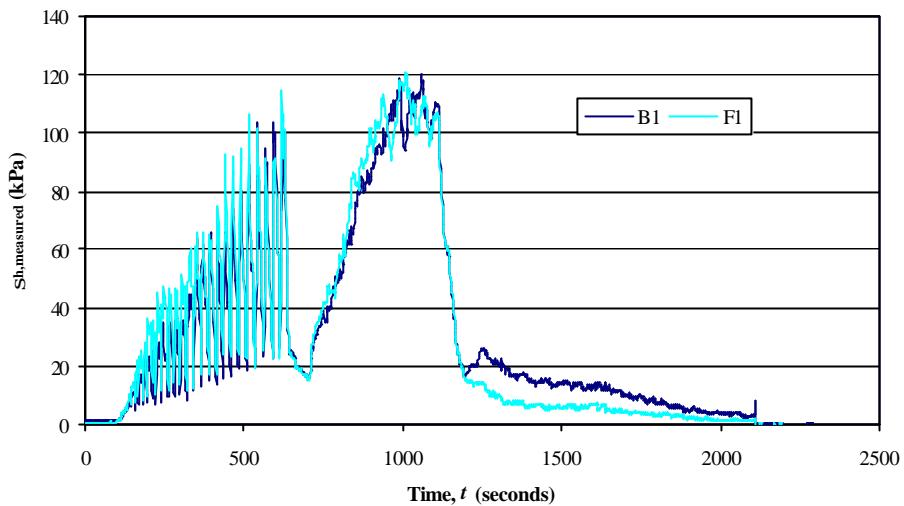


Figure 520 Test T13, B1, F1 pressure cells vs. time (entire test)

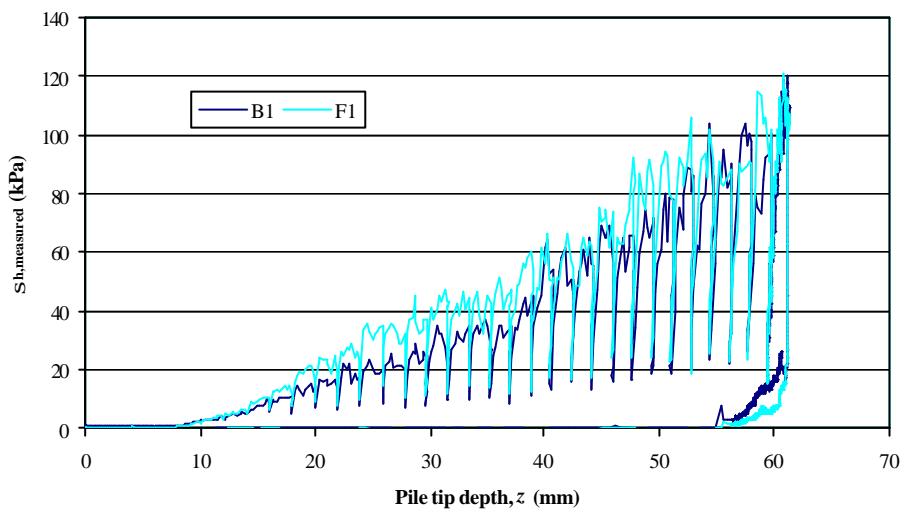


Figure 521 Test T13, B1, F1 pressure cells vs. pile tip depth (entire test)

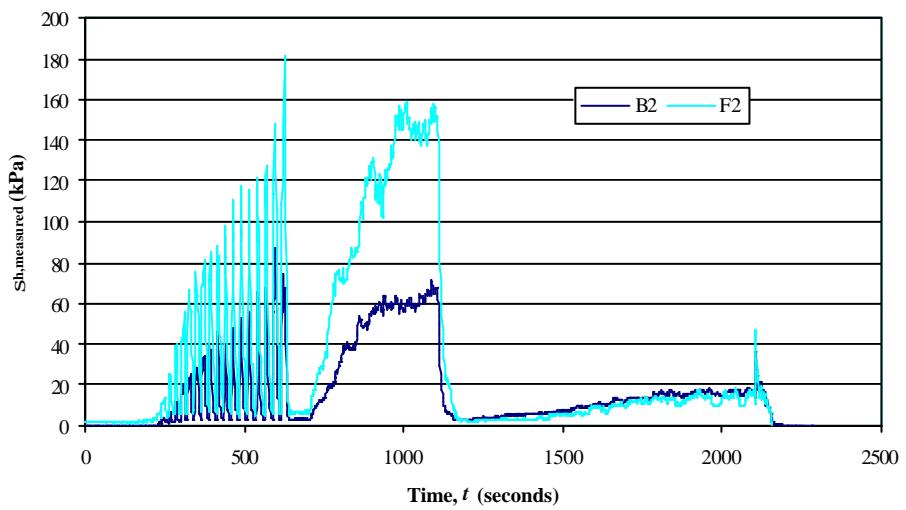


Figure 522 Test T13, B2, F2 pressure cells vs. time (entire test)

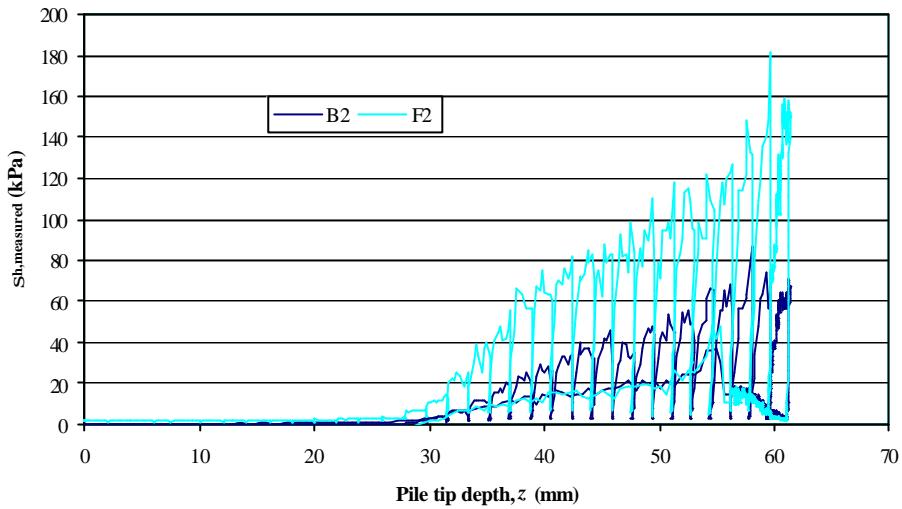


Figure 523 Test T13, B2, F2 pressure cells vs. pile tip depth (entire test)

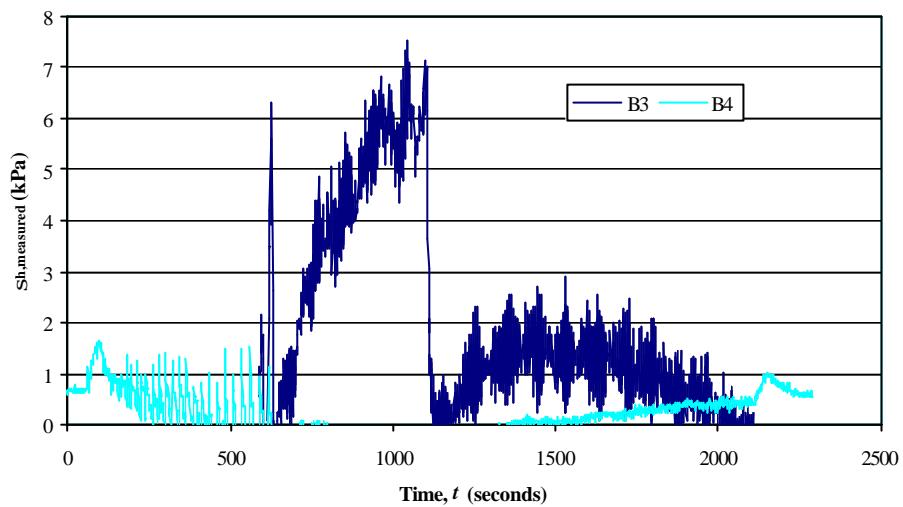


Figure 524 Test T13, B3, B4 pressure cells vs. time (entire test)

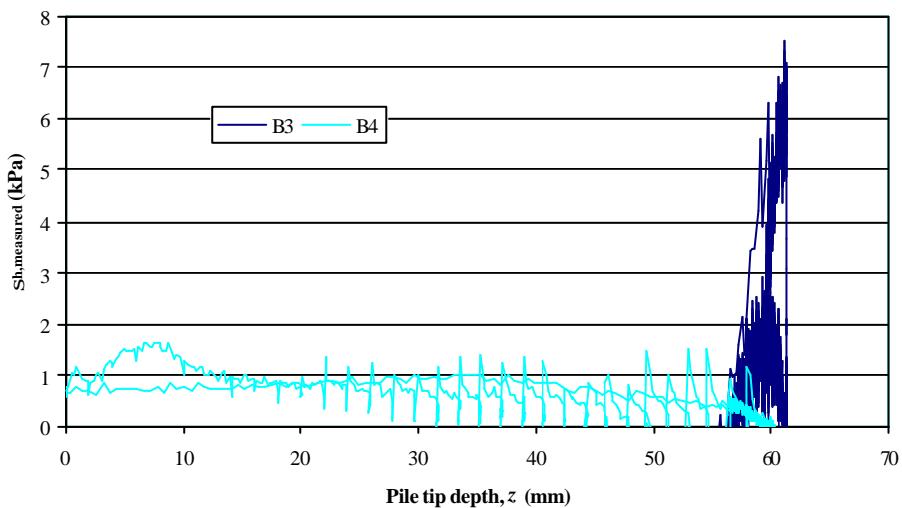


Figure 525 Test T13, B3, B4 pressure cells vs. pile tip depth (entire test)

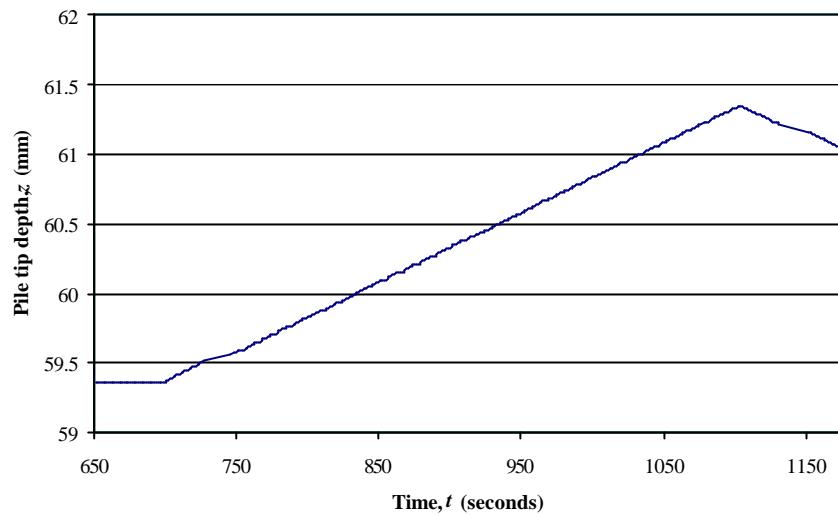


Figure 526 Test T13, Pile tip depth vs. time (load test 1: compression at L/2)

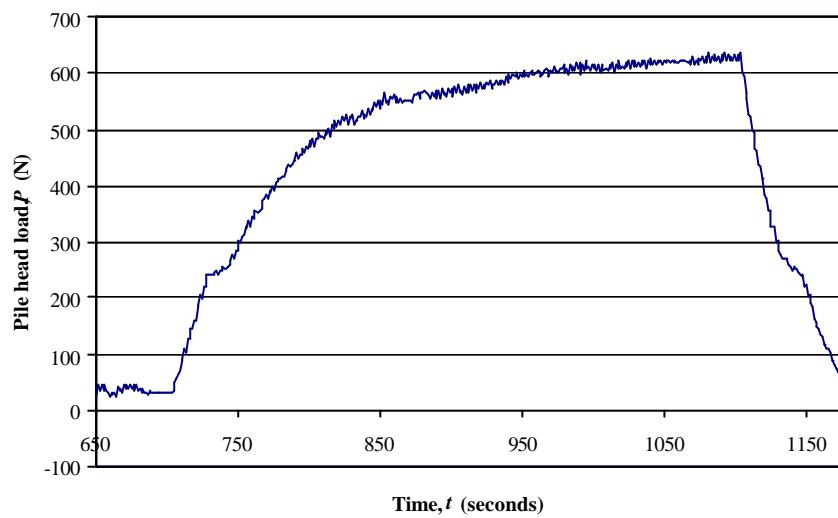


Figure 527 Test T13, Pile head load vs. time (load test 1: compression at L/2)

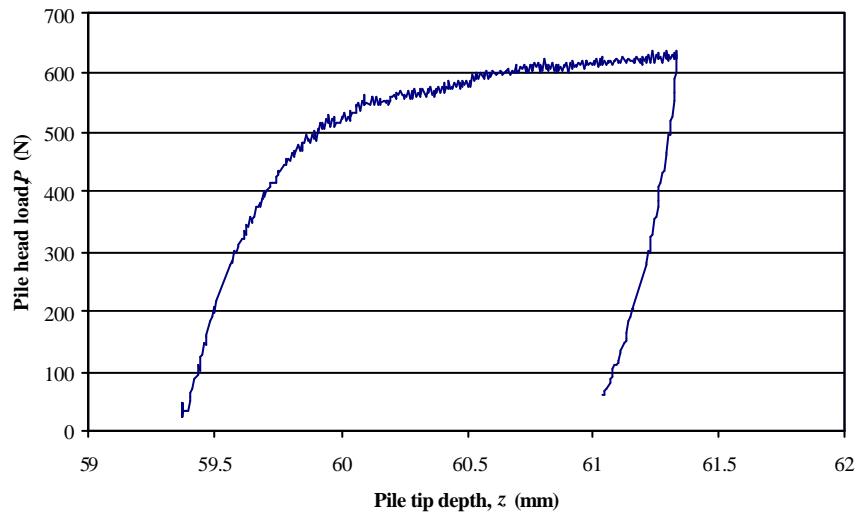


Figure 528 Test T13, Pile head load vs. pile tip depth (load test 1: compression at L/2)

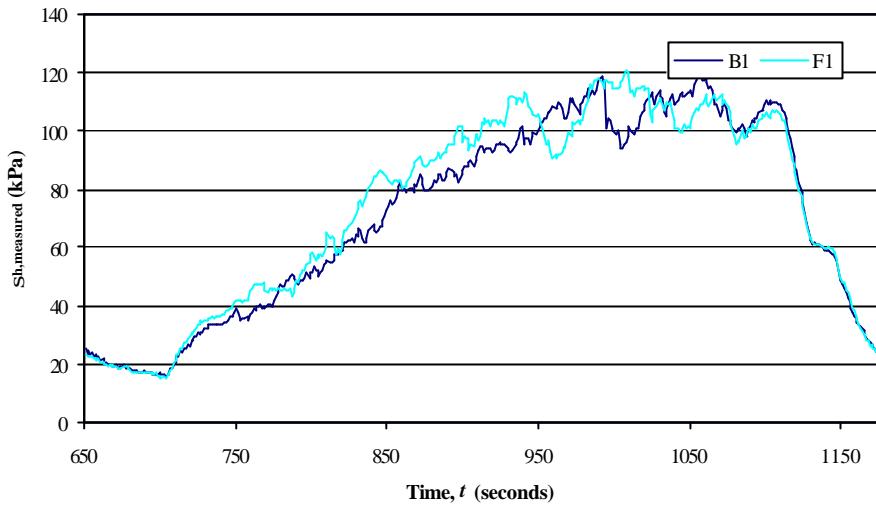


Figure 529 Test T13, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

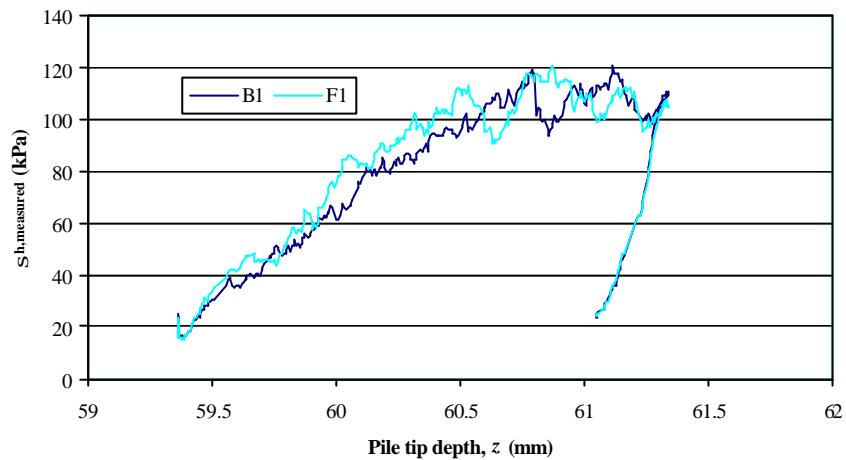


Figure 530 Test T13, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

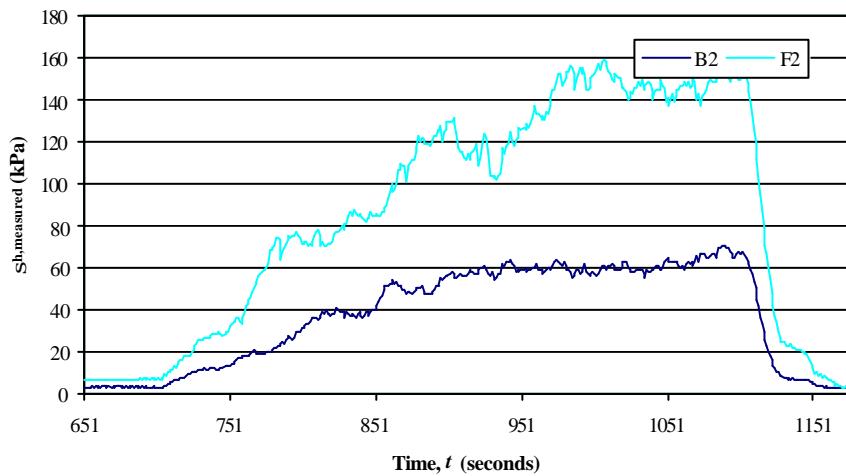


Figure 531 Test T13, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

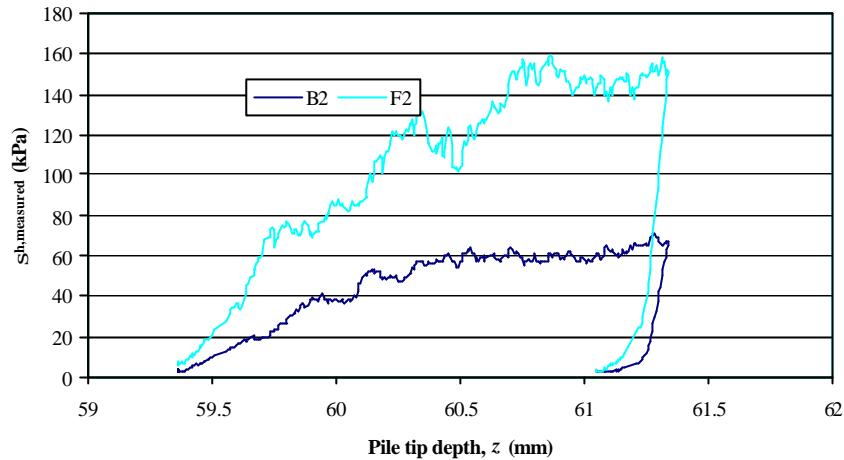


Figure 532 Test T13, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

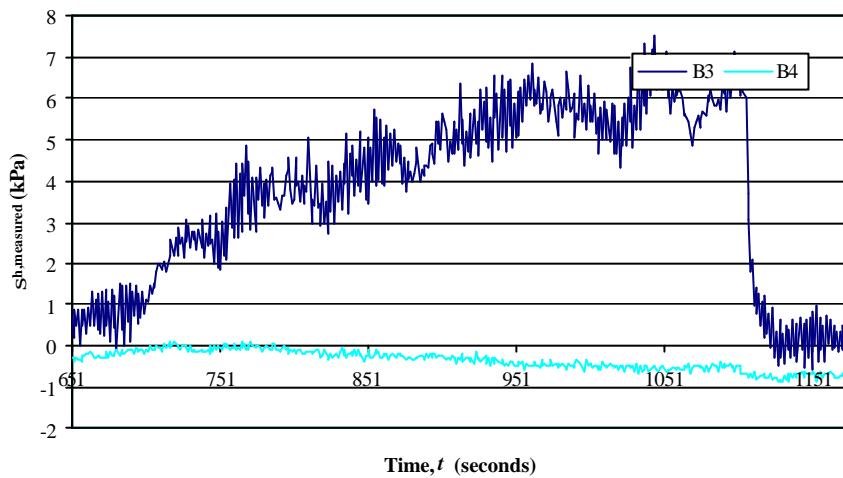


Figure 533 Test T13, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

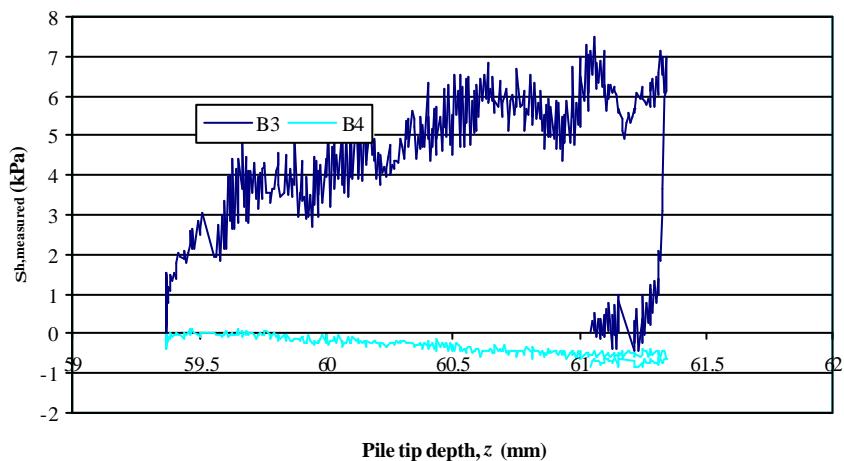


Figure 534 Test T13, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

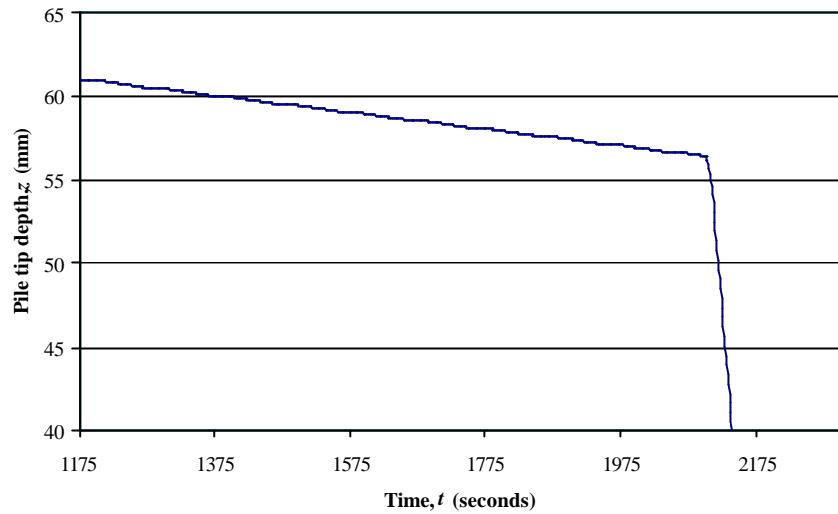


Figure 535 Test T13, Pile tip depth vs. time (load test 2: tension at L/2)

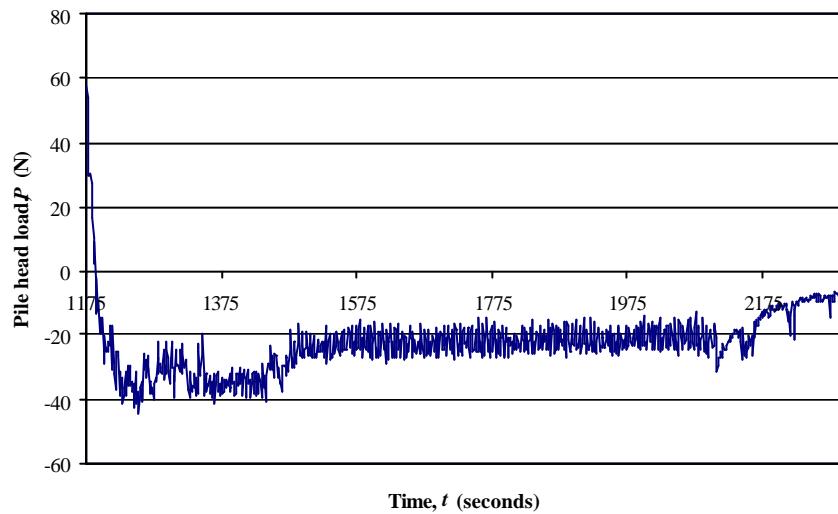


Figure 536 Test T13, Pile head load vs. time (load test 2: tension at L/2)

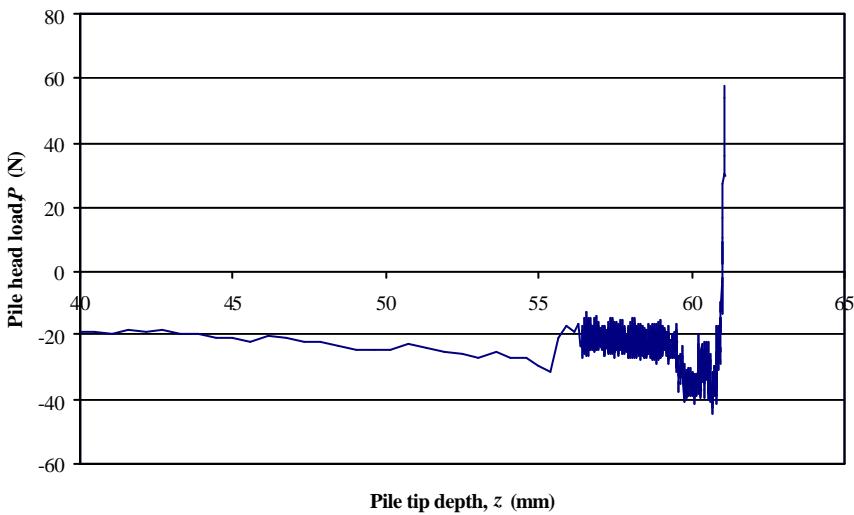


Figure 537 Test T13, Pile head load vs. pile tip depth (load test 2: tension at L/2)

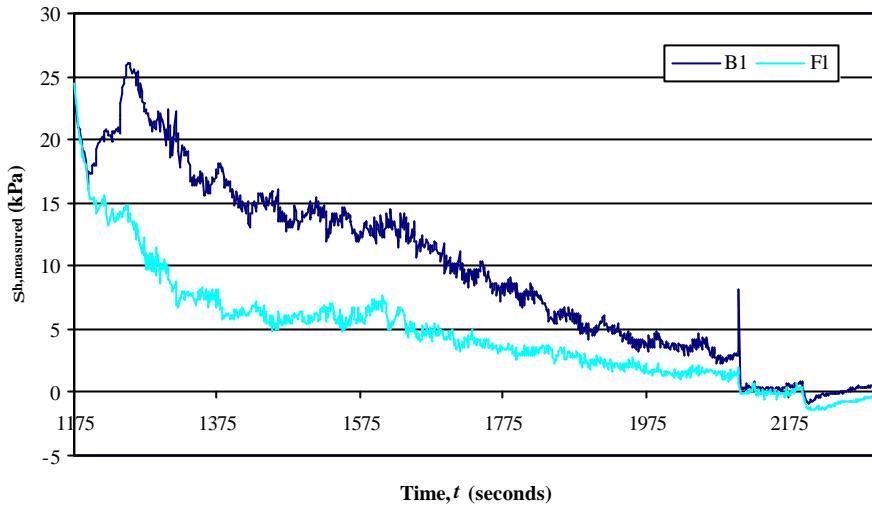


Figure 538 Test T13, B1, F1 pressure cells vs. time (load test 2: tension at L/2)

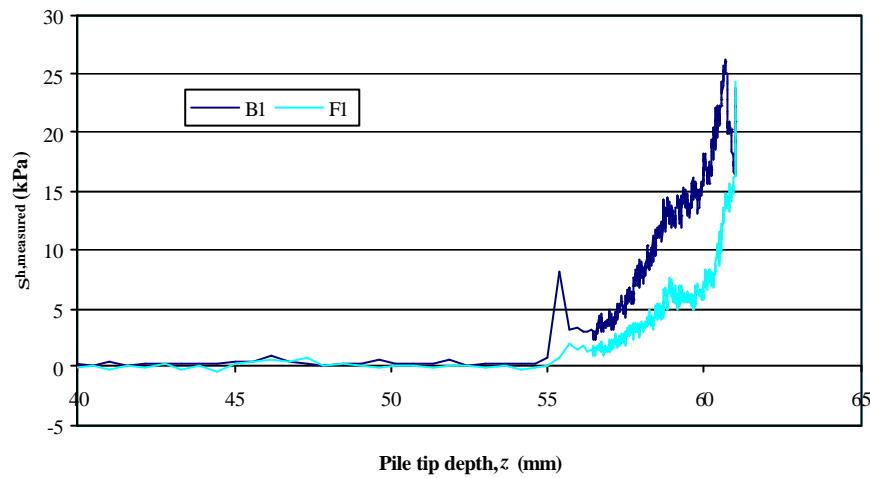


Figure 539 Test T13, B1, F1 pressure cells vs. pile tip depth (load test 2: tension at L/2)

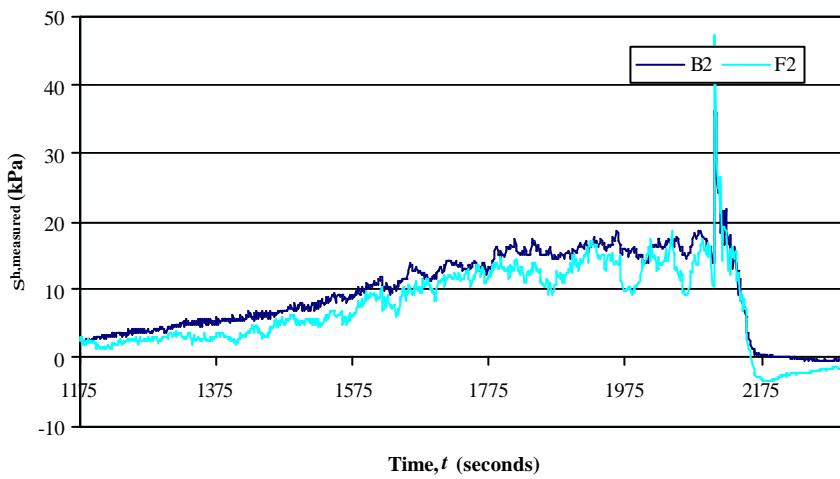


Figure 540 Test T13, B2, F2 pressure cells vs. time (load test 2: tension at L/2)

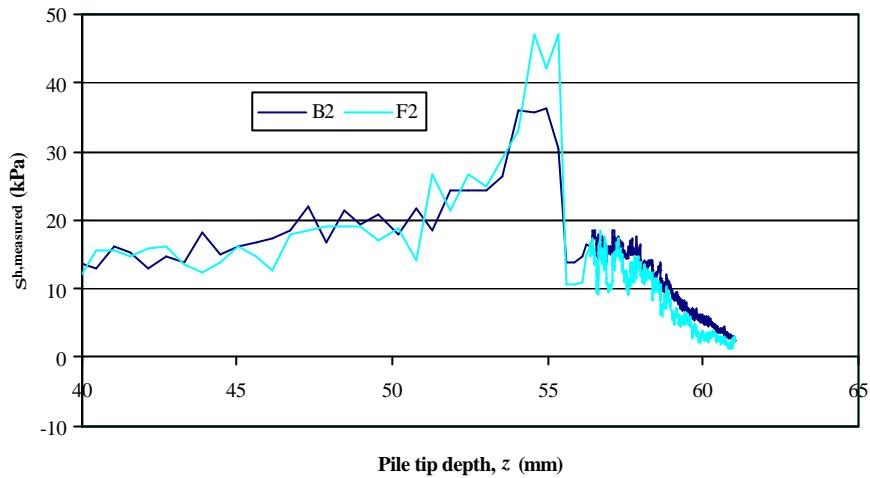


Figure 541 Test T13, B2, F2 pressure cells vs. pile tip depth (load test 2: tension at L/2)

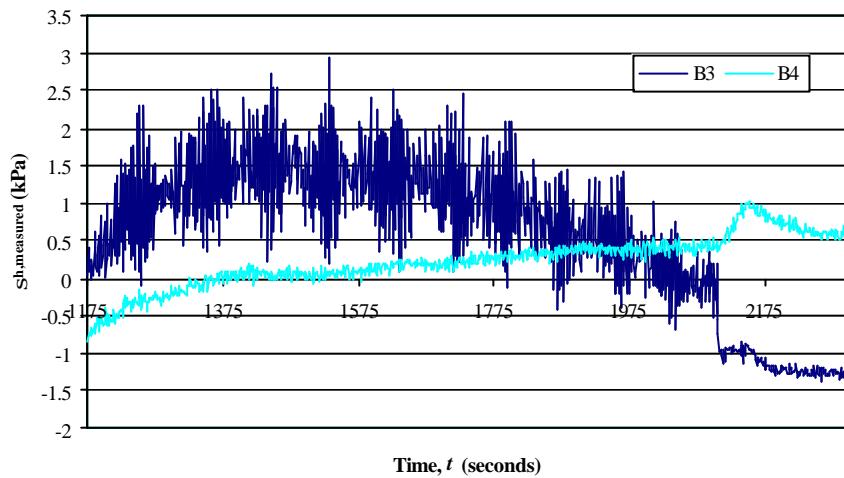


Figure 542 Test T13, B3, B4 pressure cells vs. time (load test 2: tension at L/2)

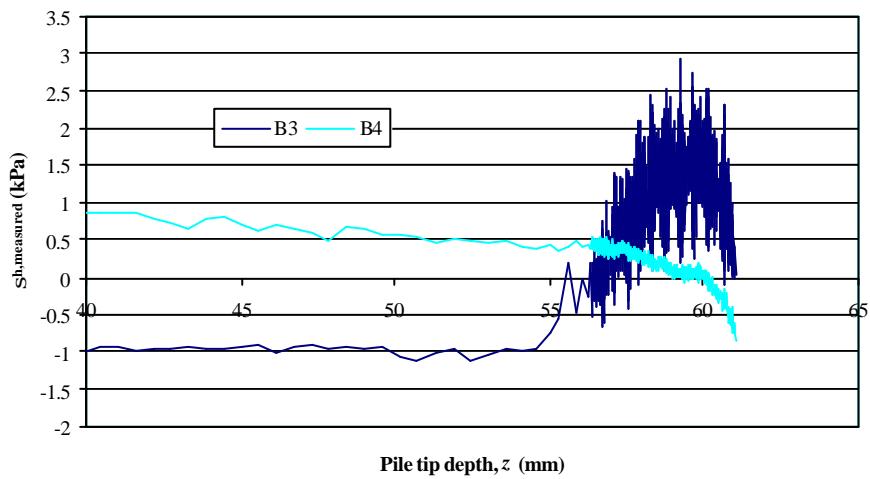


Figure 543 Test T13, B3, B4 pressure cells vs. pile tip depth (load test 2: tension at L/2)

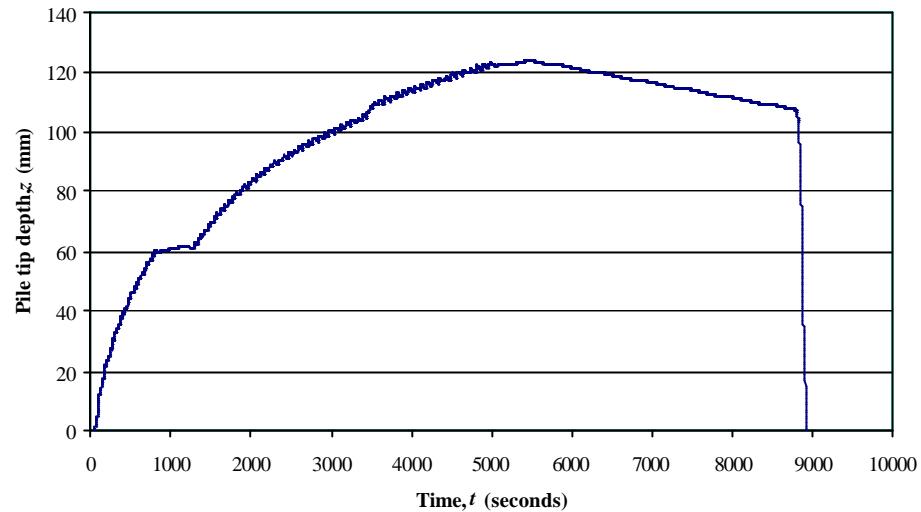


Figure 544 Test T14, Pile tip depth vs. time (entire test)

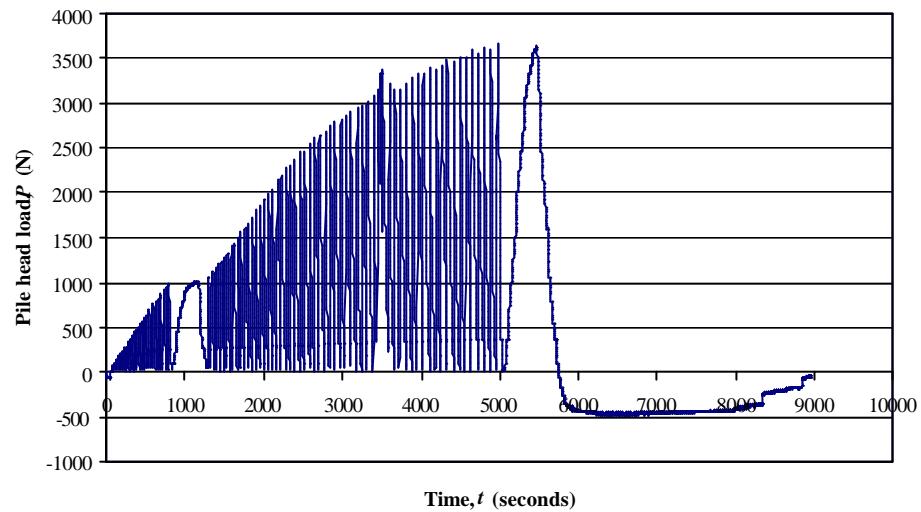


Figure 545 Test T14, Pile head load vs. time (entire test)

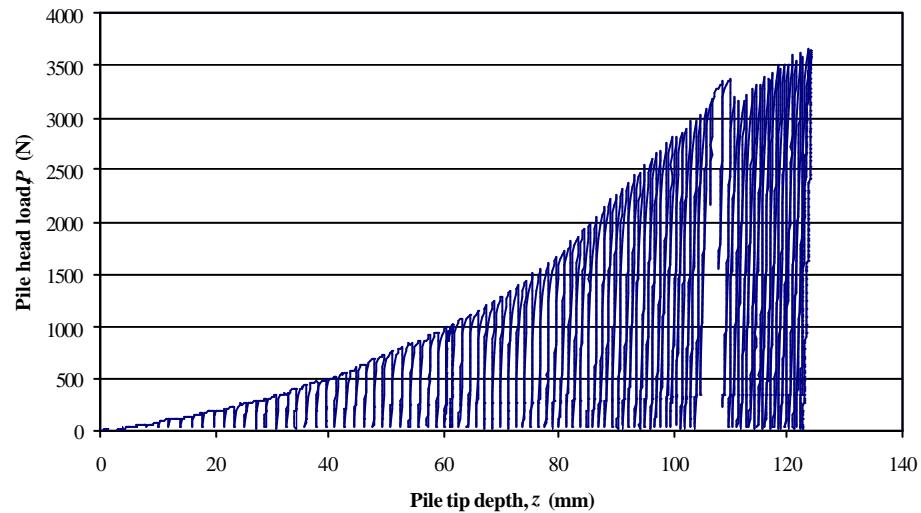


Figure 546 Test T14, Pile head load vs. pile tip depth (entire test)

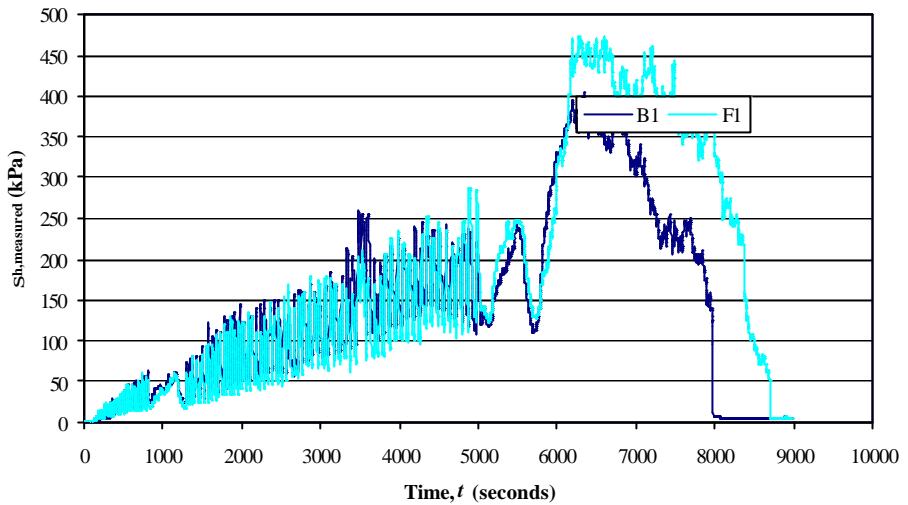


Figure 547 Test T14, B1, F1 pressure cells vs. time (entire test)

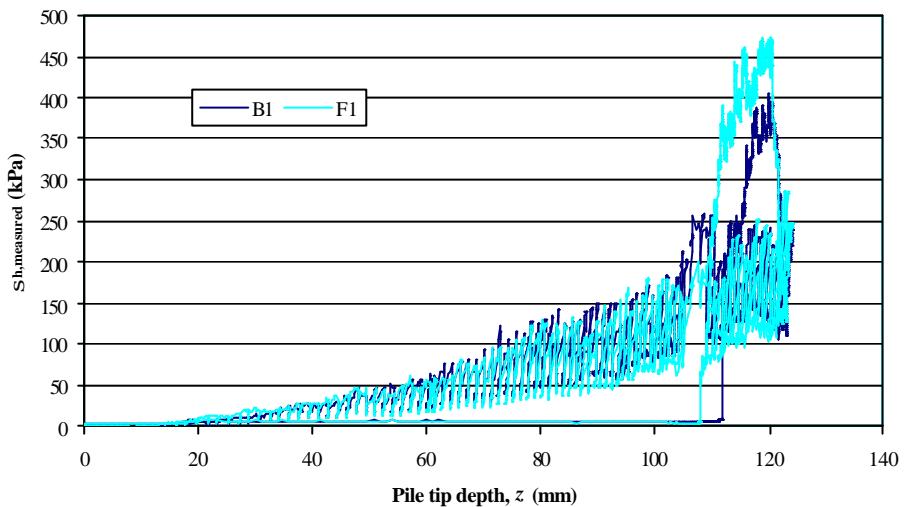


Figure 548 Test T14, B1, F1 pressure cells vs. pile tip depth (entire test)

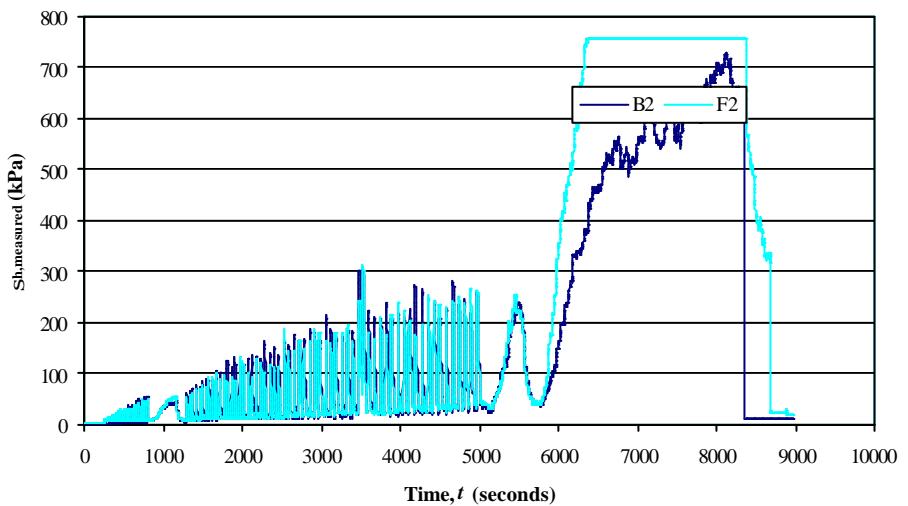


Figure 549 Test T14, B2, F2 pressure cells vs. time (entire test)

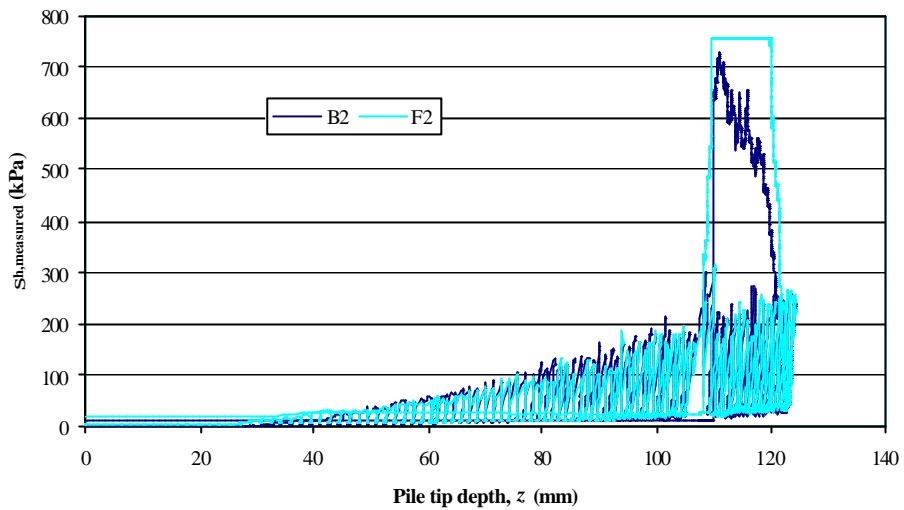


Figure 550 Test T14, B2, F2 pressure cells vs. pile tip depth (entire test)

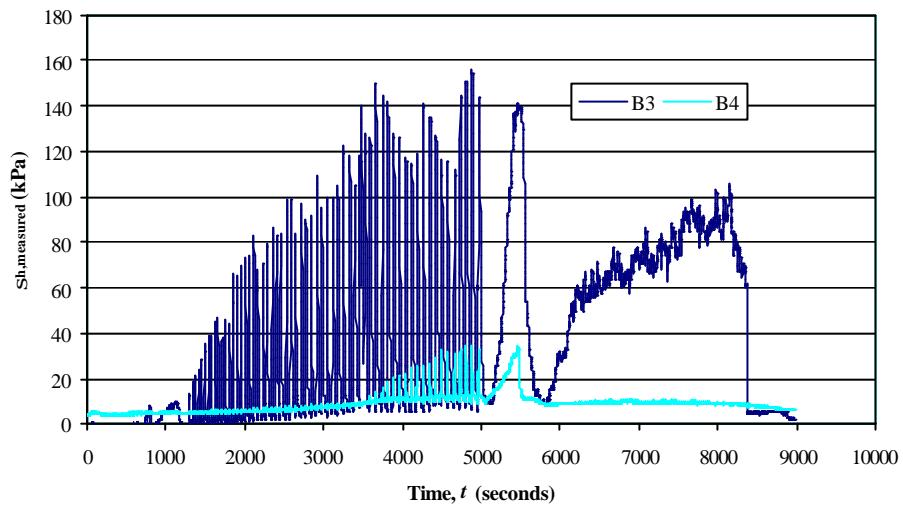


Figure 551 Test T14, B3, B4 pressure cells vs. time (entire test)

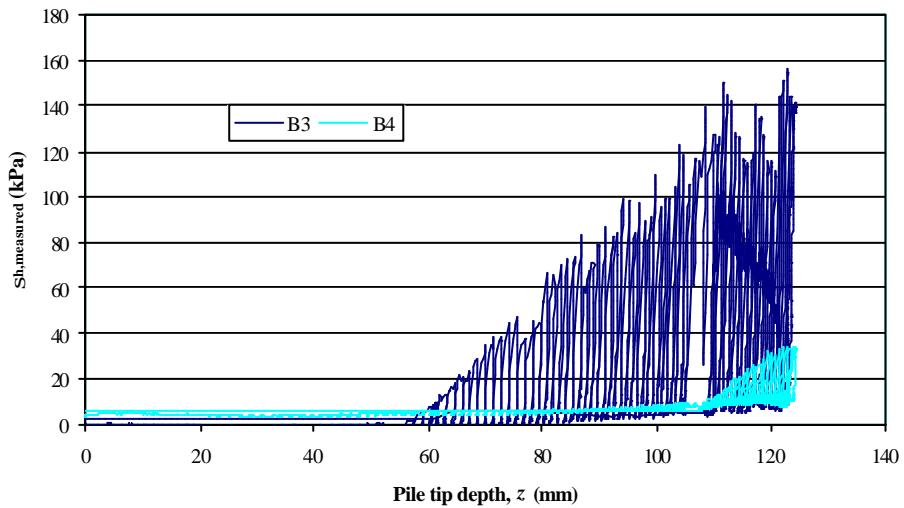


Figure 552 Test T14, B3, B4 pressure cells vs. pile tip depth (entire test)

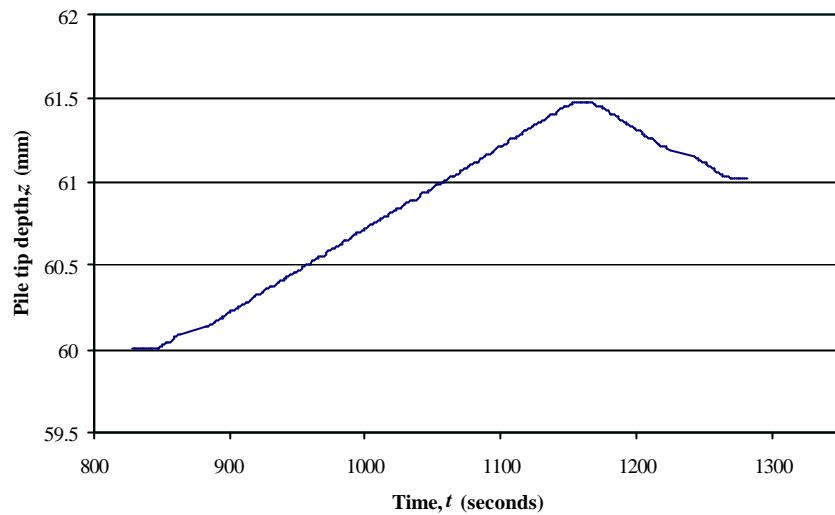


Figure 553 Test T14, Pile tip depth vs. time (load test 1: compression at L/2)

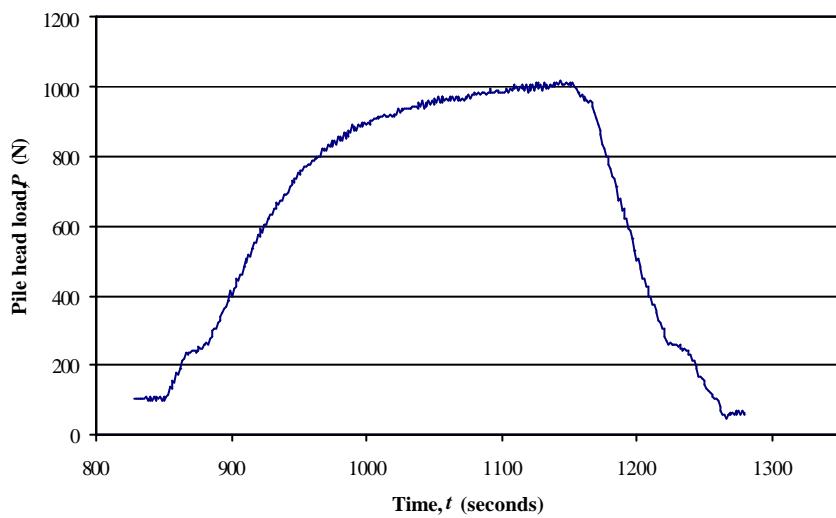


Figure 554 Test T14, Pile head load vs. time (load test 1: compression at L/2)

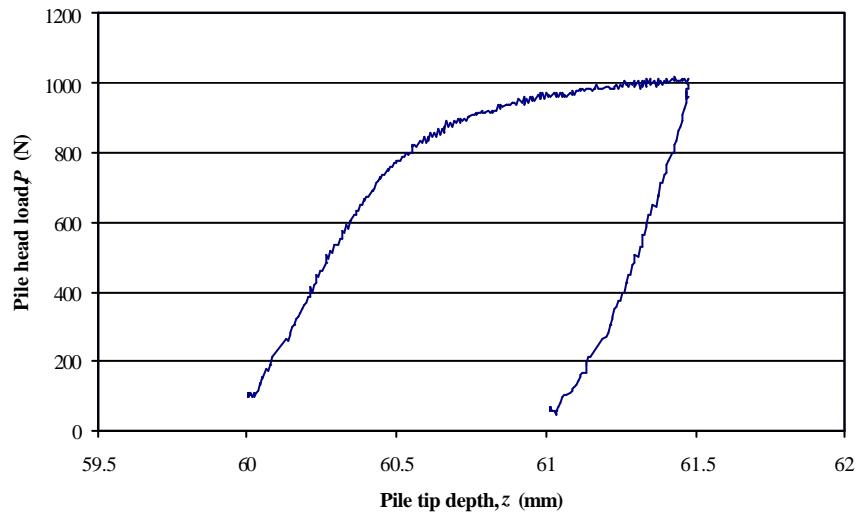


Figure 555 Test T14, Pile head load vs. pile tip depth (load test 1: compression at L/2)

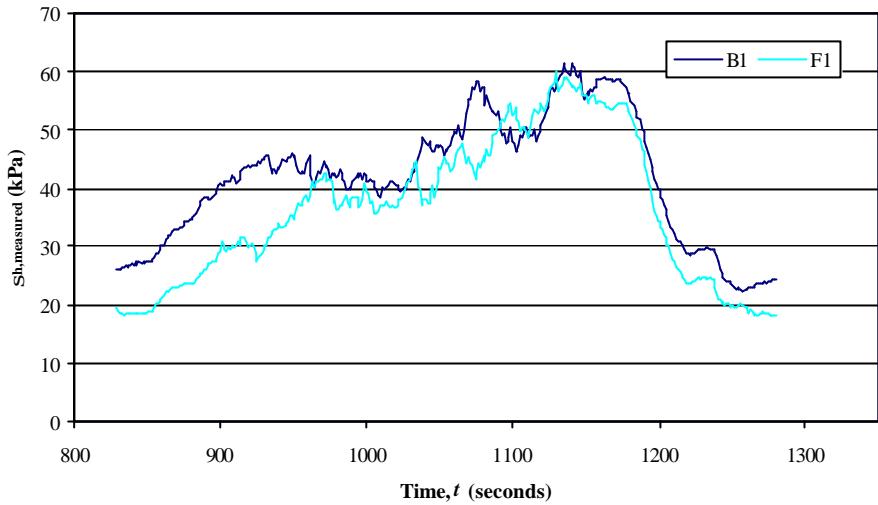


Figure 556 Test T14, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

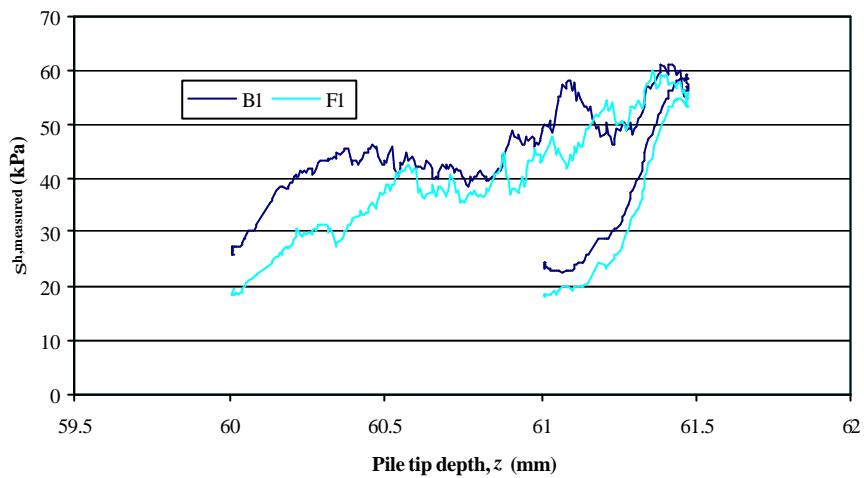


Figure 557 Test T14, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

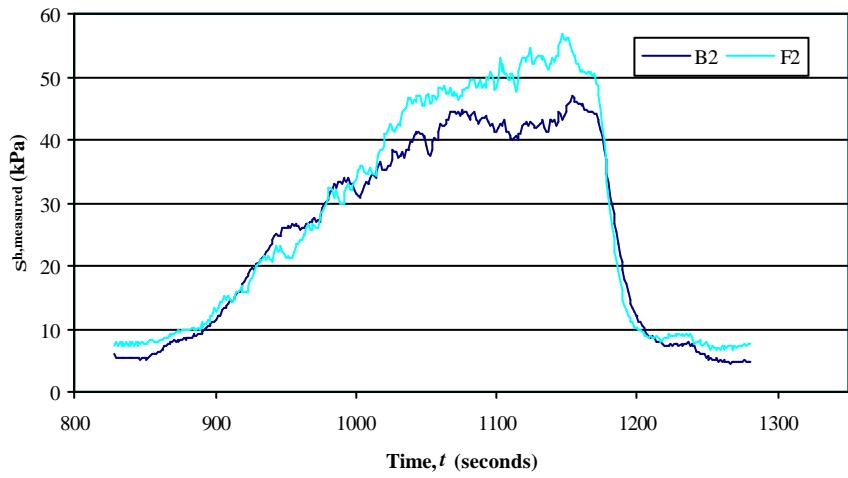


Figure 558 Test T14, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

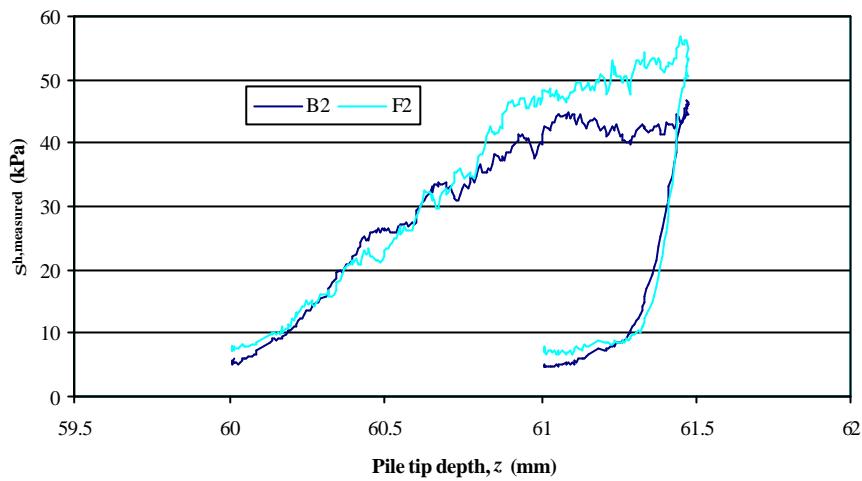


Figure 559 Test T14, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

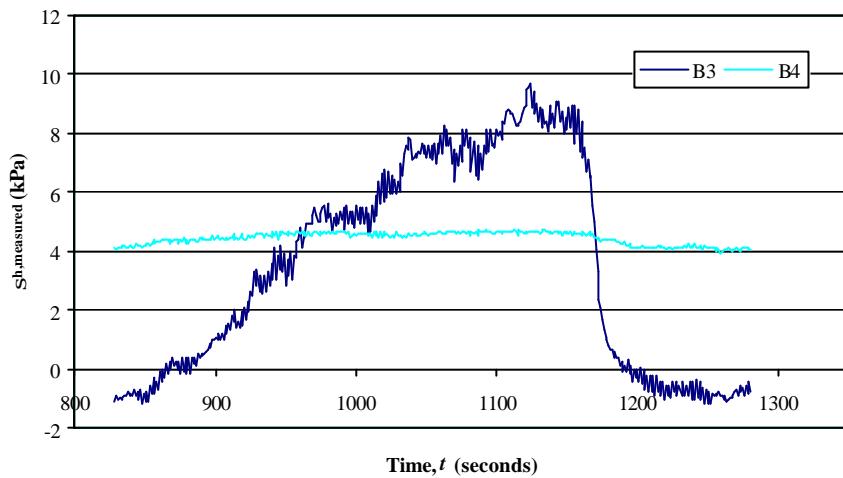


Figure 560 Test T14, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

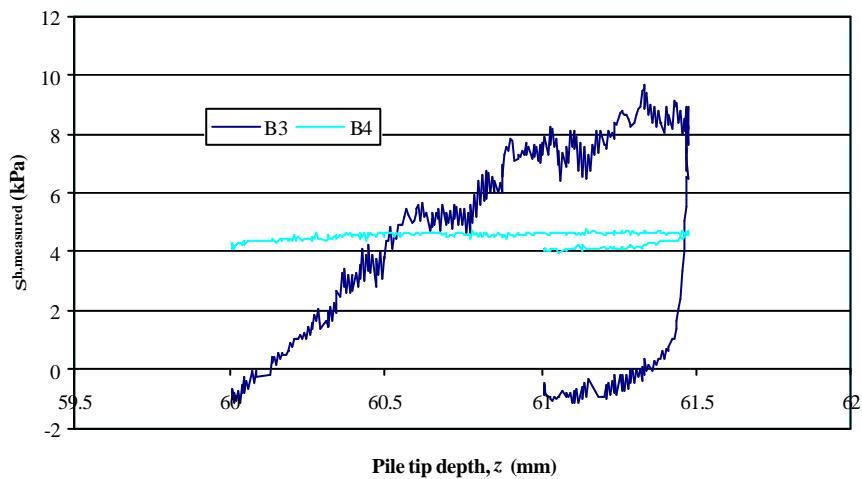


Figure 561 Test T14, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

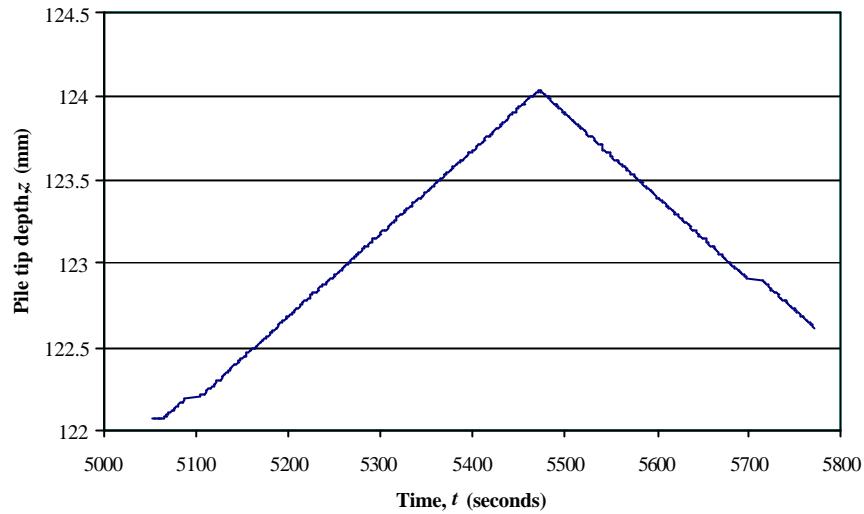


Figure 562 Test T14, Pile tip depth vs. time (load test 2: compression at L)

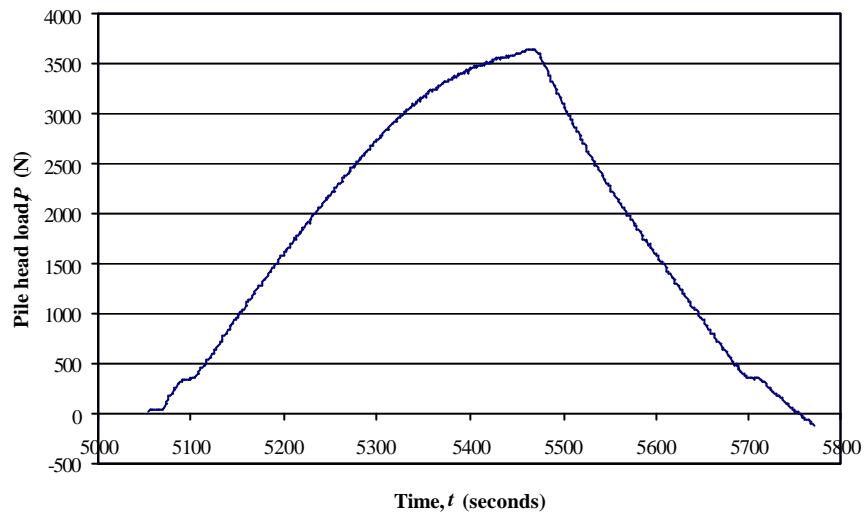


Figure 563 Test T14, Pile head load vs. time (load test 2: compression at L)

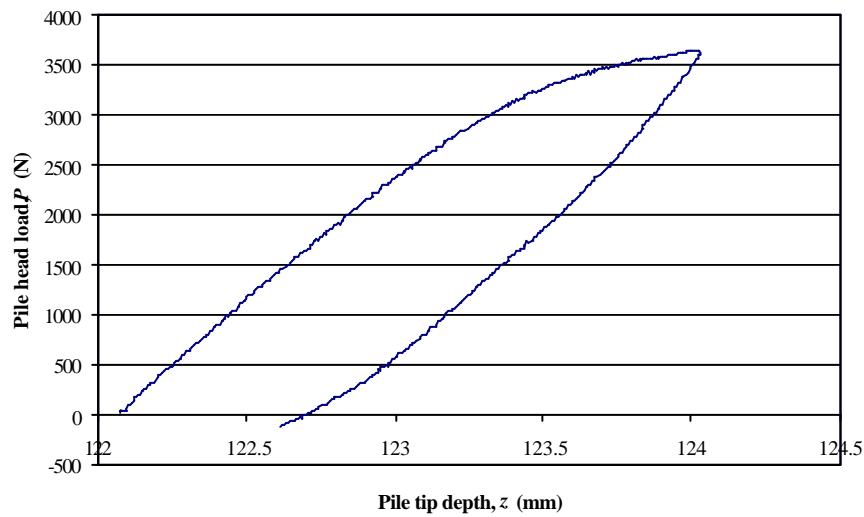


Figure 564 Test T14, Pile head load vs. pile tip depth (load test 2: compression at L)

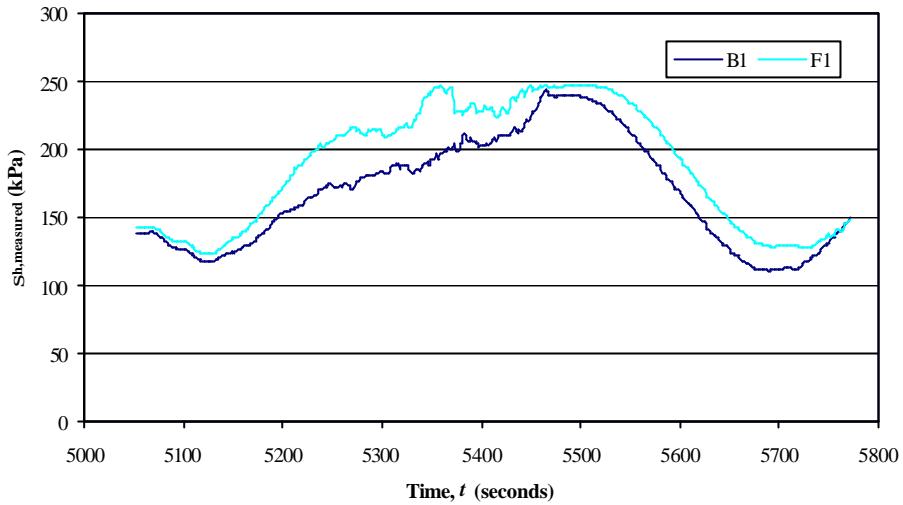


Figure 565 Test T14, B1, F1 pressure cells vs. time (load test 2: compression at L)

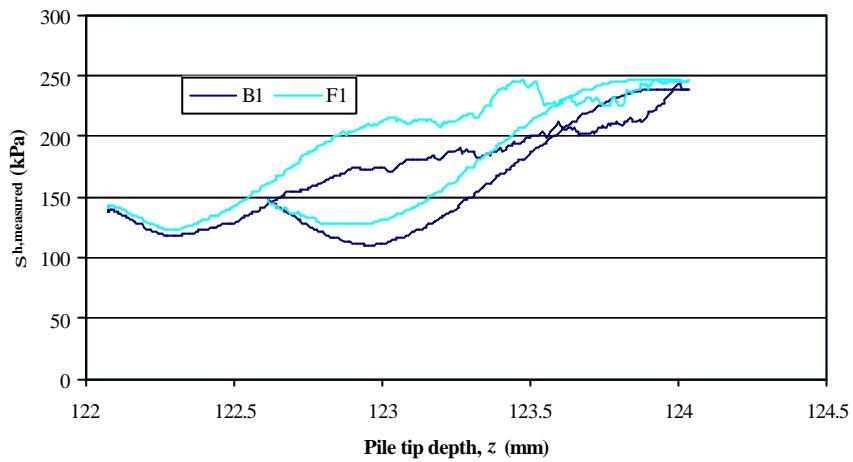


Figure 566 Test T14, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

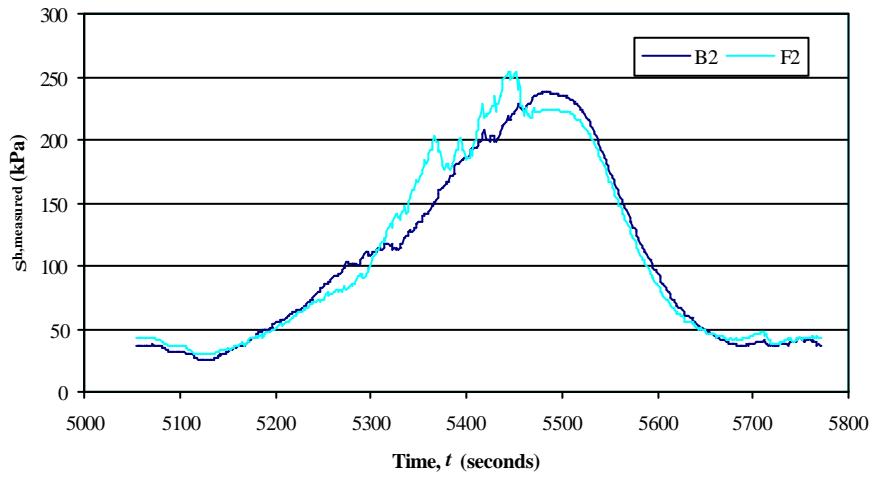


Figure 567 Test T14, B2, F2 pressure cells vs. time (load test 2: compression at L)

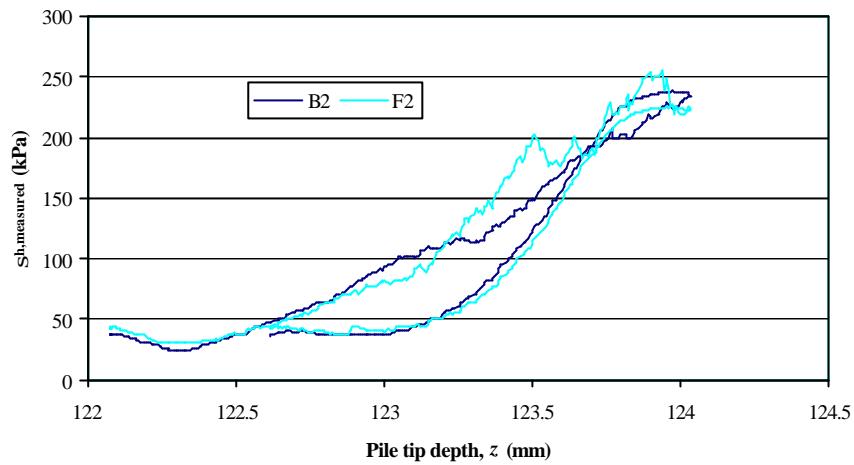


Figure 568 Test T14, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

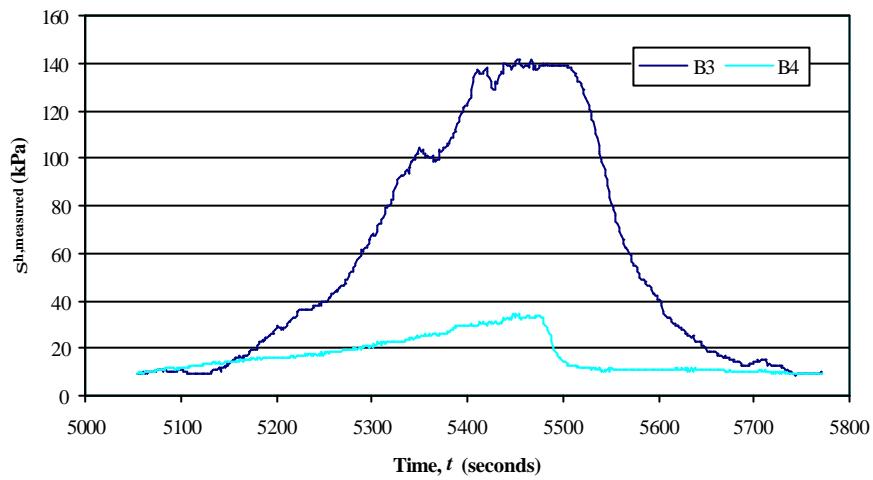


Figure 569 Test T14, B3, B4 pressure cells vs. time (load test 2: compression at L)

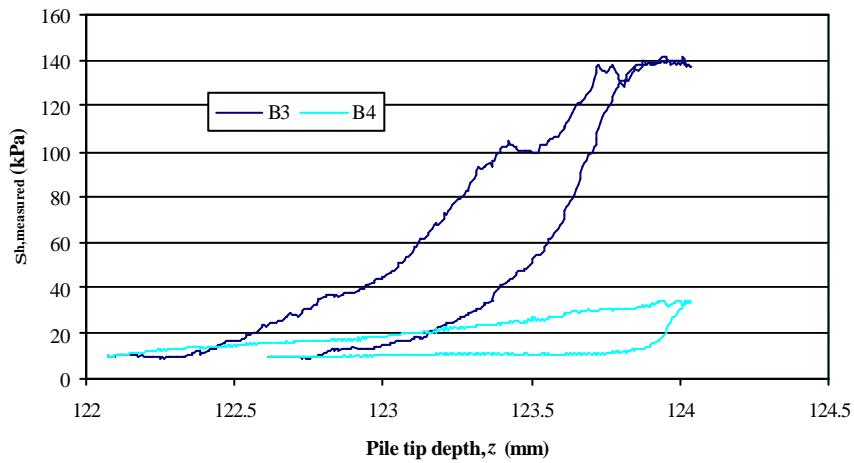


Figure 570 Test T14, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

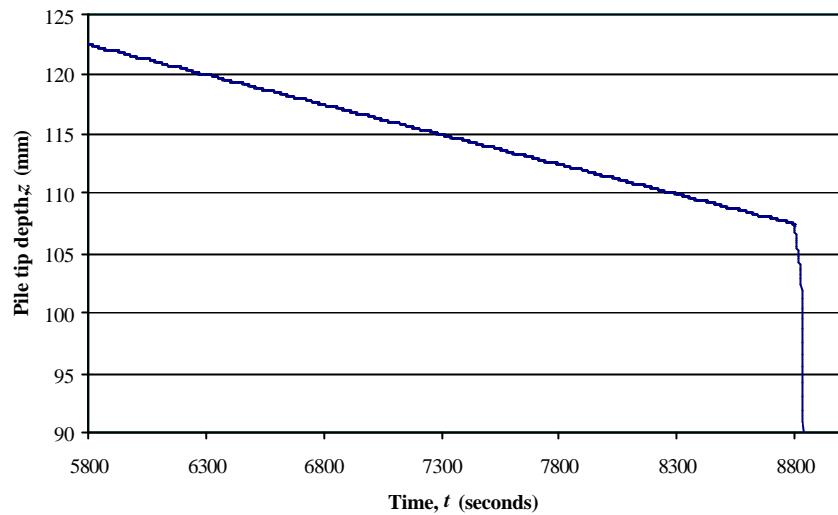


Figure 571 Test T14, Pile tip depth vs. time (load test 3: tension at L)

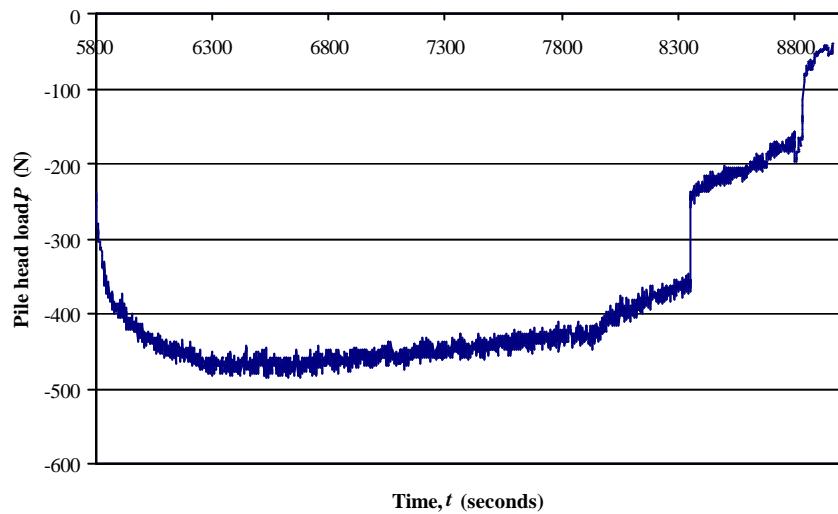


Figure 572 Test T14, Pile head load vs. time (load test 3: tension at L)

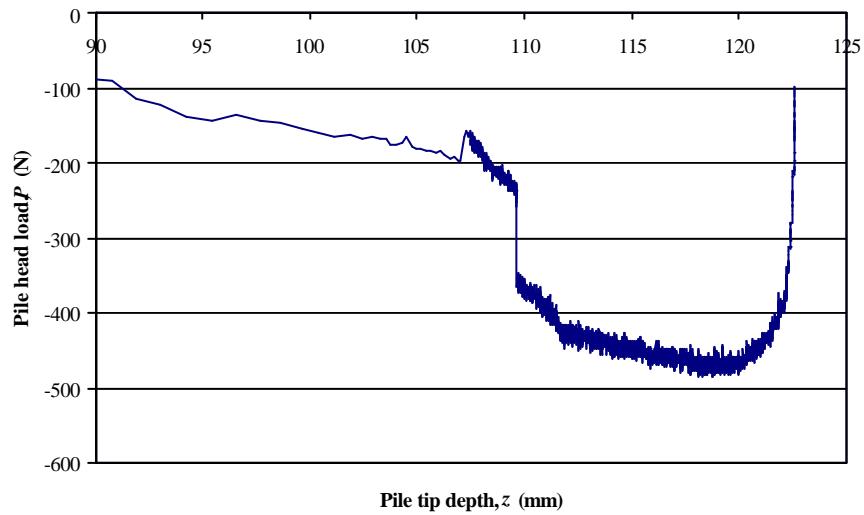


Figure 573 Test T14, Pile head load vs. pile tip depth (load test 3: tension at L)

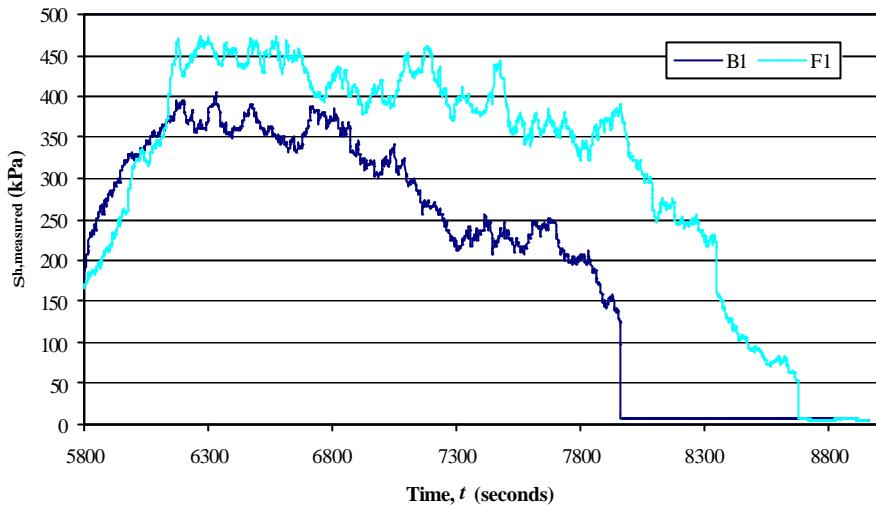


Figure 574 Test T14, B1, F1 pressure cells vs. time (load test 3: tension at L)

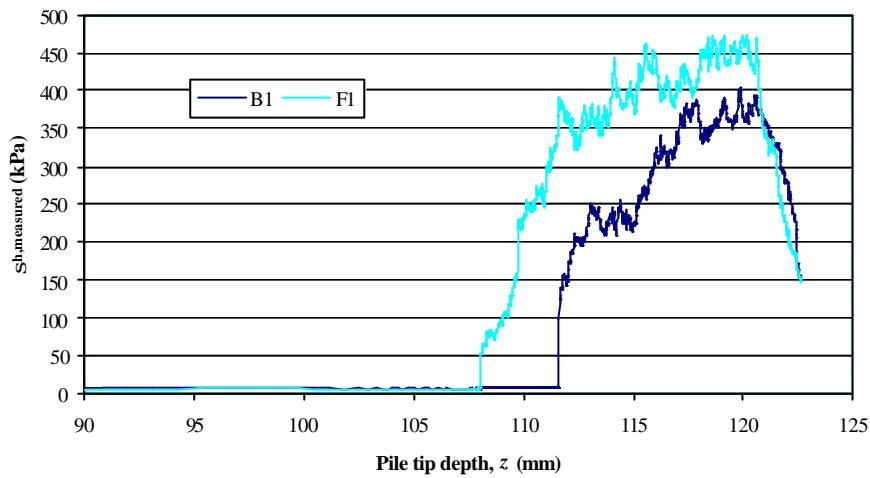


Figure 575 Test T14, B1, F1 pressure cells vs. pile tip depth (load test 3: tension at L)

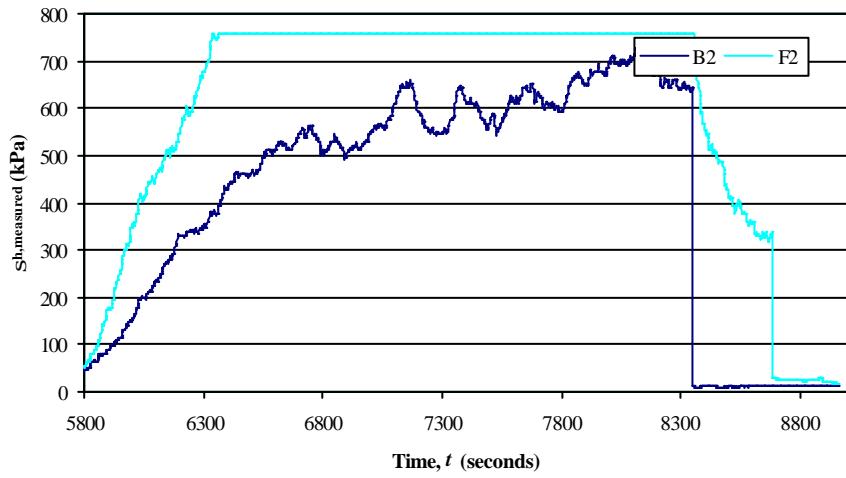


Figure 576 Test T14, B2, F2 pressure cells vs. time (load test 3: tension at L)

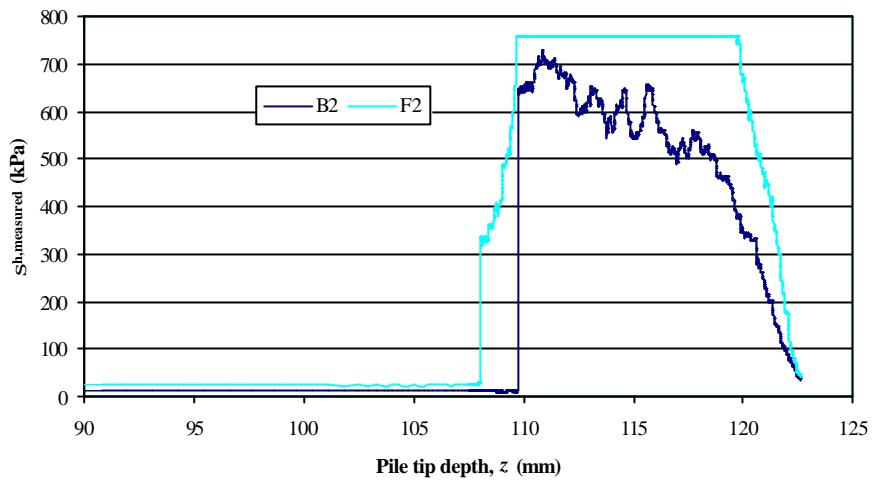


Figure 577 Test T14, B2, F2 pressure cells vs. pile tip depth (load test 3: tension at L)

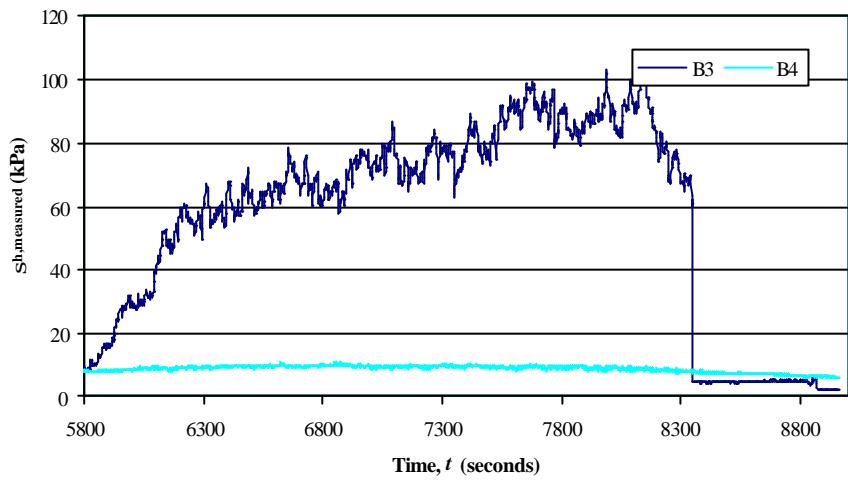


Figure 578 Test T14, B3, B4 pressure cells vs. time (load test 3: tension at L)

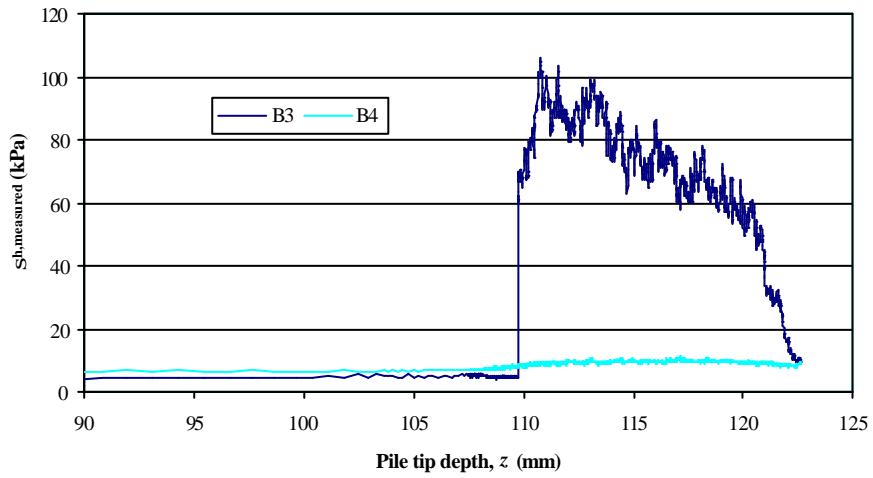


Figure 579 Test T14, B3, B4 pressure cells vs. pile tip depth (load test 3: tension at L)

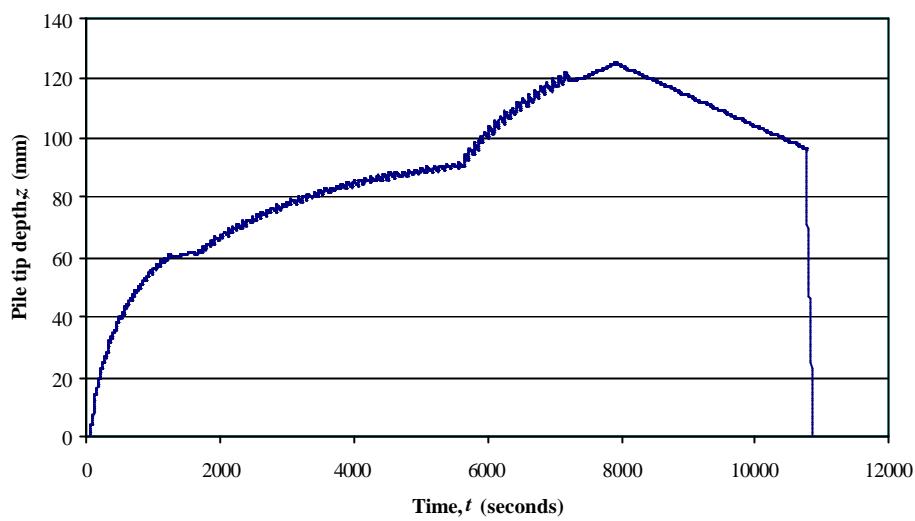


Figure 580 Test T15, Pile tip depth vs. time (entire test)

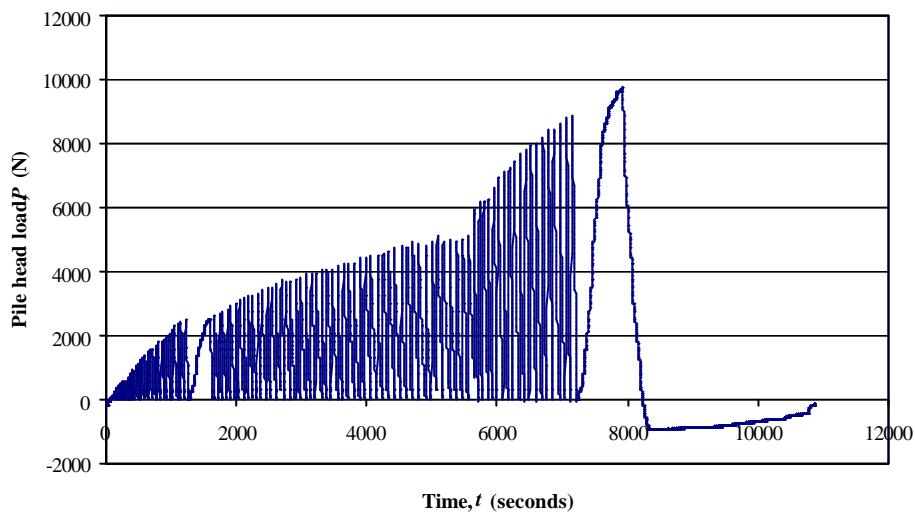


Figure 581 Test T15, Pile head load vs. time (entire test)

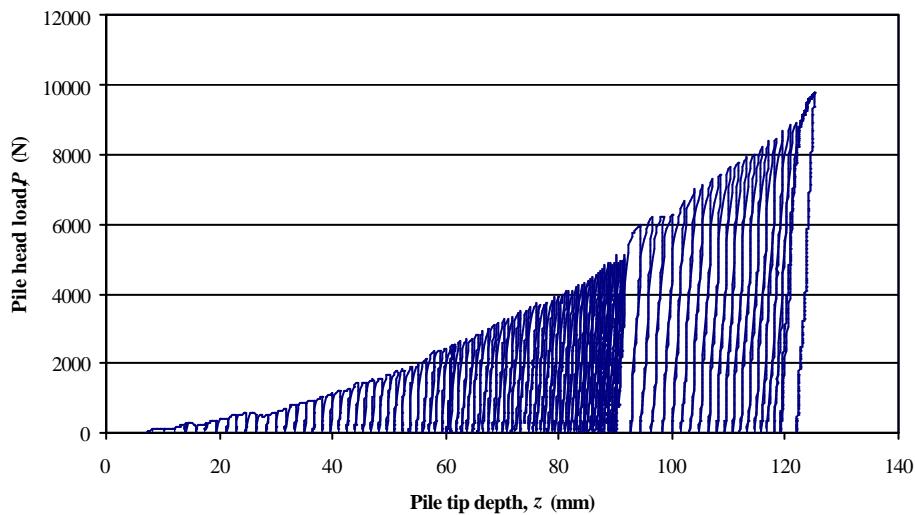


Figure 582 Test T15, Pile head load vs. pile tip depth (entire test)

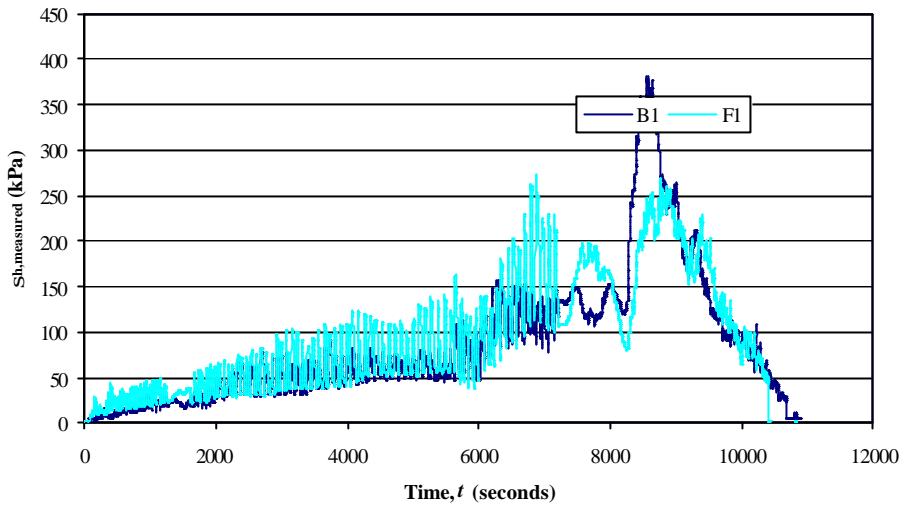


Figure 583 Test T15, B1, F1 pressure cells vs. time (entire test)

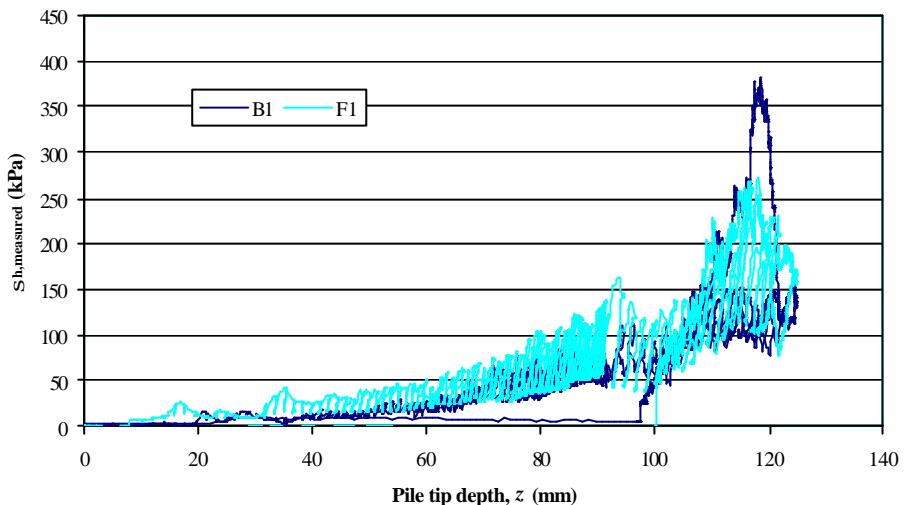


Figure 584 Test T15, B1, F1 pressure cells vs. pile tip depth (entire test)

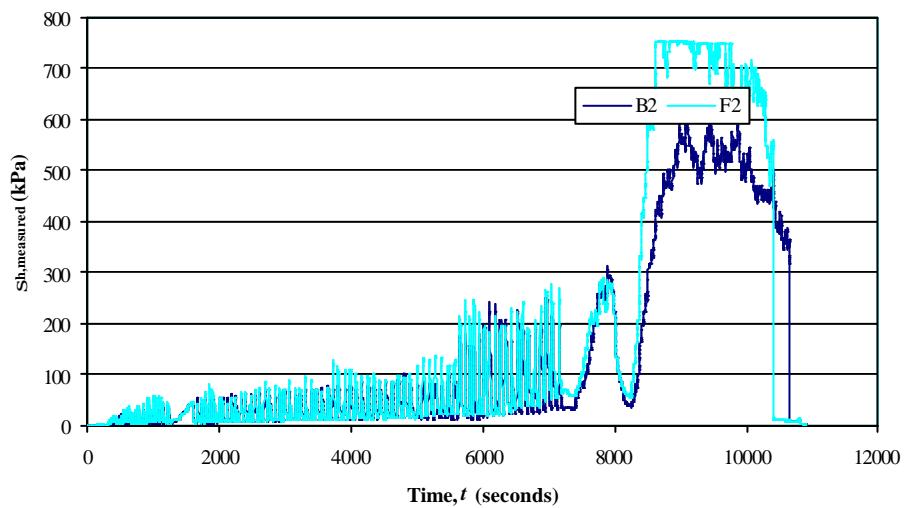


Figure 585 Test T15, B2, F2 pressure cells vs. time (entire test)

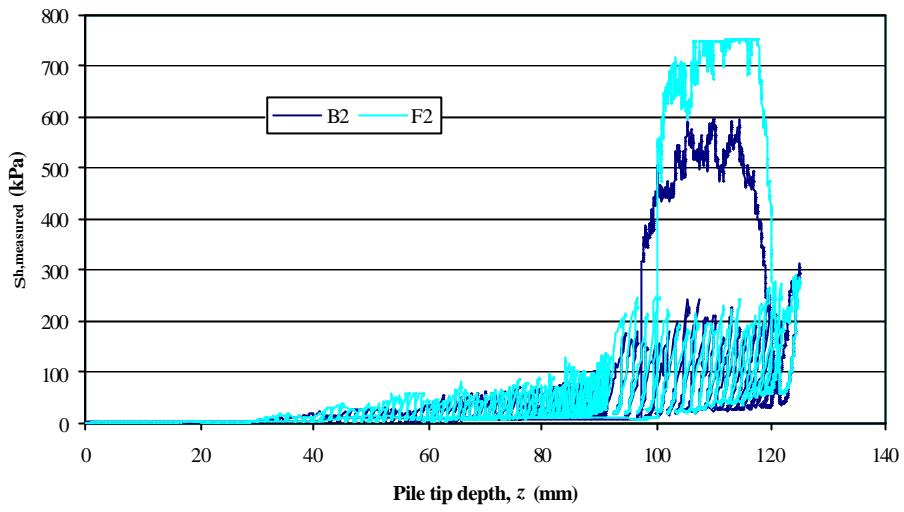


Figure 586 Test T15, B2, F2 pressure cells vs. pile tip depth (entire test)

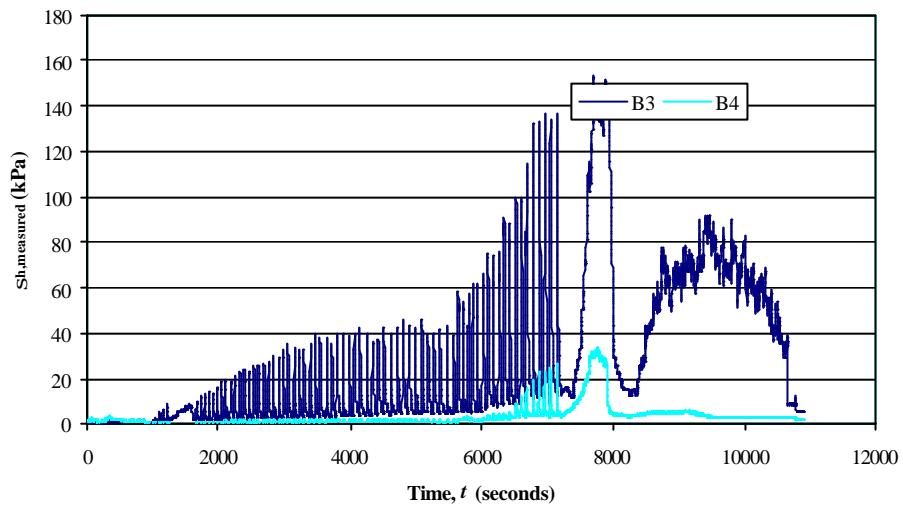


Figure 587 Test T15, B3, B4 pressure cells vs. time (entire test)

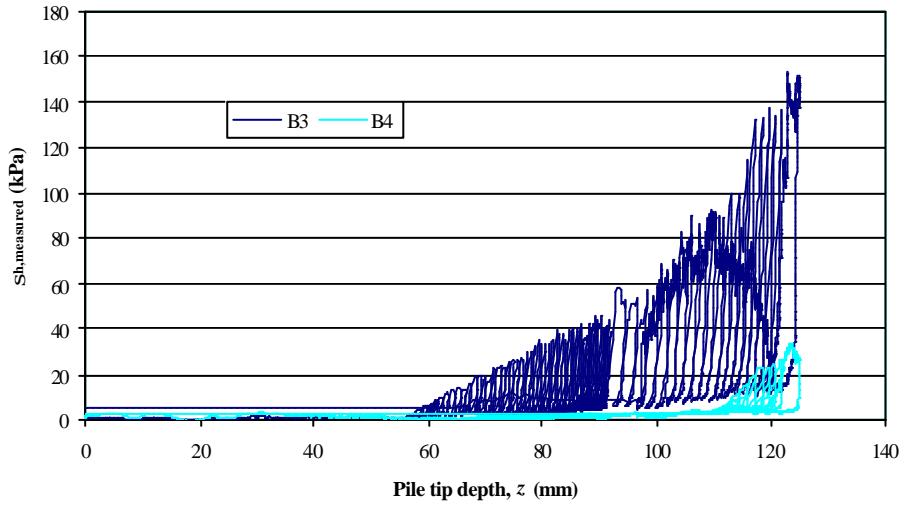


Figure 588 Test T15, B3, B4 pressure cells vs. pile tip depth (entire test)

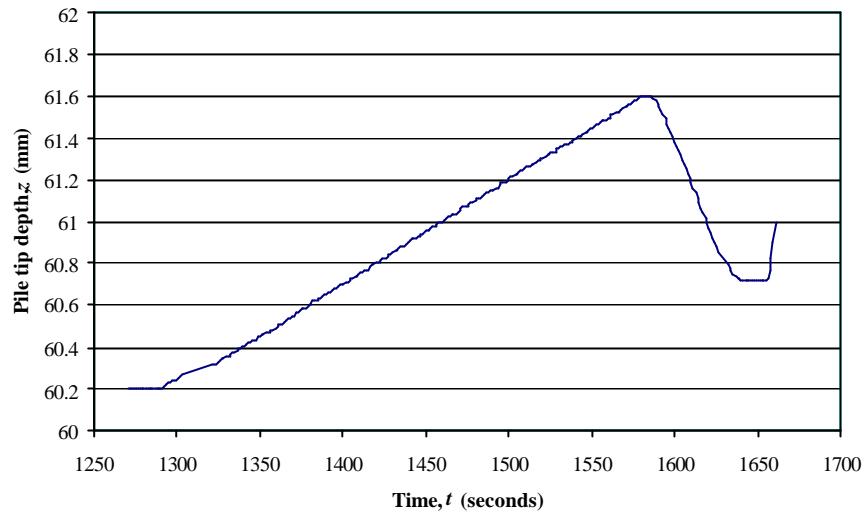


Figure 589 Test T15, Pile tip depth vs. time (load test 1: compression at L/2)

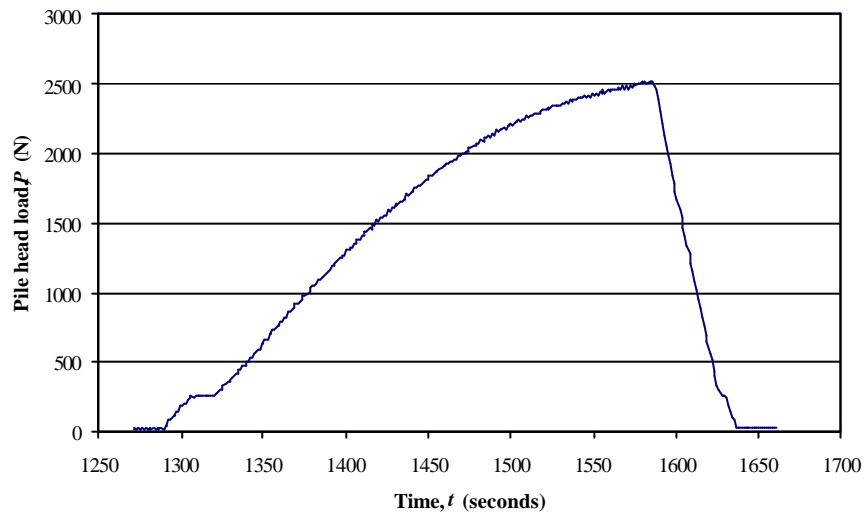


Figure 590 Test T15, Pile head load vs. time (load test 1: compression at L/2)

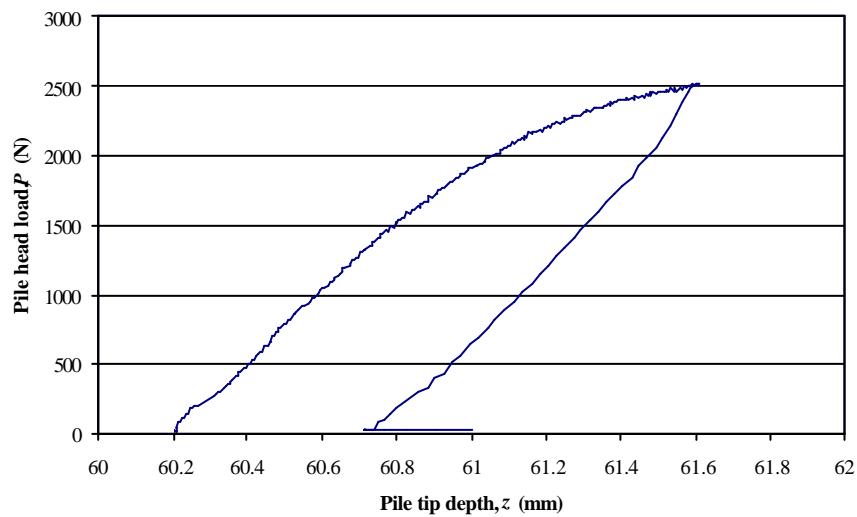


Figure 591 Test T15, Pile head load vs. pile tip depth (load test 1: compression at L/2)

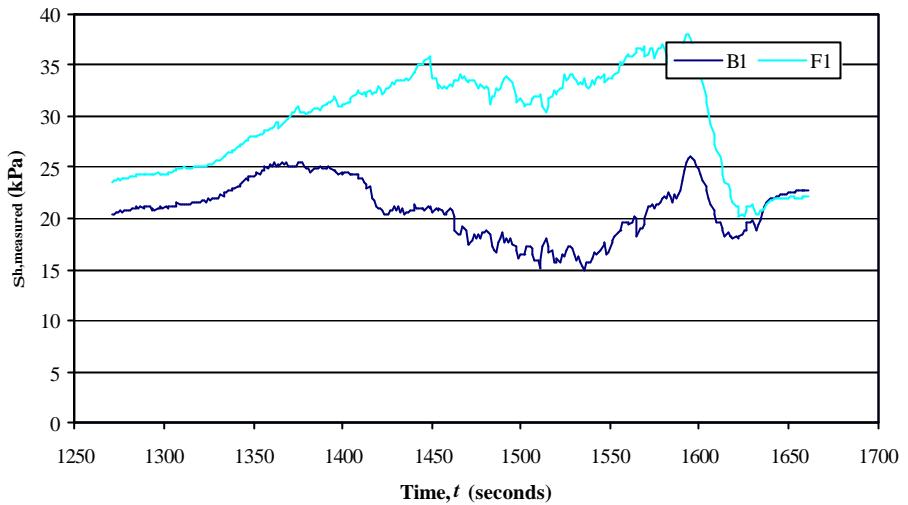


Figure 592 Test T15, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

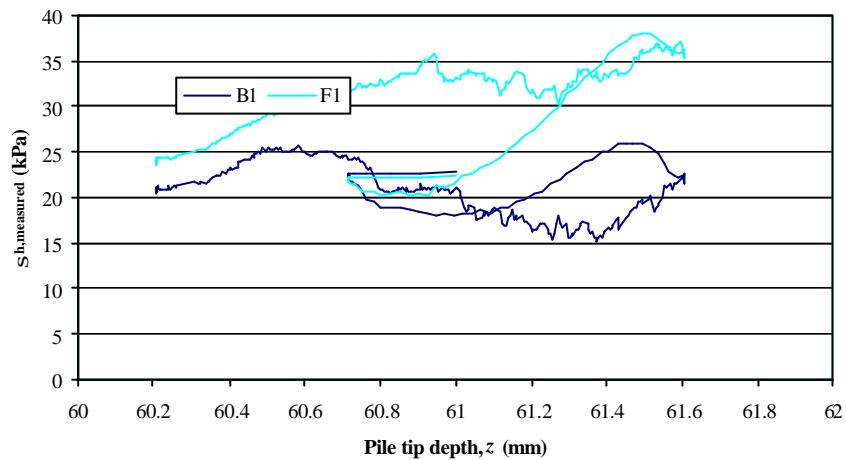


Figure 593 Test T15, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

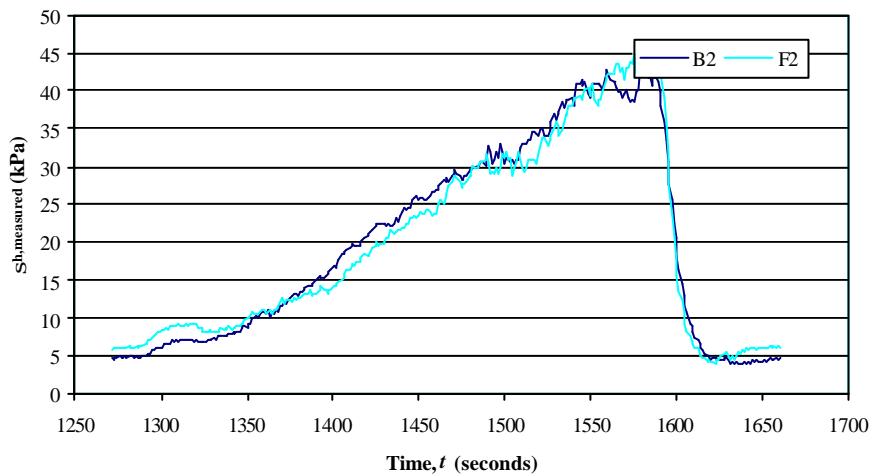


Figure 594 Test T15, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

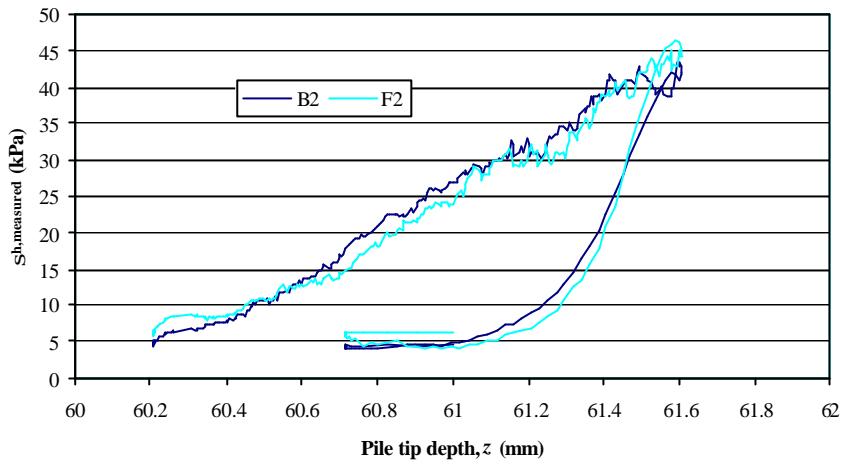


Figure 595 Test T15, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

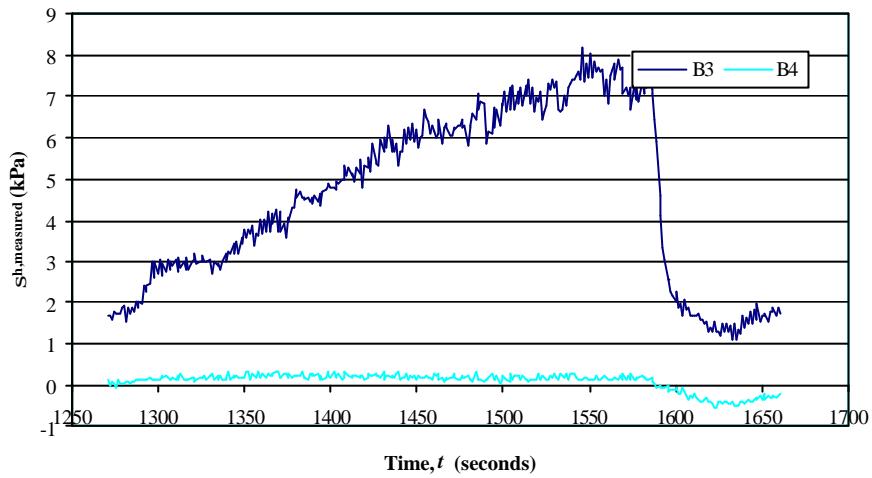


Figure 596 Test T15, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

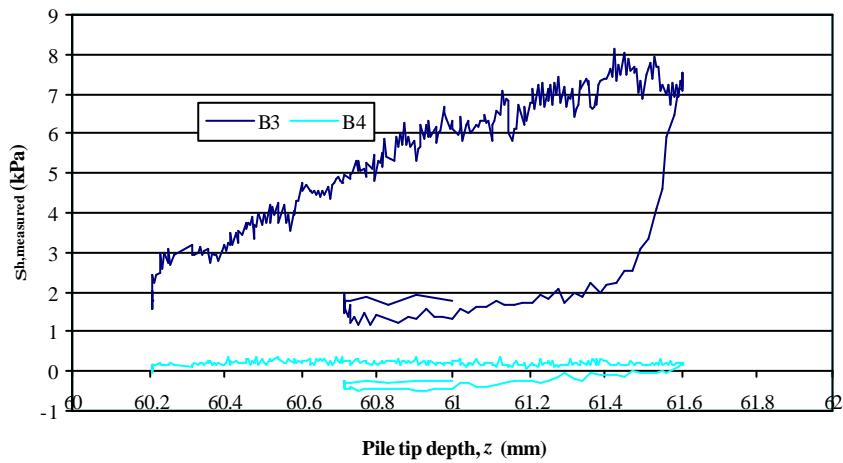


Figure 597 Test T15, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

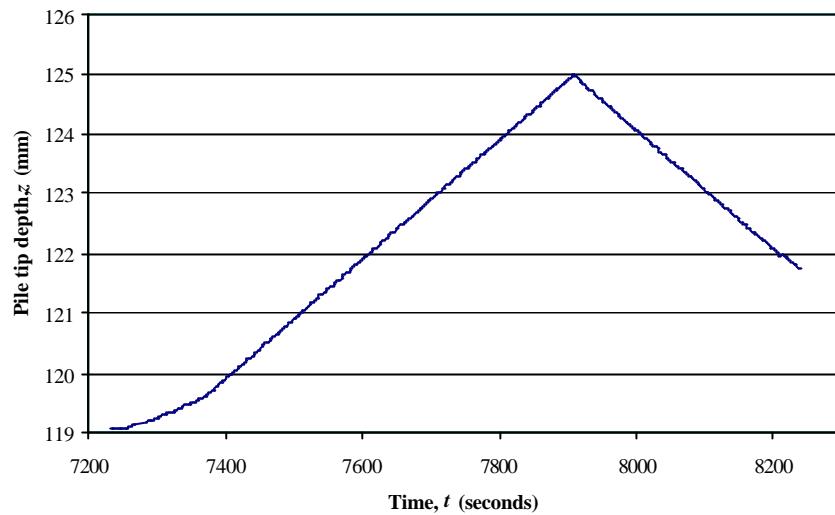


Figure 598 Test T15, Pile tip depth vs. time (load test 2: compression at L)

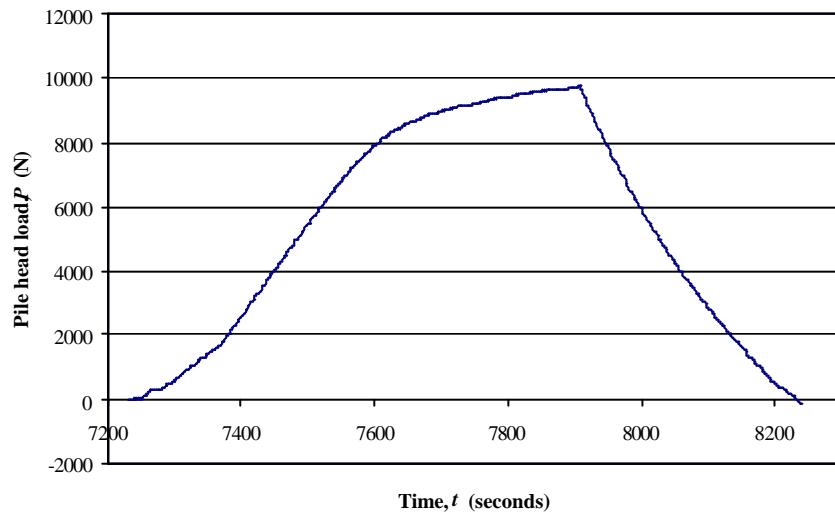


Figure 599 Test T15, Pile head load vs. time (load test 2: compression at L)

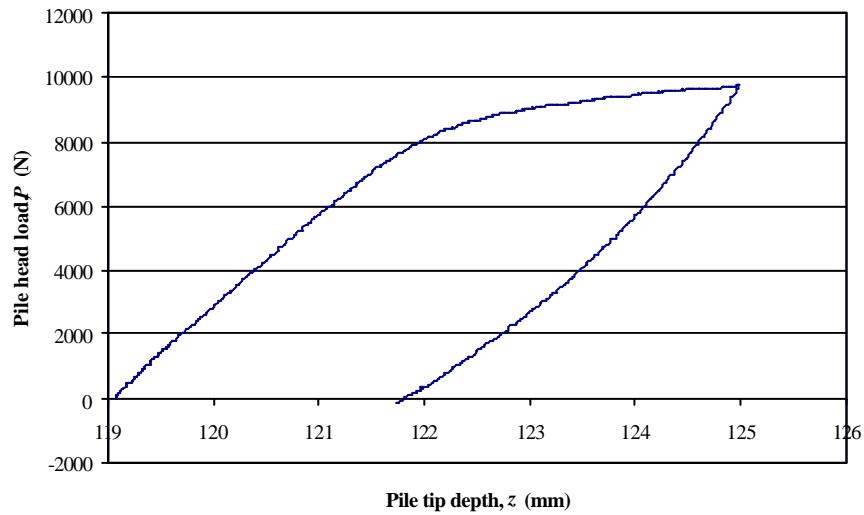


Figure 600 Test T15, Pile head load vs. pile tip depth (load test 2: compression at L)

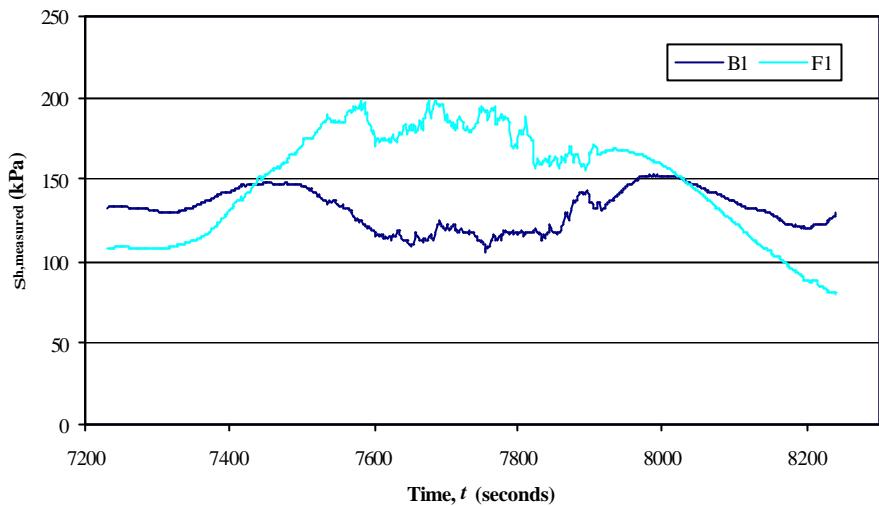


Figure 601 Test T15, B1, F1 pressure cells vs. time (load test 2: compression at L)

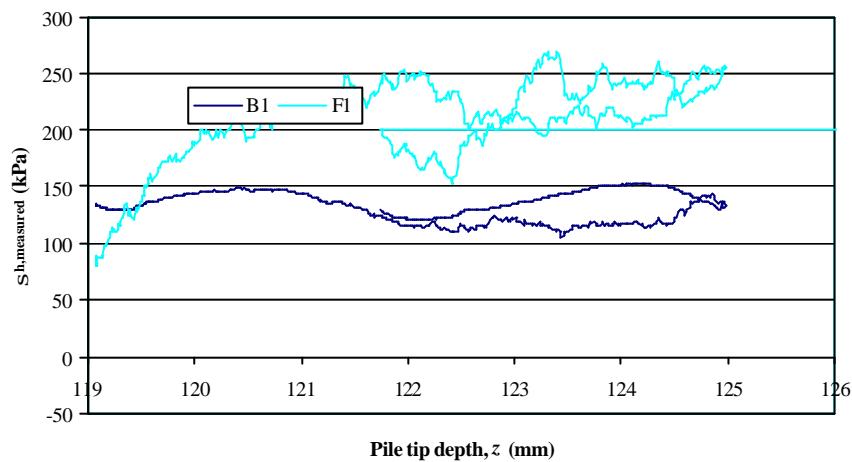


Figure 602 Test T15, B1, F1 pressure cells vs. pile tip depth (load test 2: compression at L)

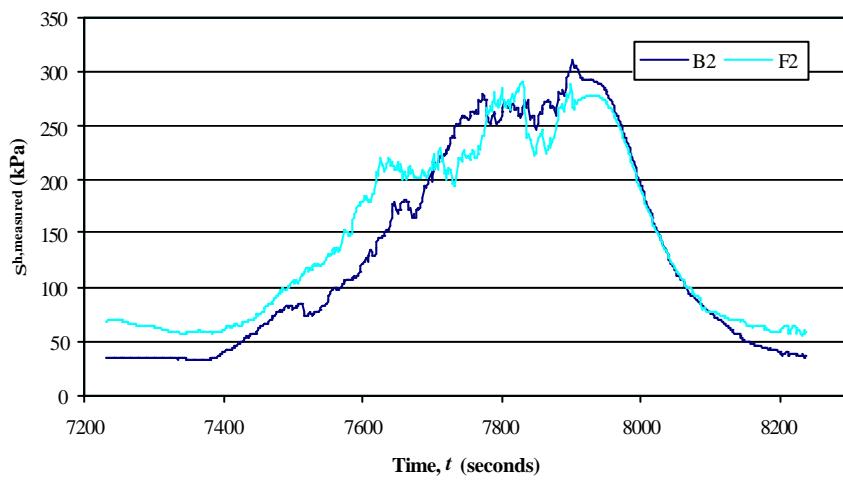


Figure 603 Test T15, B2, F2 pressure cells vs. time (load test 2: compression at L)

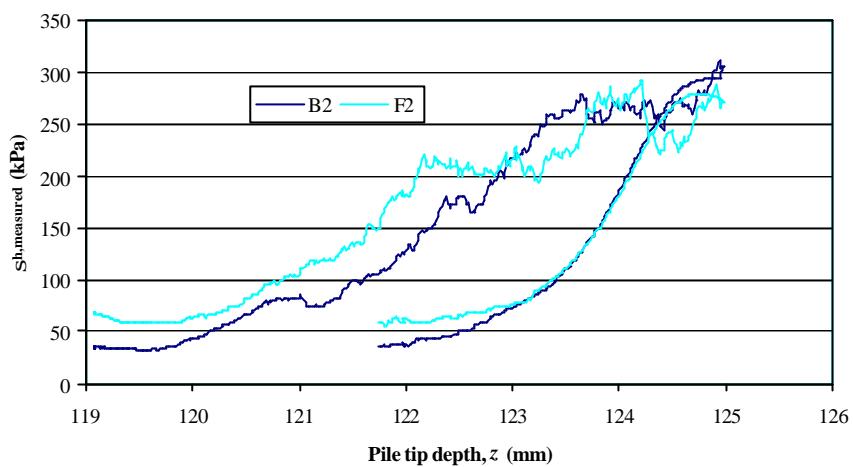


Figure 604 Test T15, B2, F2 pressure cells vs. pile tip depth (load test 2: compression at L)

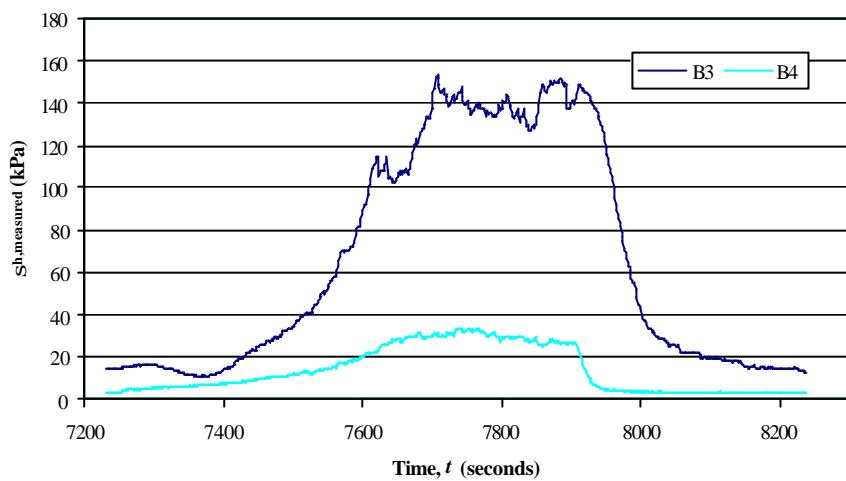


Figure 605 Test T15, B3, B4 pressure cells vs. time (load test 2: compression at L)

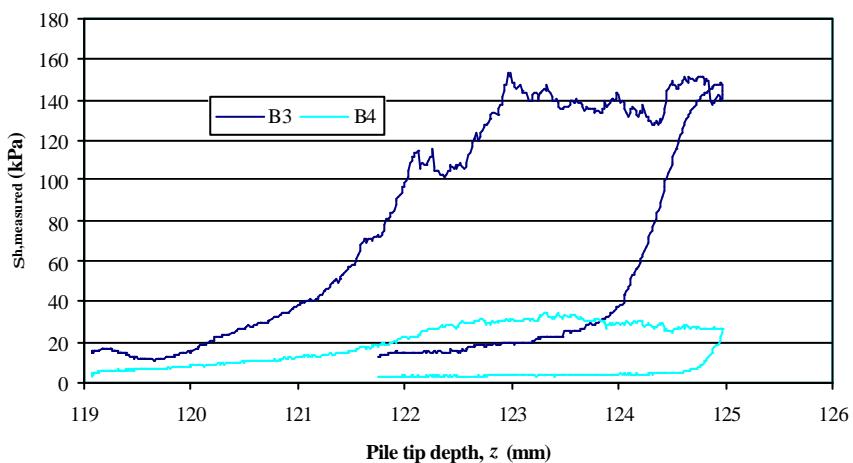


Figure 606 Test T15, B3, B4 pressure cells vs. pile tip depth (load test 2: compression at L)

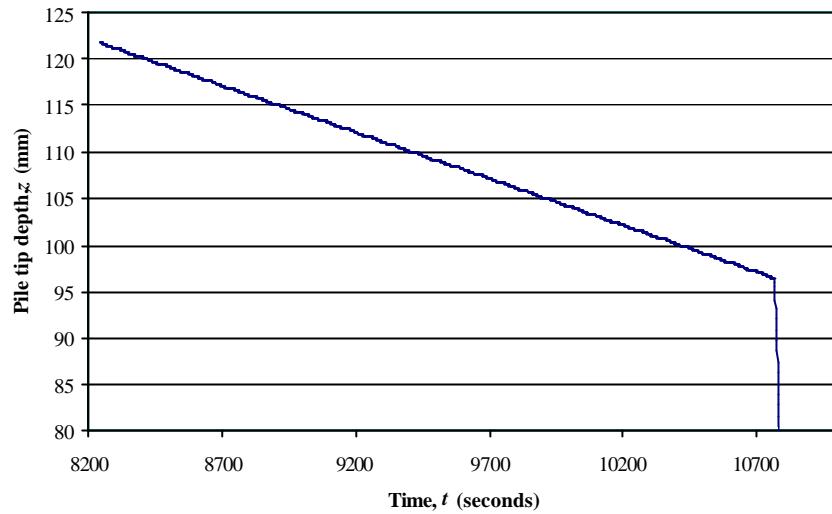


Figure 607 Test T15, Pile tip depth vs. time (load test 3: tension at L)

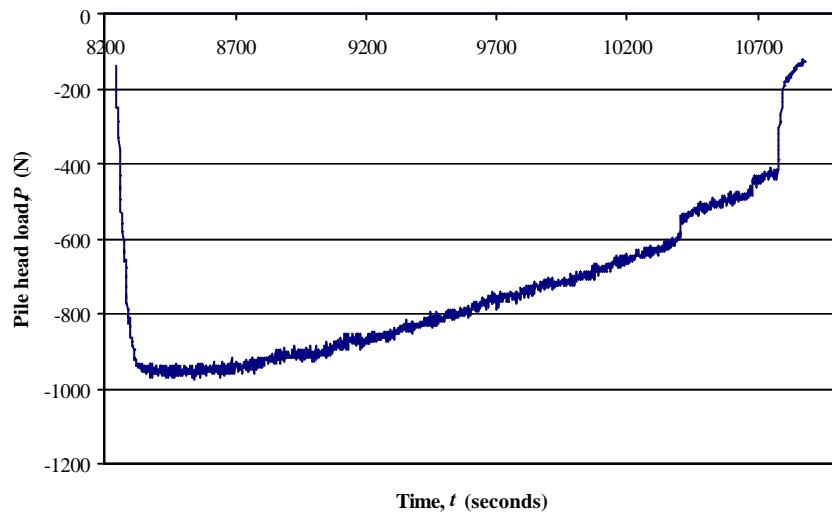


Figure 608 Test T15, Pile head load vs. time (load test 3: tension at L)

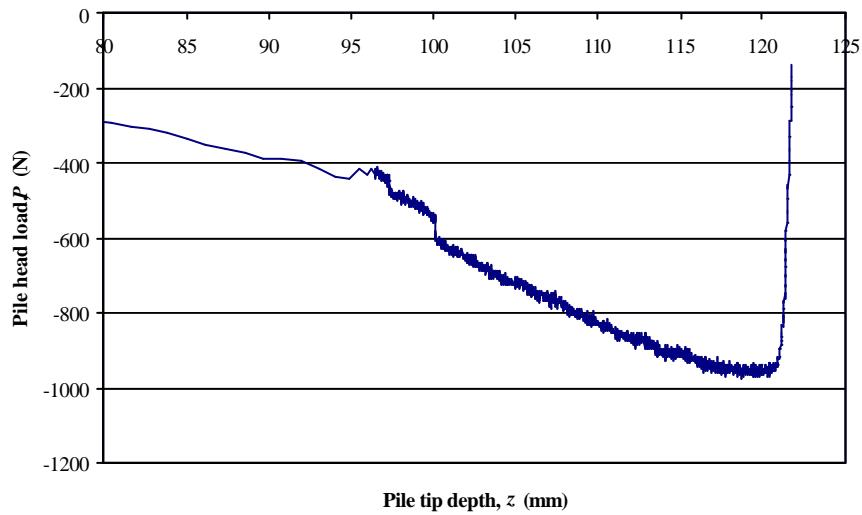


Figure 609 Test T15, Pile head load vs. pile tip depth (load test 3: tension at L)

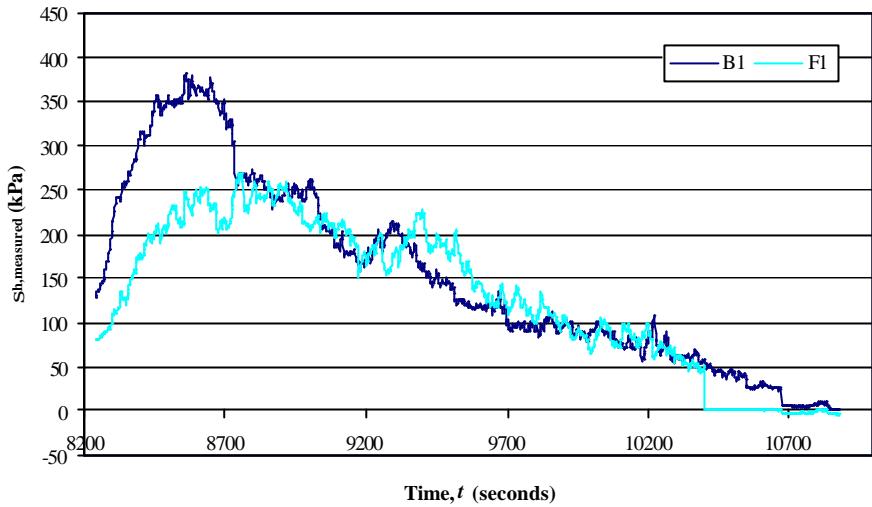


Figure 610 Test T15, B1, F1 pressure cells vs. time (load test 3: tension at L)

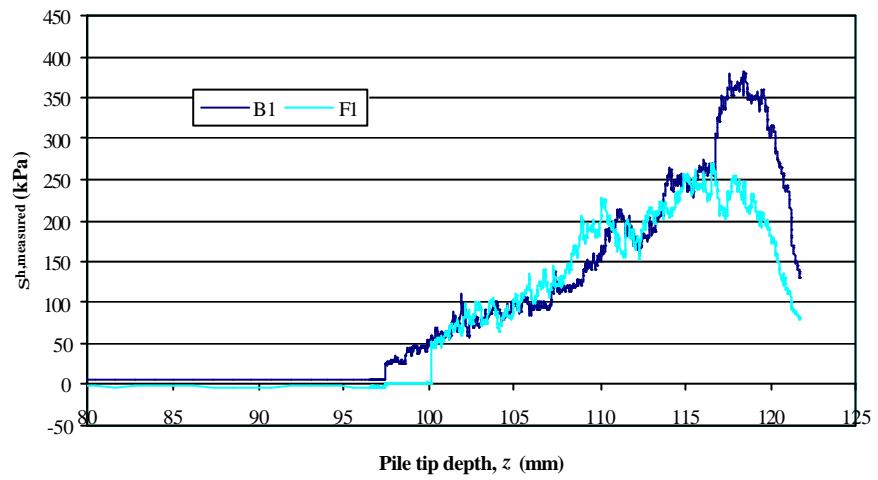


Figure 611 Test T15, B1, F1 pressure cells vs. pile tip depth (load test 3: tension at L)

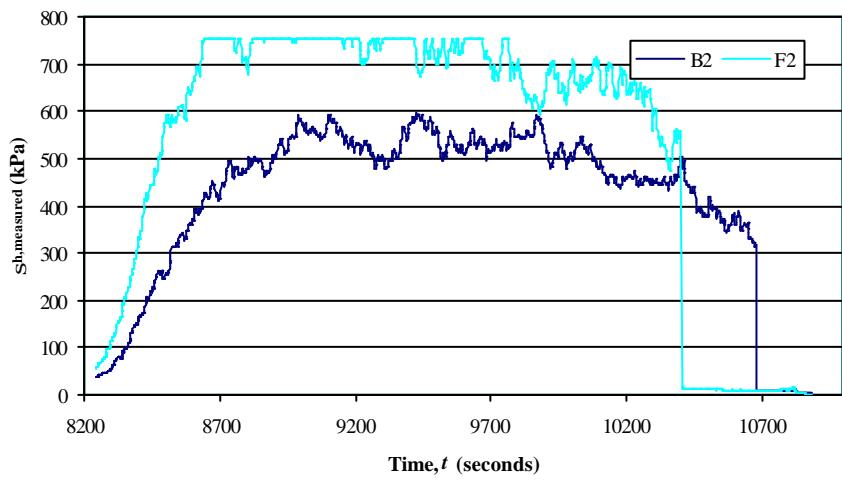


Figure 612 Test T15, B2, F2 pressure cells vs. time (load test 3: tension at L)

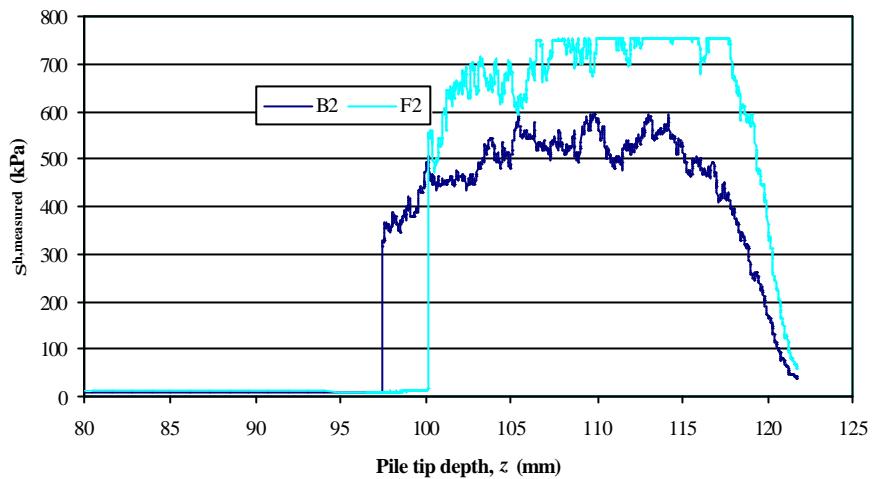


Figure 613 Test T15, B2, F2 pressure cells vs. pile tip depth (load test 3: tension at L)

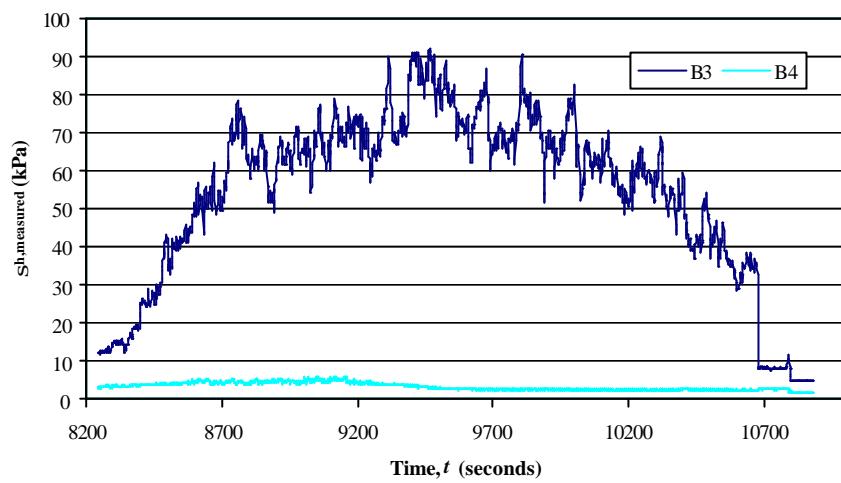


Figure 614 Test T15, B3, B4 pressure cells vs. time (load test 3: tension at L)

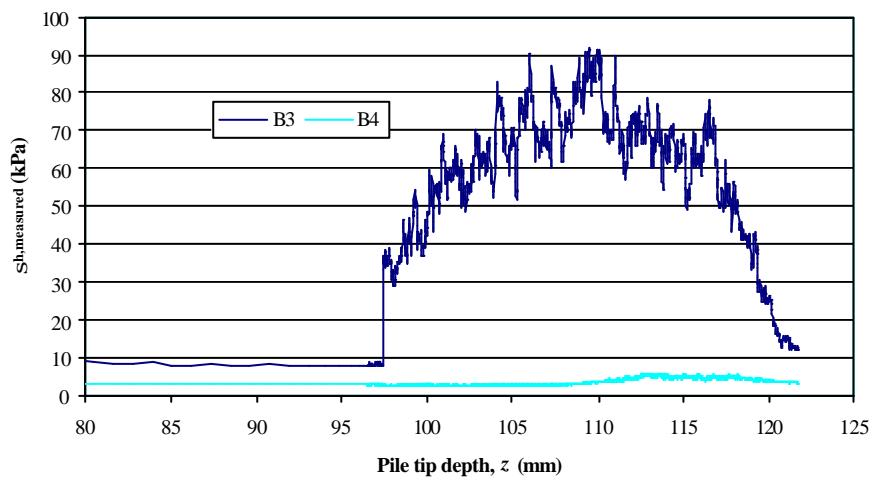


Figure 615 Test T15, B3, B4 pressure cells vs. pile tip depth (load test 3: tension at L)

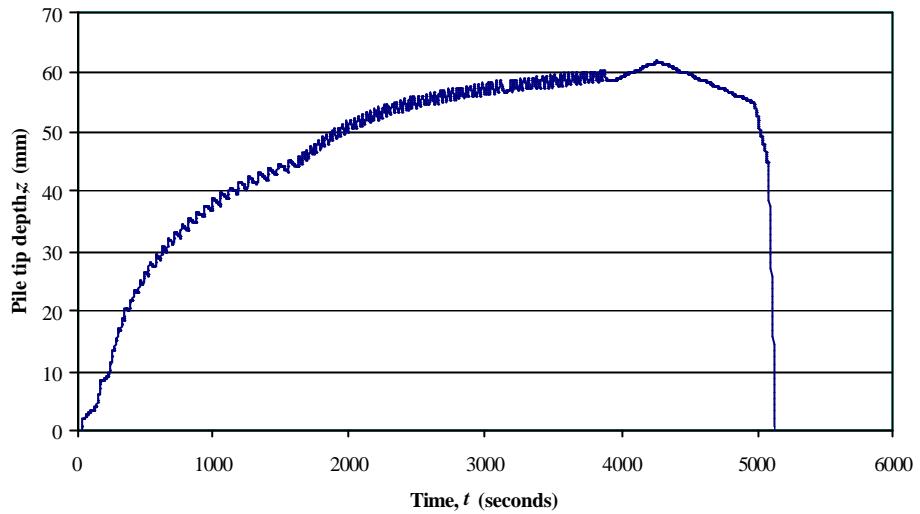


Figure 616 Test T16, Pile tip depth vs. time (entire test)

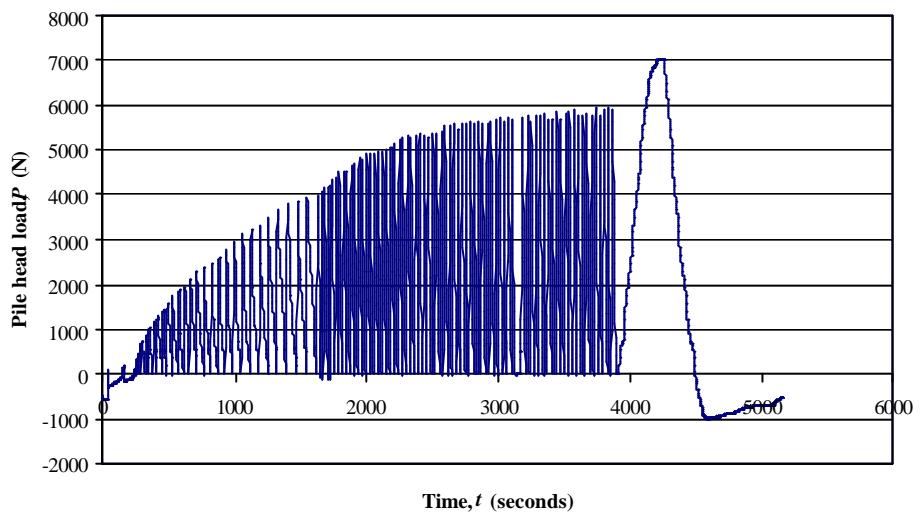


Figure 617 Test T16, Pile head load vs. time (entire test)

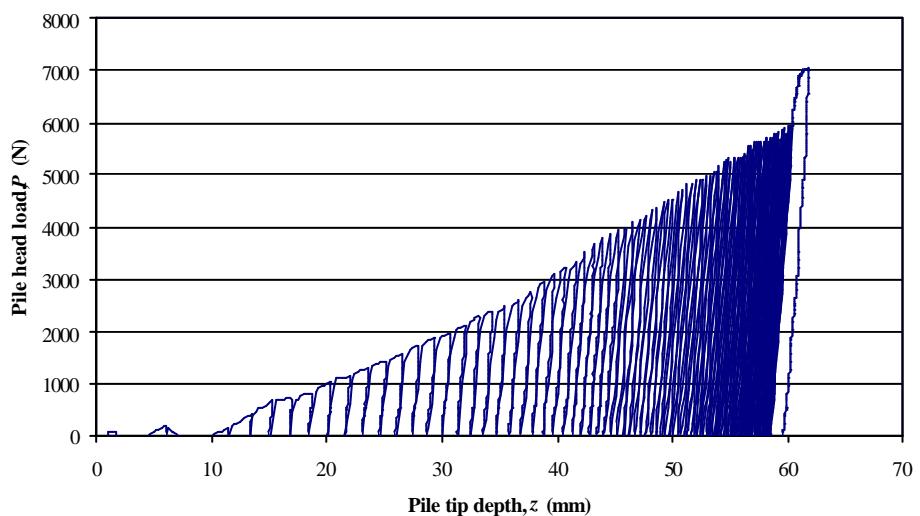


Figure 618 Test T16, Pile head load vs. pile tip depth (entire test)

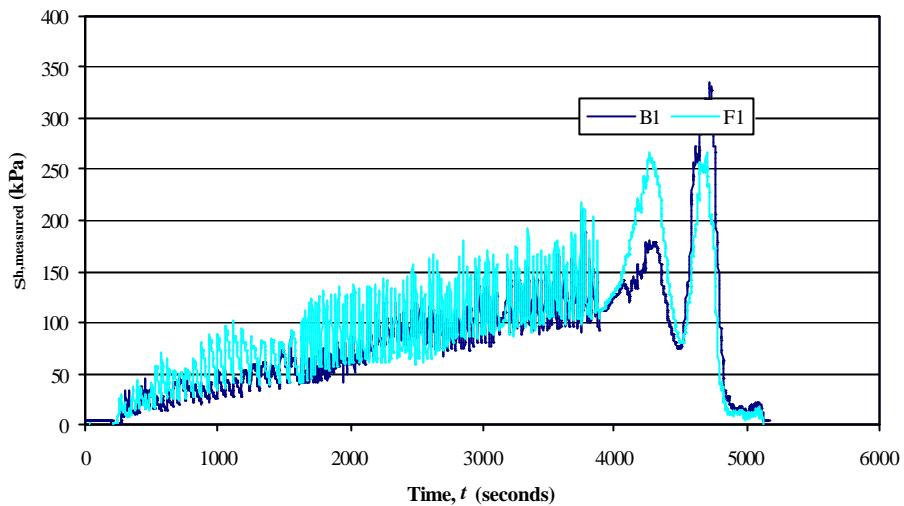


Figure 619 Test T16, B1, F1 pressure cells vs. time (entire test)

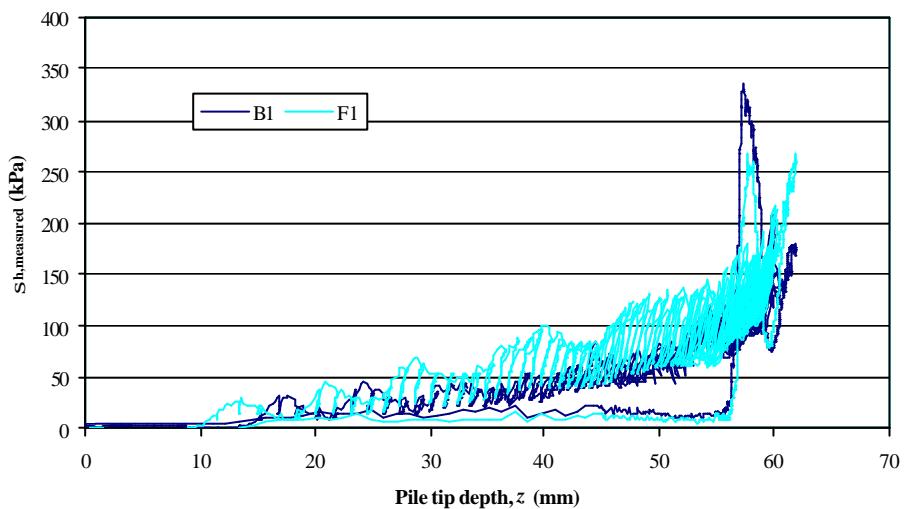


Figure 620 Test T16, B1, F1 pressure cells vs. pile tip depth (entire test)

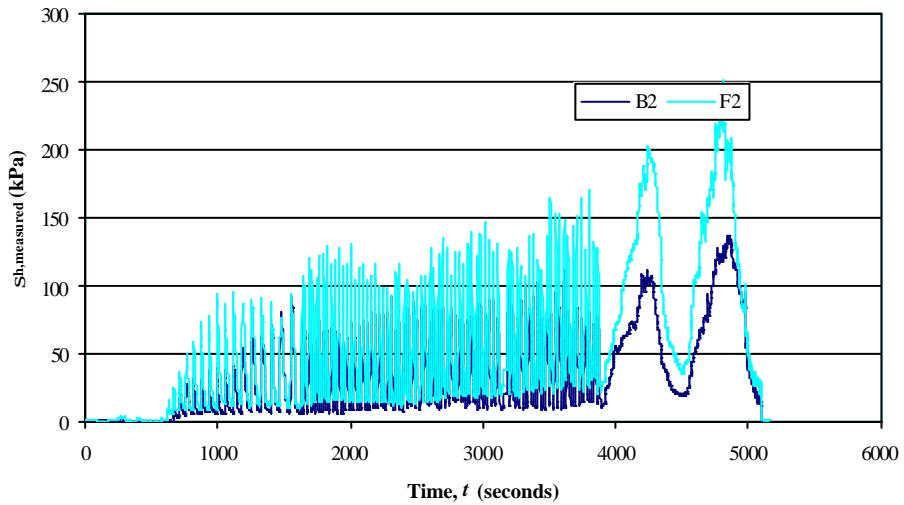


Figure 621 Test T16, B2, F2 pressure cells vs. time (entire test)

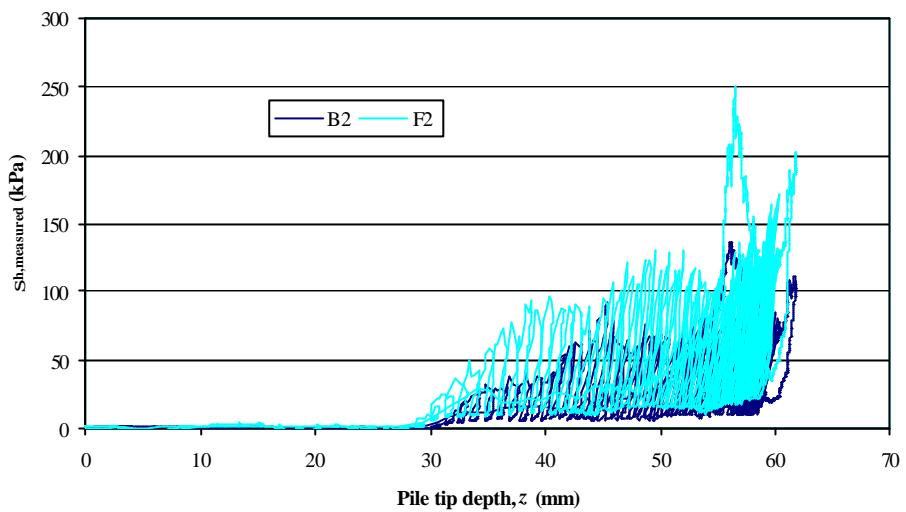


Figure 622 Test T16, B2, F2 pressure cells vs. pile tip depth (entire test)

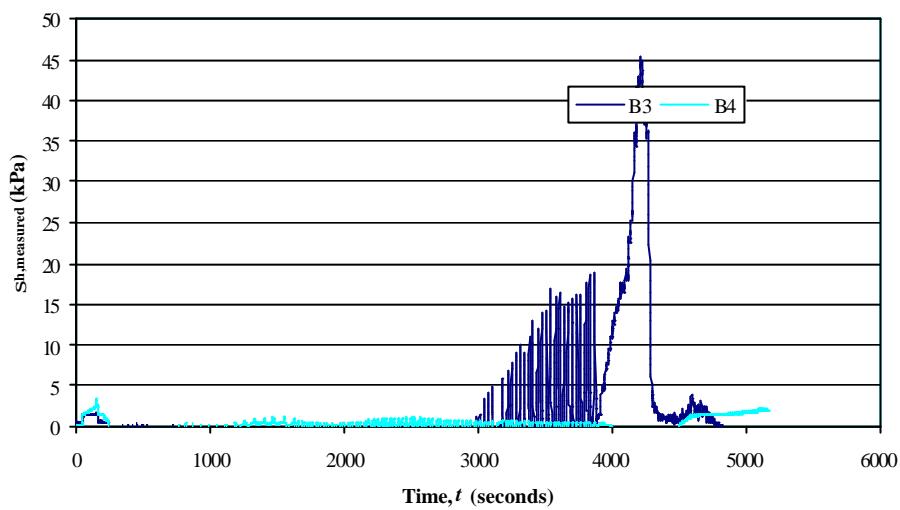


Figure 623 Test T16, B3, B4 pressure cells vs. time (entire test)

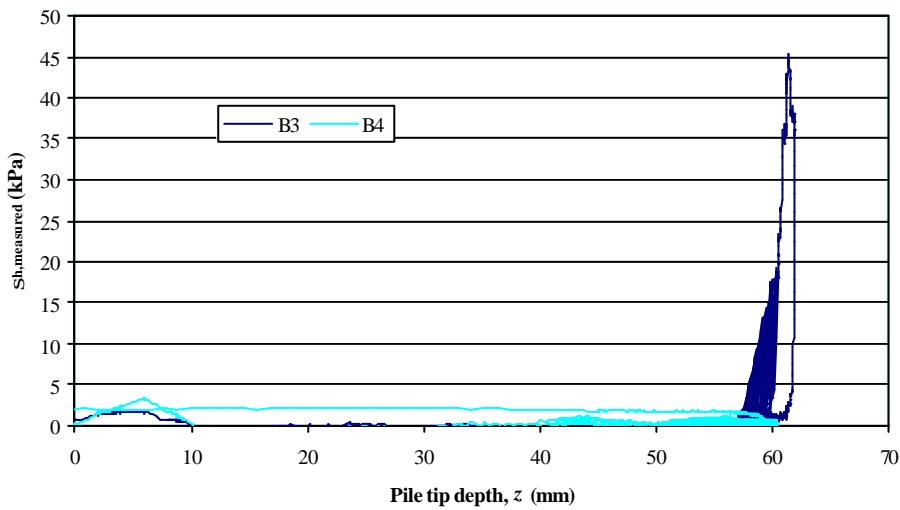


Figure 624 Test T16, B3, B4 pressure cells vs. pile tip depth (entire test)

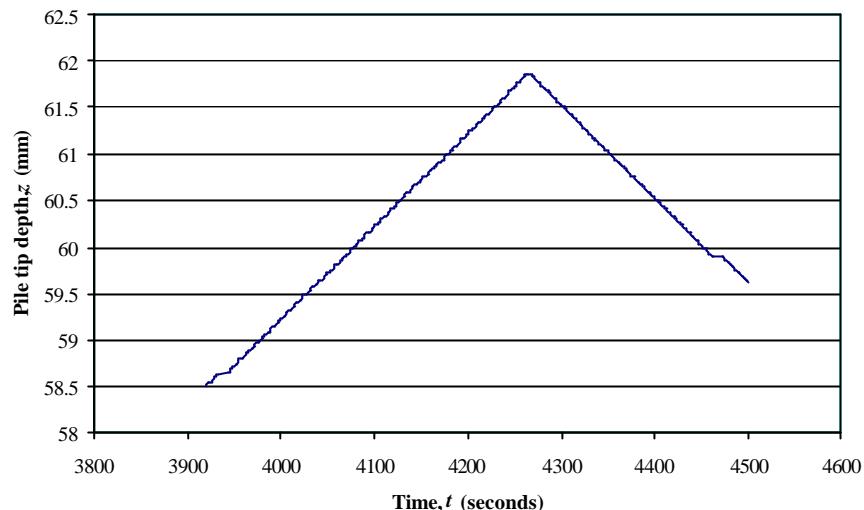


Figure 625 Test T16, Pile tip depth vs. time (load test 1: compression at L/2)

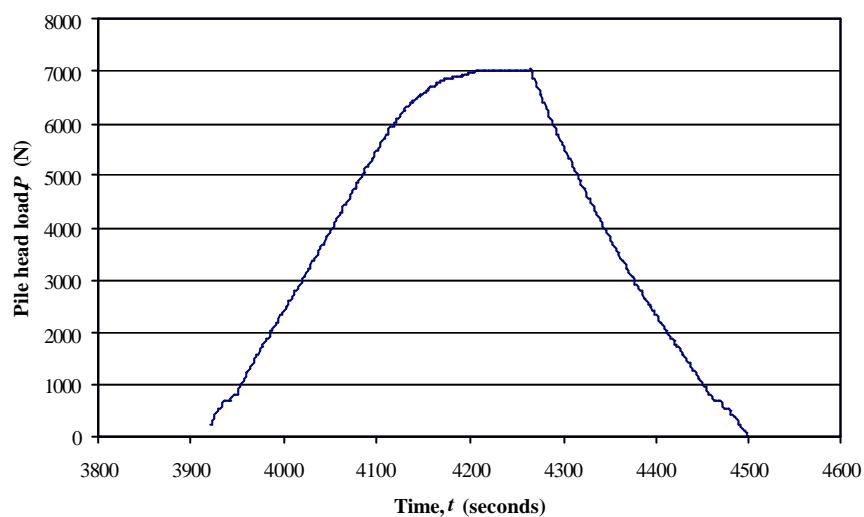


Figure 626 Test T16, Pile head load vs. time (load test 1: compression at L/2)

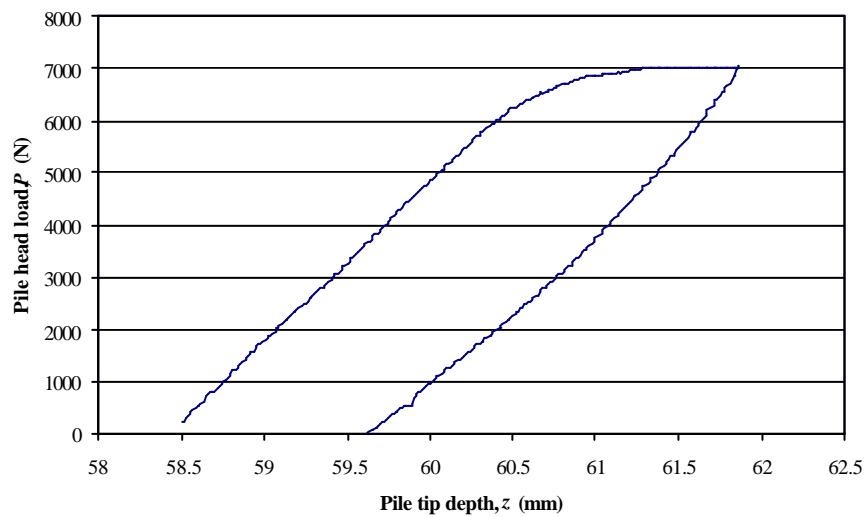


Figure 627 Test T16, Pile head load vs. pile tip depth (load test 1: compression at L/2)

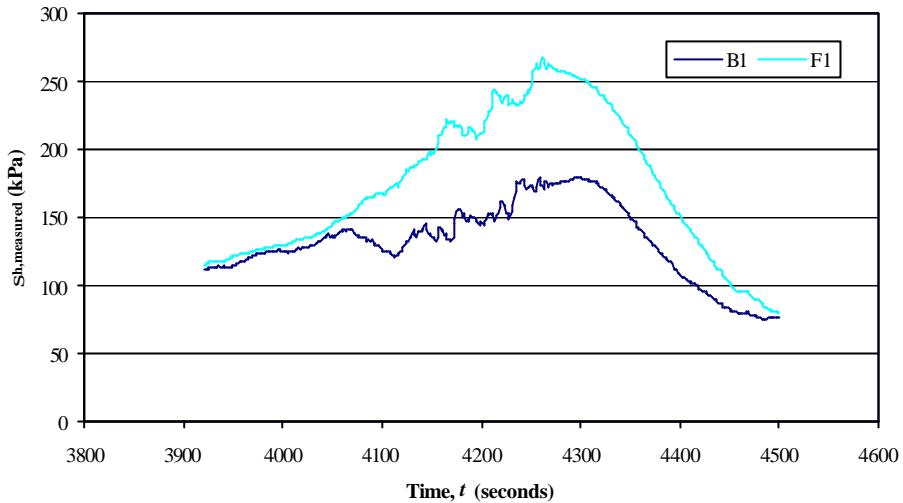


Figure 628 Test T16, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

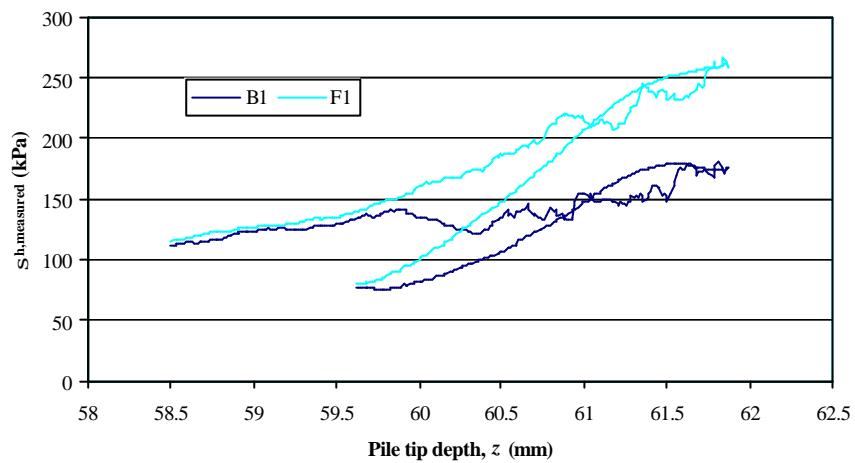


Figure 629 Test T16, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

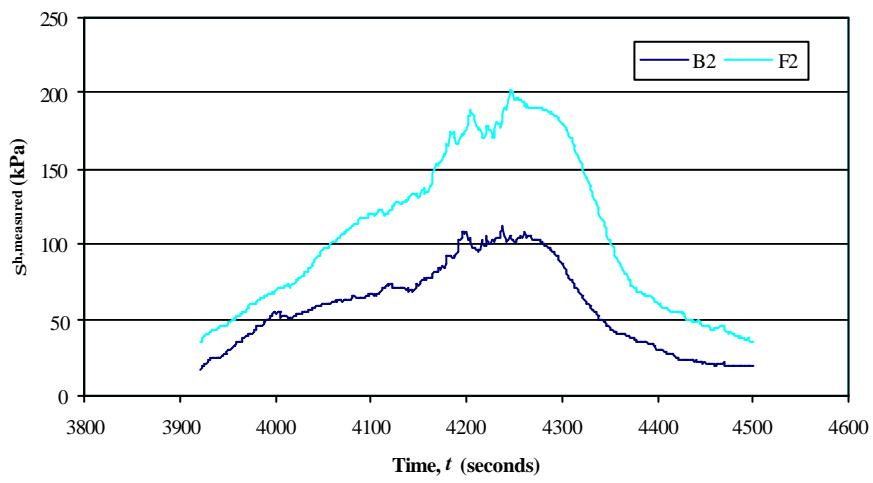


Figure 630 Test T16, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

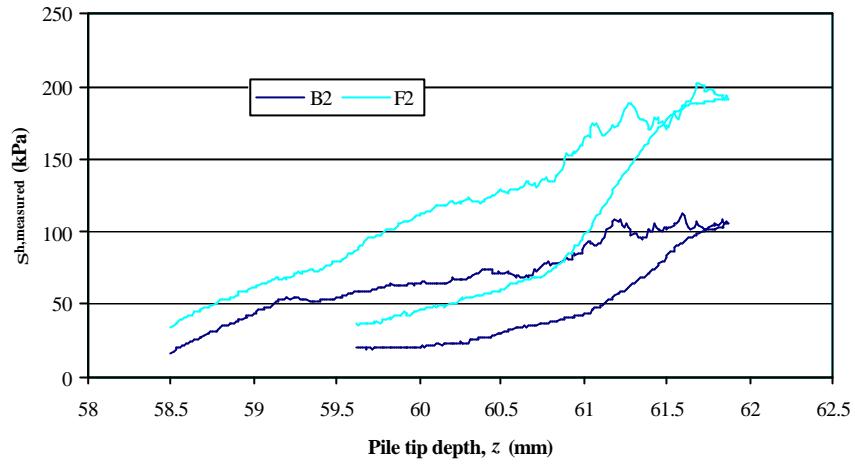


Figure 631 Test T16, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

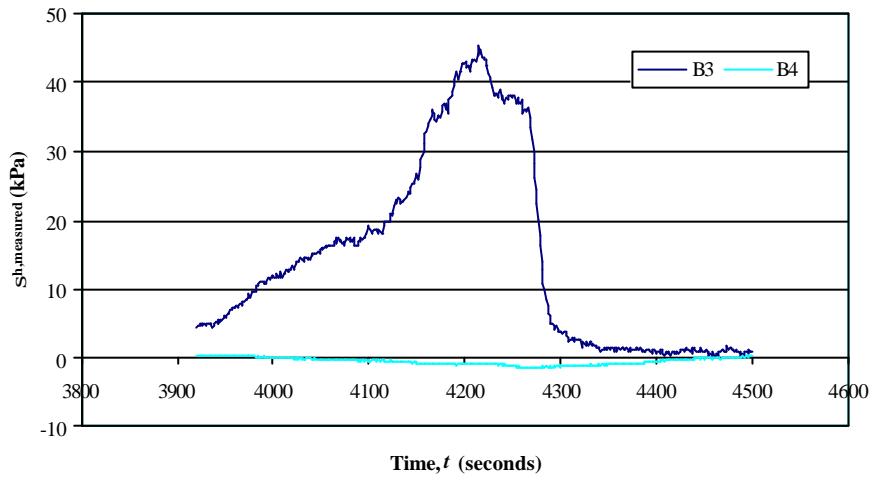


Figure 632 Test T16, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

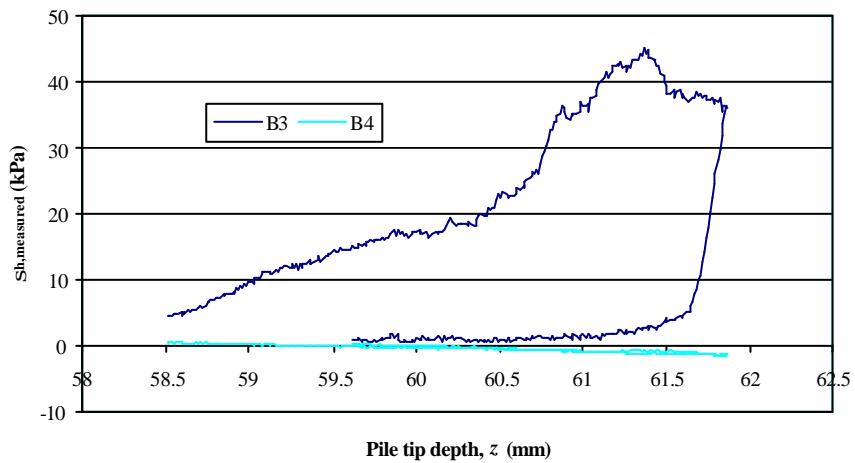


Figure 633 Test T16, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

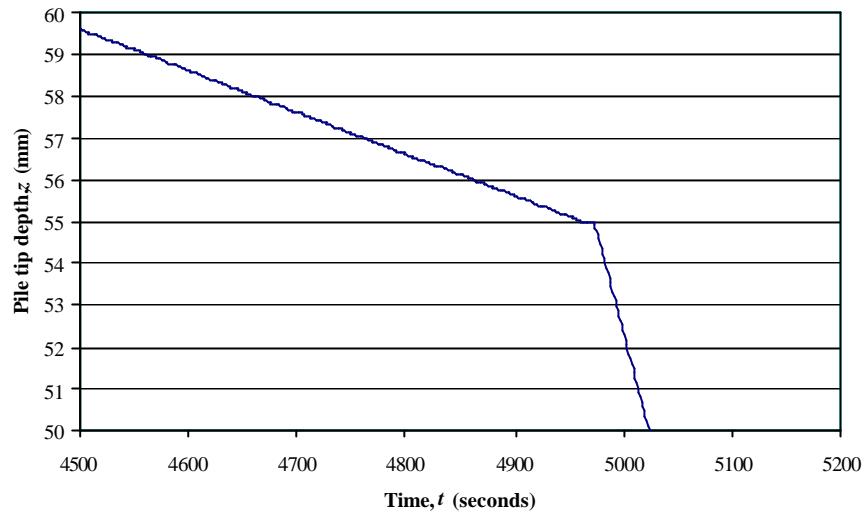


Figure 634 Test T16, Pile tip depth vs. time (load test 2: tension at L/2)

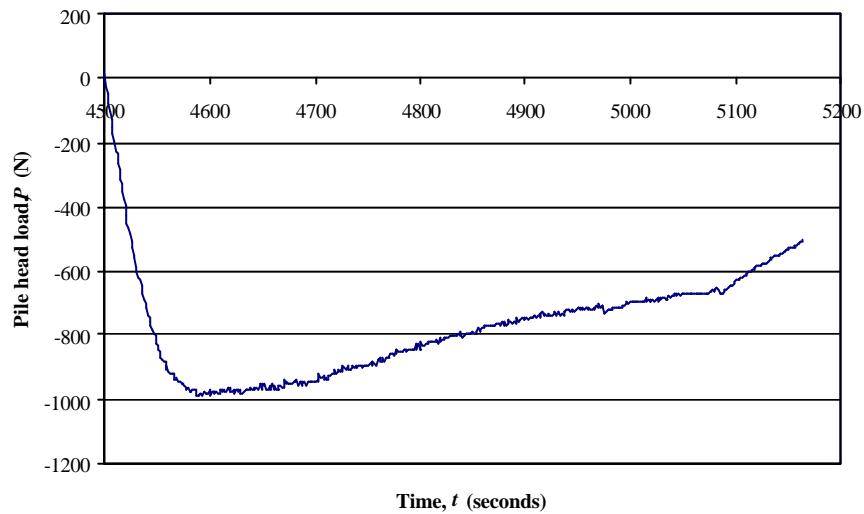


Figure 635 Test T16, Pile head load vs. time (load test 2: tension at L/2)

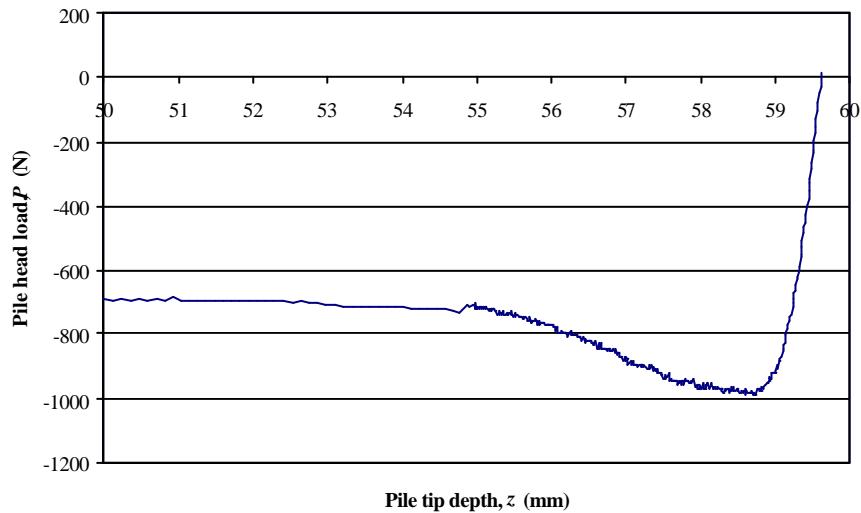


Figure 636 Test T16, Pile head load vs. pile tip depth (load test 2: tension at L/2)

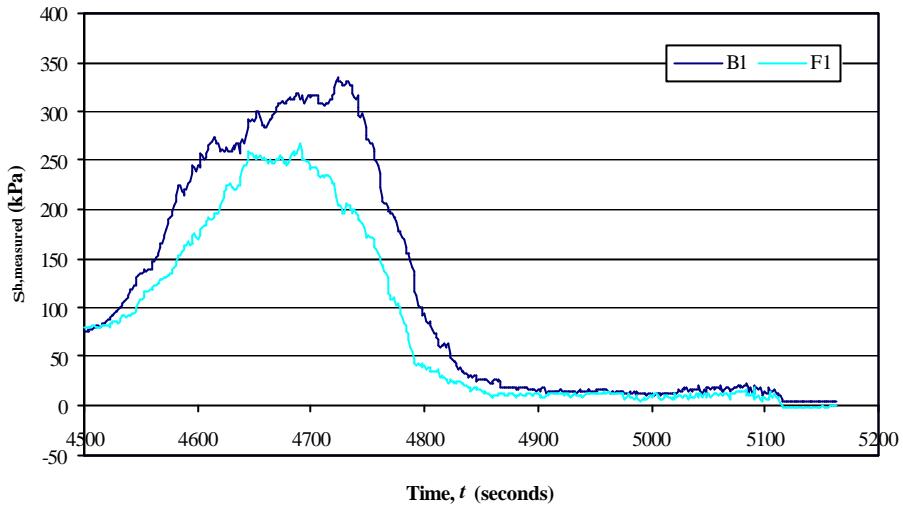


Figure 637 Test T16, B1, F1 pressure cells vs. time (load test 2: tension at L/2)

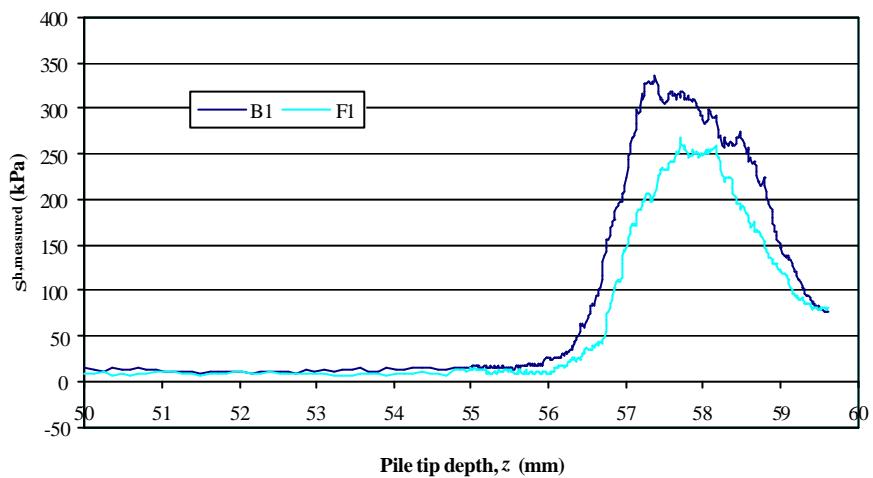


Figure 638 Test T16, B1, F1 pressure cells vs. pile tip depth (load test 2: tension at L/2)

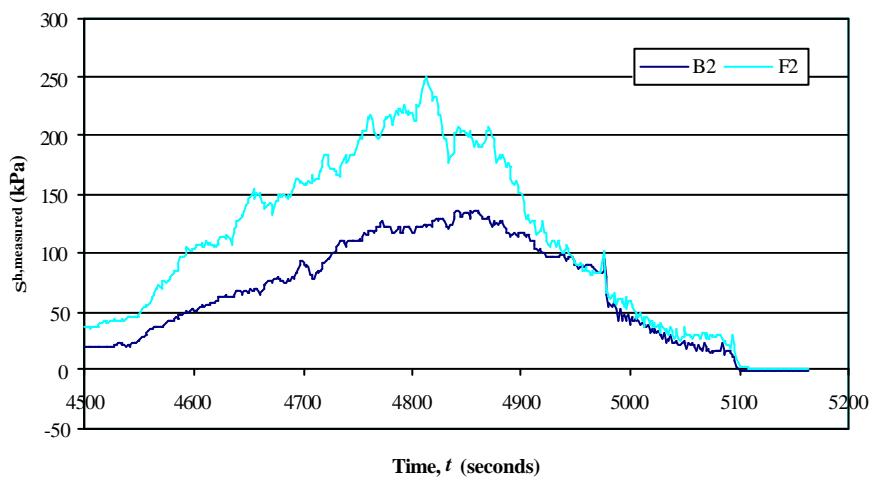


Figure 639 Test T16, B2, F2 pressure cells vs. time (load test 2: tension at L/2)

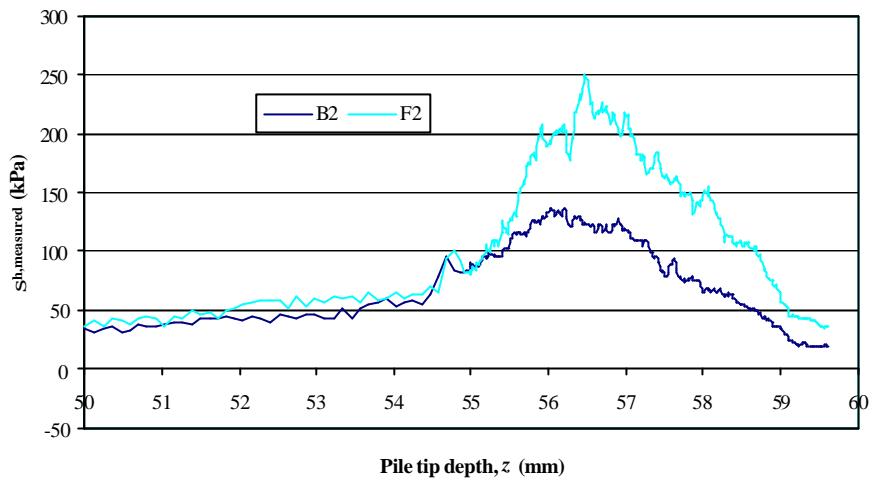


Figure 640 Test T16, B2, F2 pressure cells vs. pile tip depth (load test 2: tension at L/2)

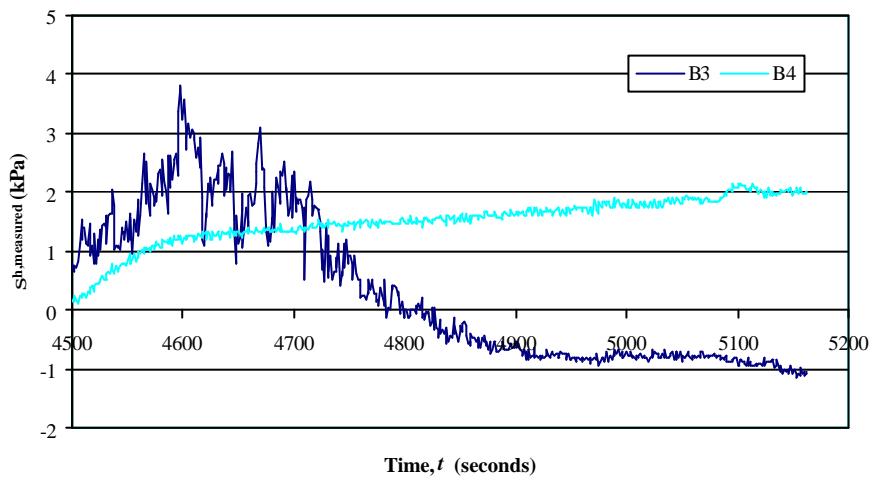


Figure 641 Test T16, B3, B4 pressure cells vs. time (load test 2: tension at L/2)

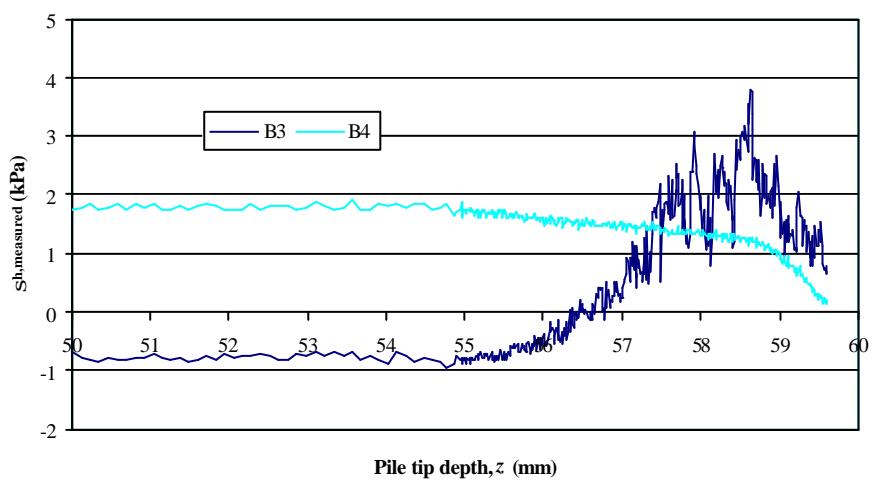


Figure 642 Test T16, B3, B4 pressure cells vs. pile tip depth (load test 2: tension at L/2)

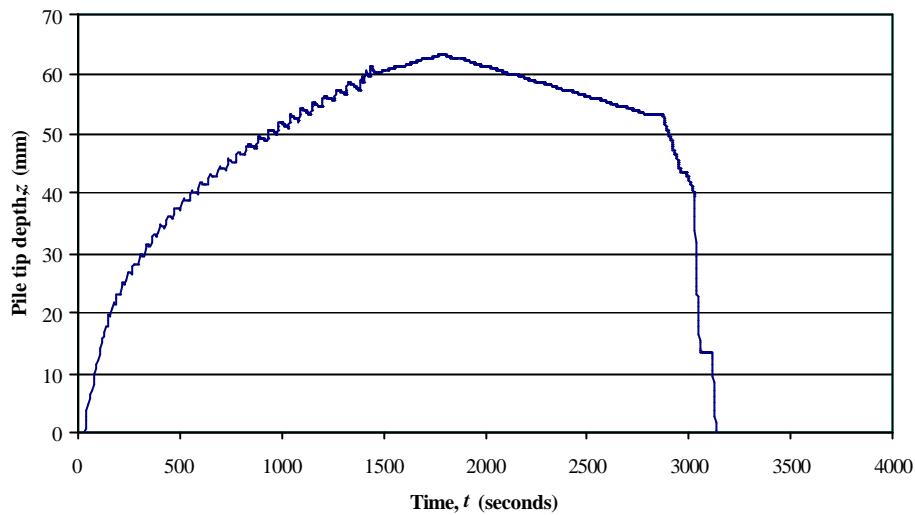


Figure 643 Test T17, Pile tip depth vs. time (entire test)

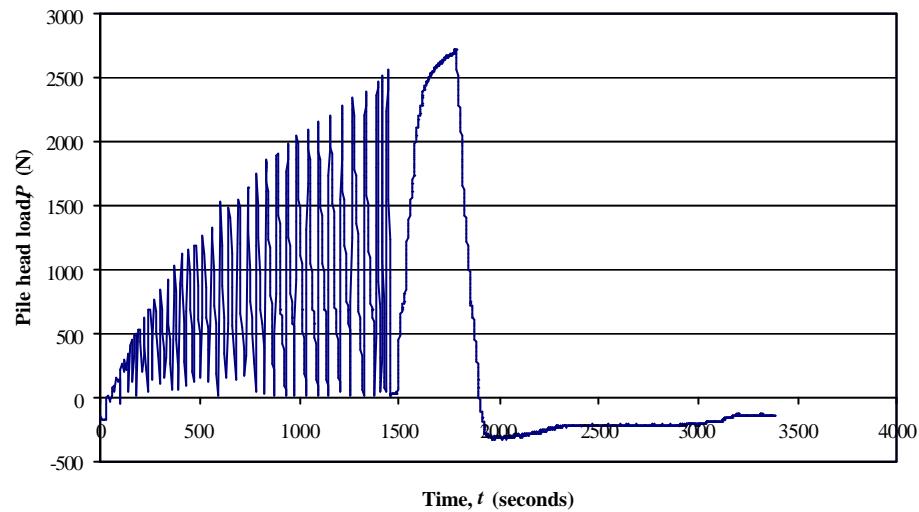


Figure 644 Test T17, Pile head load vs. time (entire test)

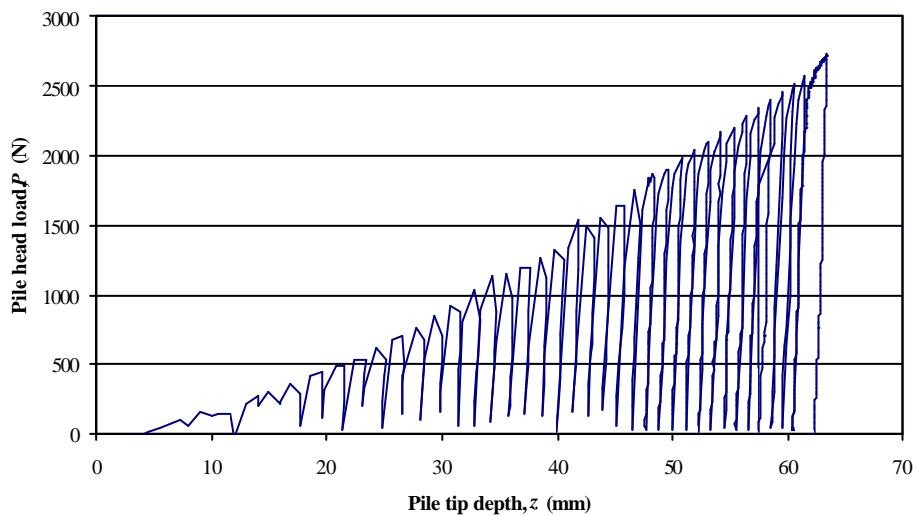


Figure 645 Test T17, Pile head load vs. pile tip depth (entire test)

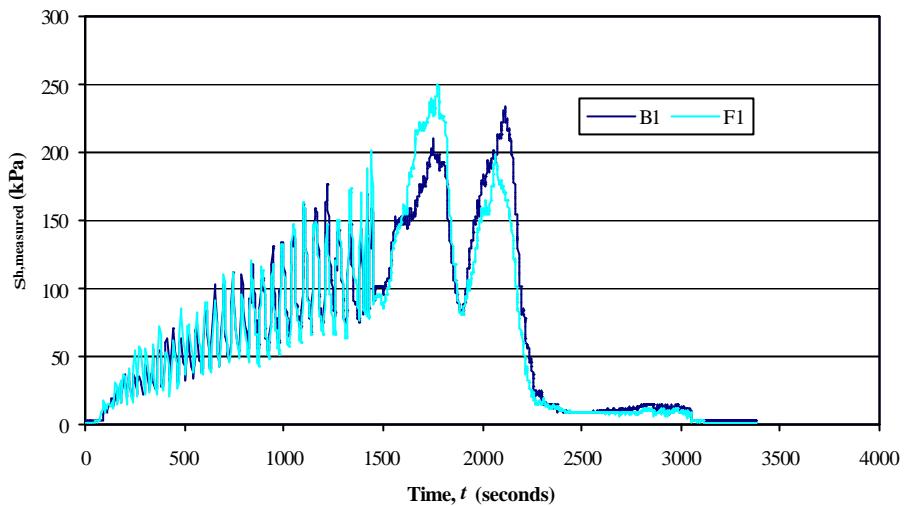


Figure 646 Test T17, B1, F1 pressure cells vs. time (entire test)

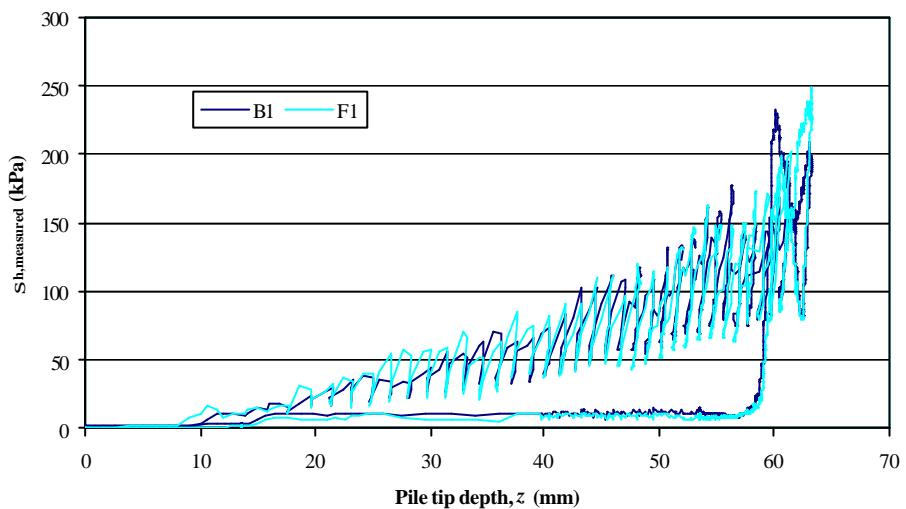


Figure 647 Test T17, B1, F1 pressure cells vs. pile tip depth (entire test)

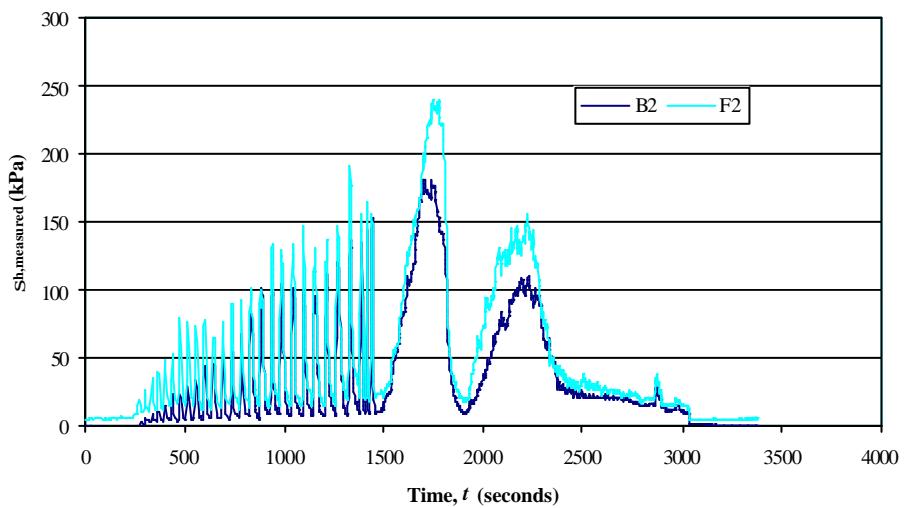


Figure 648 Test T17, B2, F2 pressure cells vs. time (entire test)

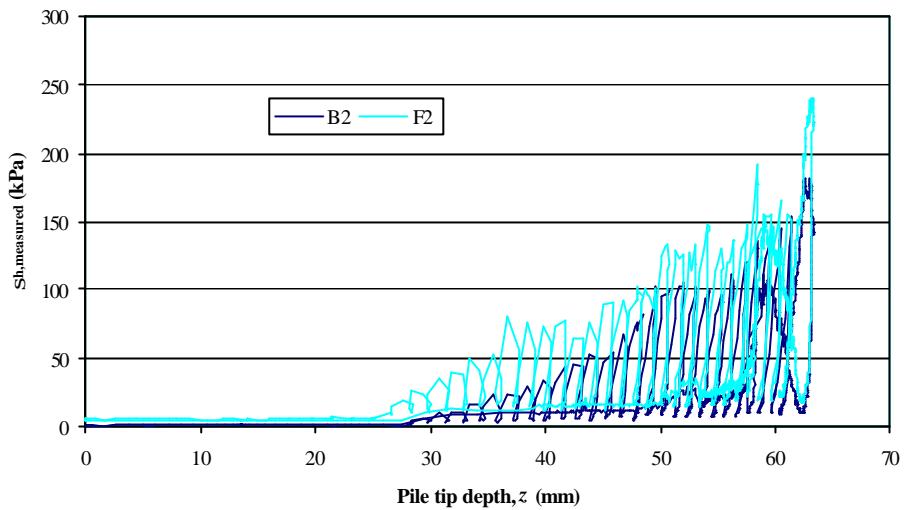


Figure 649 Test T17, B2, F2 pressure cells vs. pile tip depth (entire test)

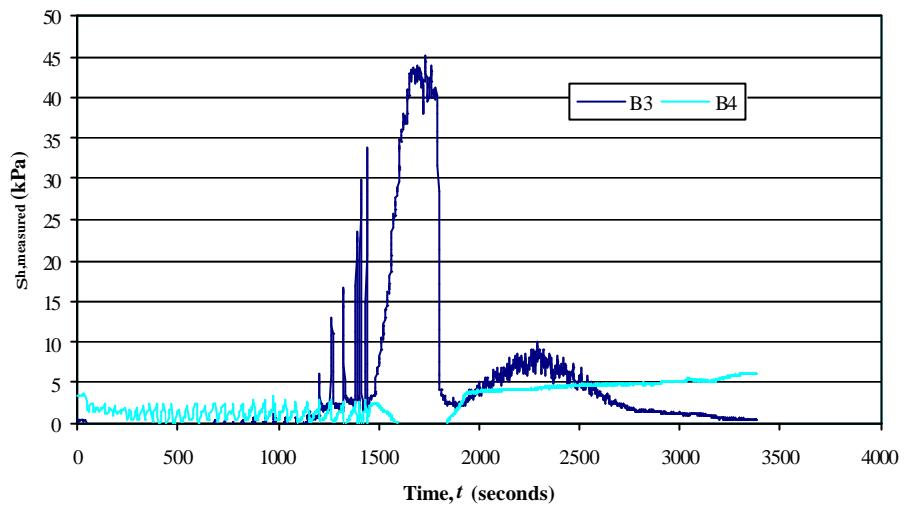


Figure 650 Test T17, B3, B4 pressure cells vs. time (entire test)

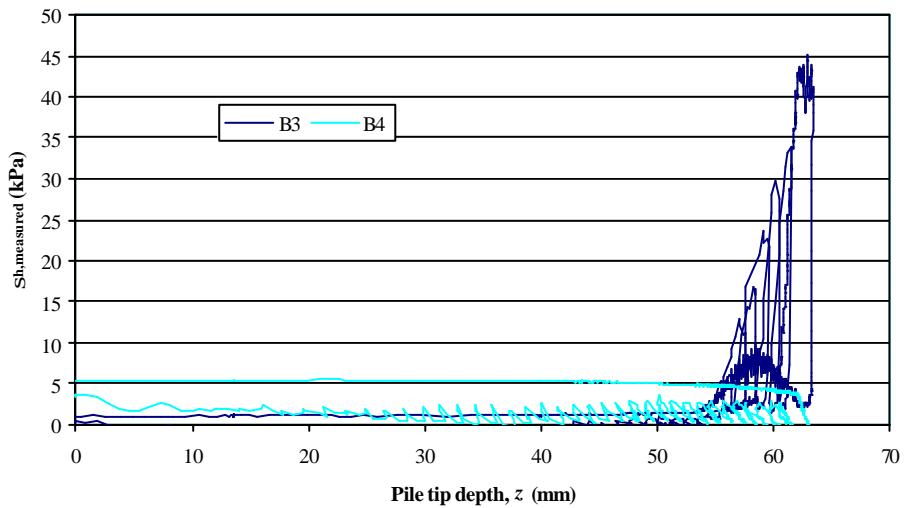


Figure 651 Test T17, B3, B4 pressure cells vs. pile tip depth (entire test)



Figure 652 Test T17, Pile tip depth vs. time (load test 1: compression at L/2)

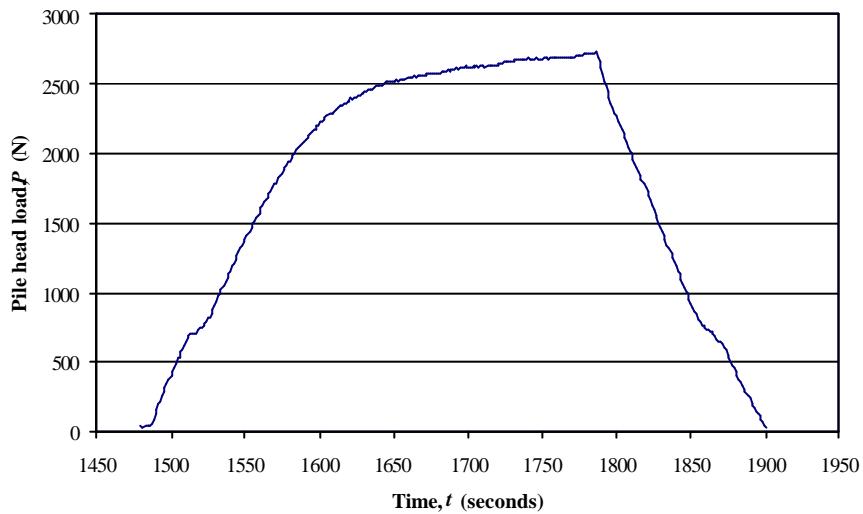


Figure 653 Test T17, Pile head load vs. time (load test 1: compression at L/2)

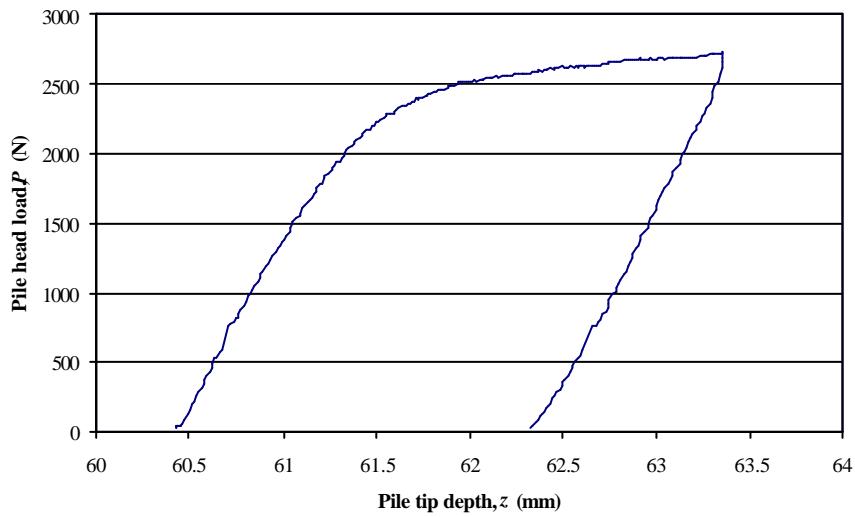


Figure 654 Test T17, Pile head load vs. pile tip depth (load test 1: compression at L/2)

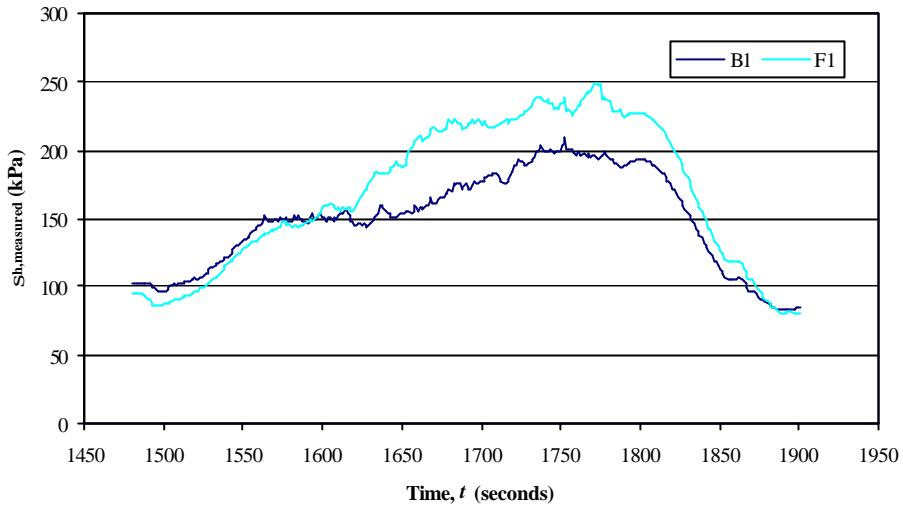


Figure 655 Test T17, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

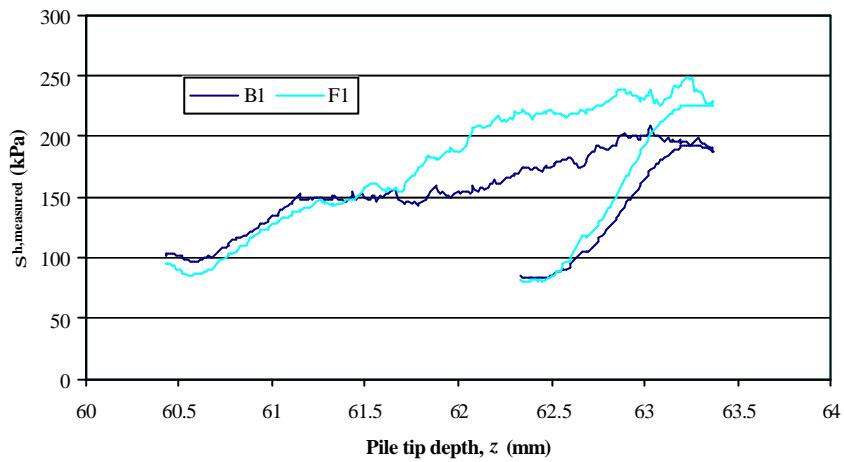


Figure 656 Test T17, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

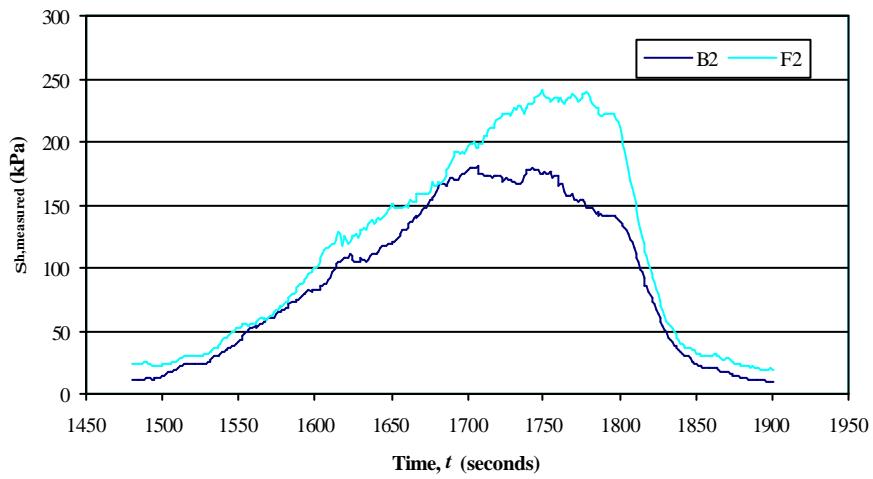


Figure 657 Test T17, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

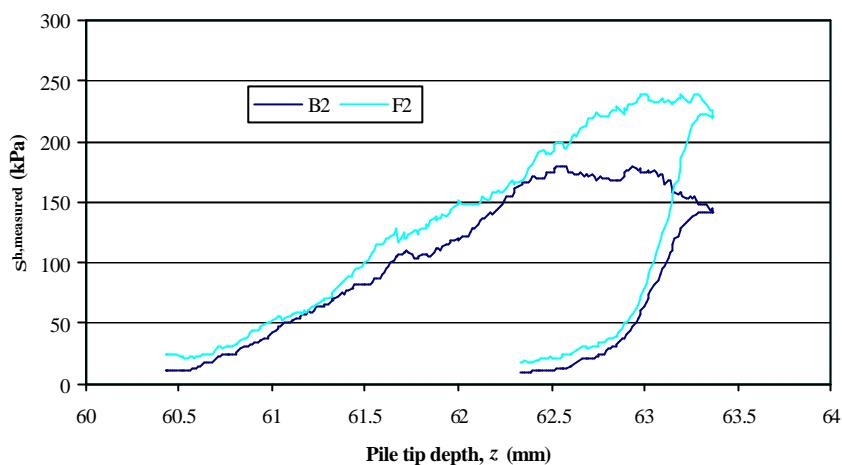


Figure 658 Test T17, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

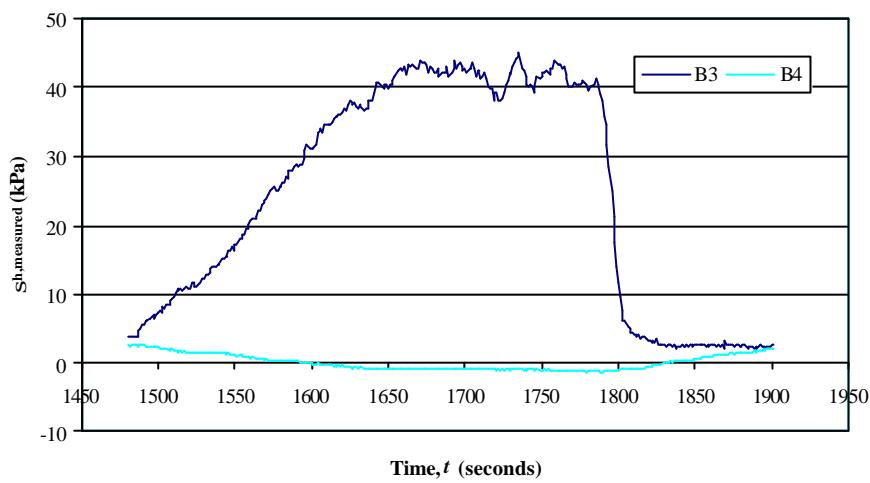


Figure 659 Test T17, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

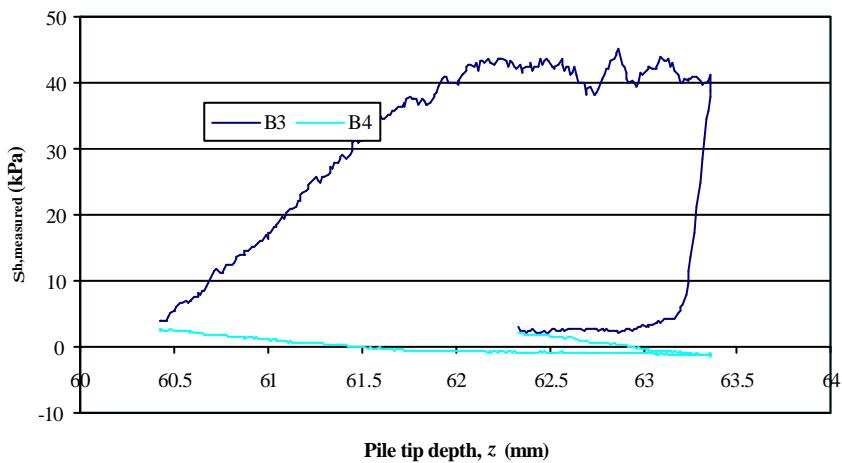


Figure 660 Test T17, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

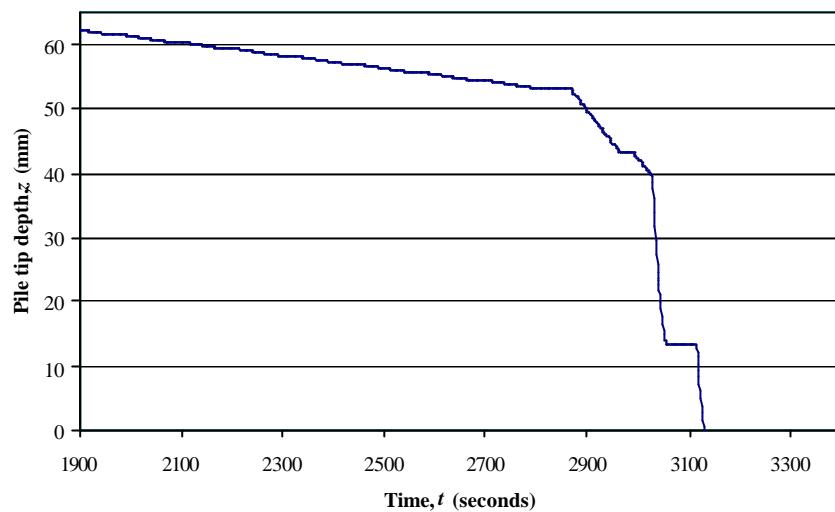


Figure 661 Test T17, Pile tip depth vs. time (load test 2: tension at L/2)

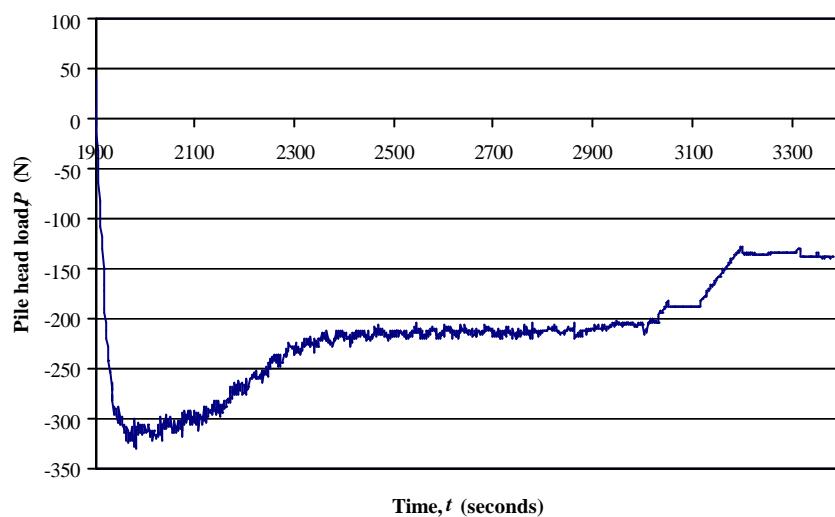


Figure 662 Test T17, Pile head load vs. time (load test 2: tension at L/2)

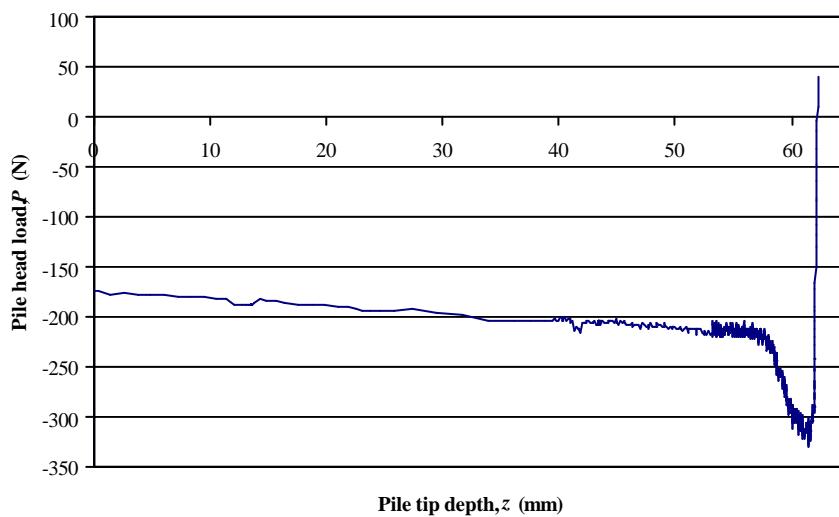


Figure 663 Test T17, Pile head load vs. pile tip depth (load test 2: tension at L/2)

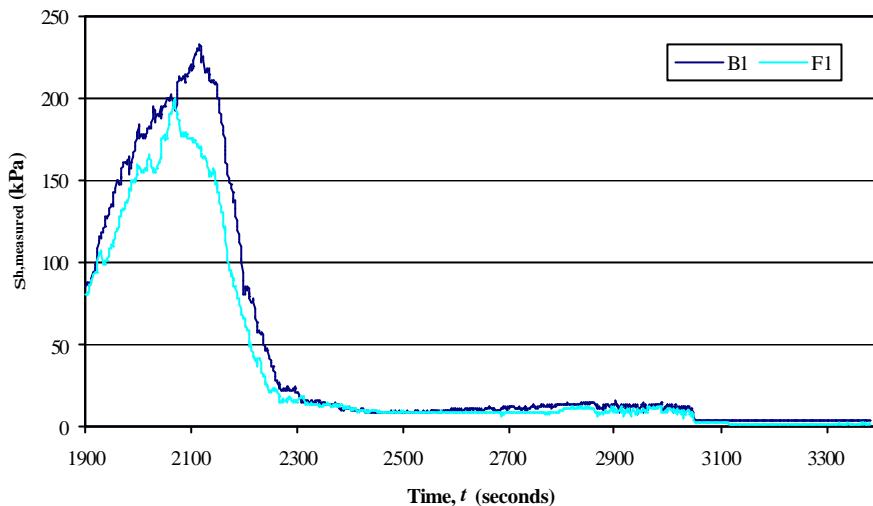


Figure 664 Test T17, B1, F1 pressure cells vs. time (load test 2: tension at L/2)

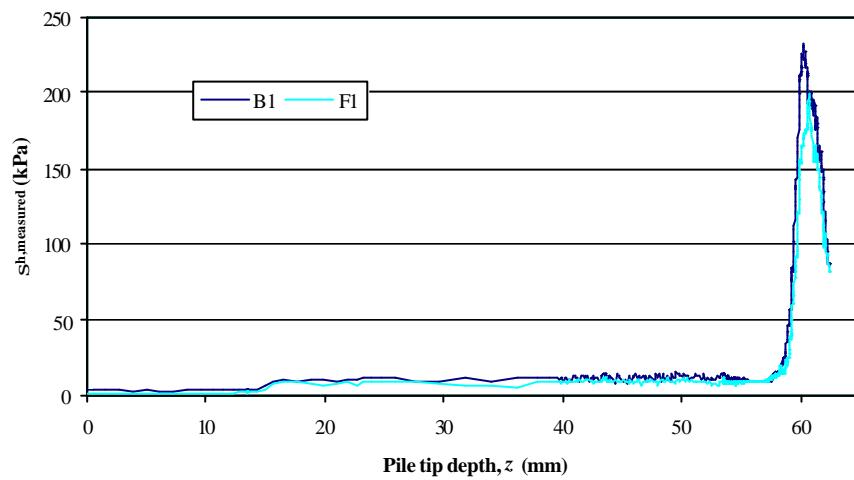


Figure 665 Test T17, B1, F1 pressure cells vs. pile tip depth (load test 2: tension at L/2)

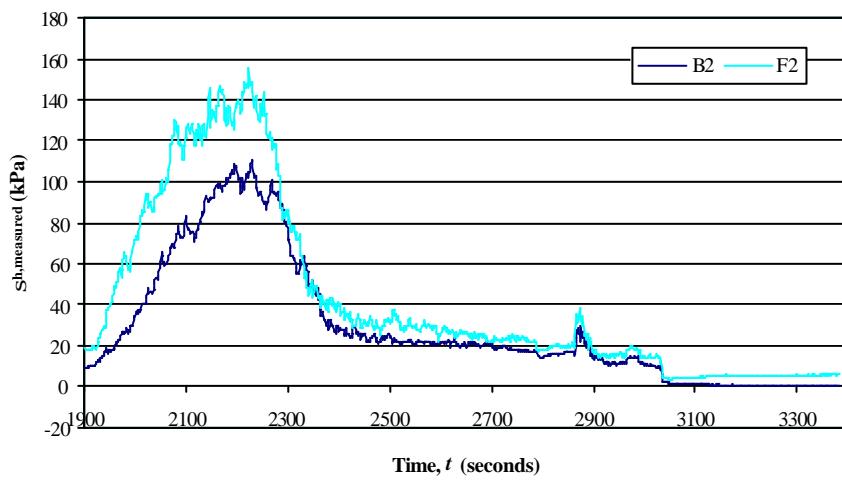


Figure 666 Test T17, B2, F2 pressure cells vs. time (load test 2: tension at L/2)

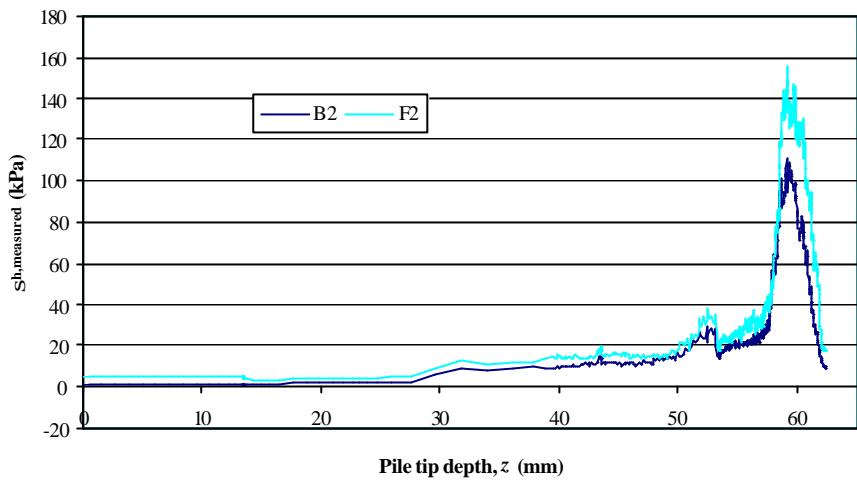


Figure 667 Test T17, B2, F2 pressure cells vs. pile tip depth (load test 2: tension at L/2)

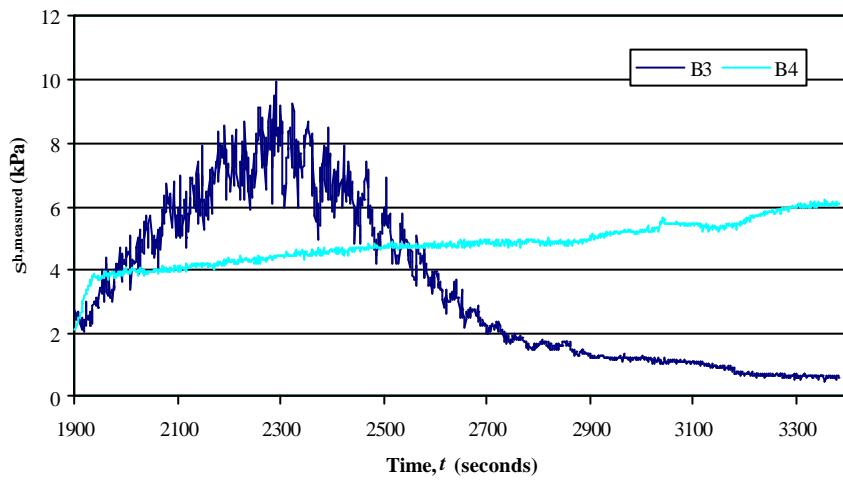


Figure 668 Test T17, B3, B4 pressure cells vs. time (load test 2: tension at L/2)

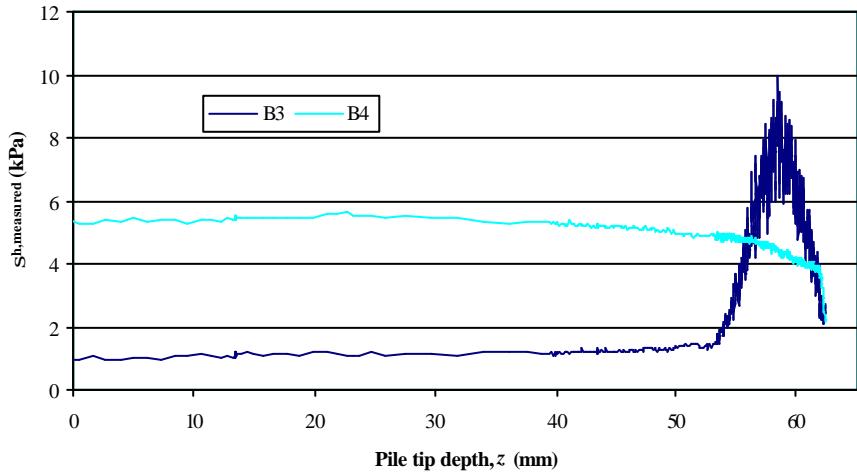


Figure 669 Test T17, B3, B4 pressure cells vs. pile tip depth (load test 2: tension at L/2)

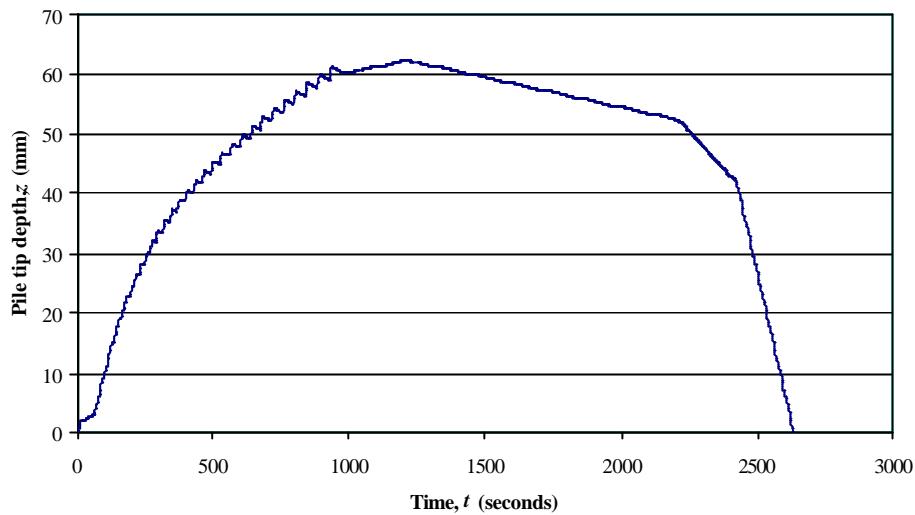


Figure 670 Test T18, Pile tip depth vs. time (entire test)

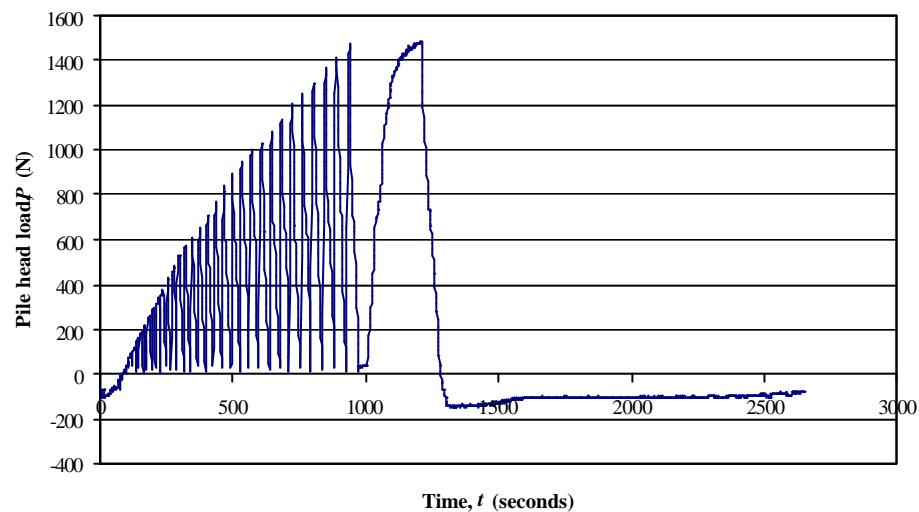


Figure 671 Test T18, Pile head load vs. time (entire test)

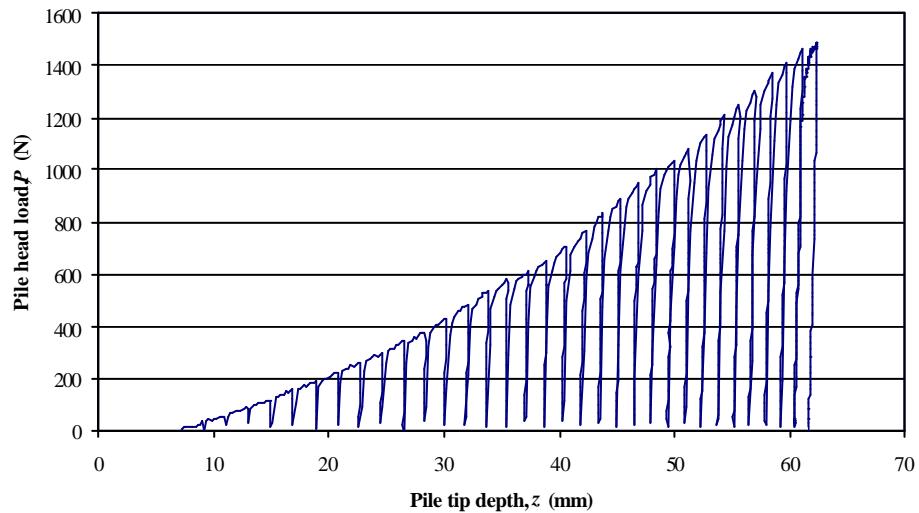


Figure 672 Test T18, Pile head load vs. pile tip depth (entire test)

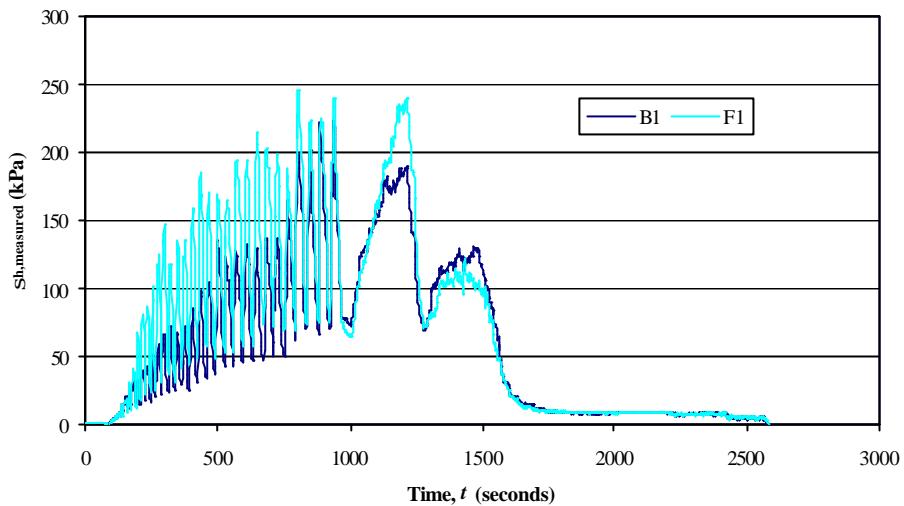


Figure 673 Test T18, B1, F1 pressure cells vs. time (entire test)

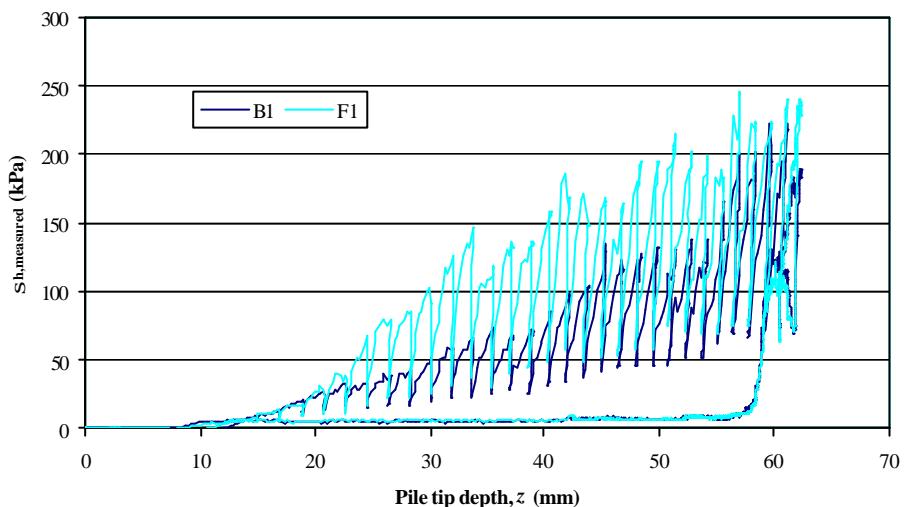


Figure 674 Test T18, B1, F1 pressure cells vs. pile tip depth (entire test)

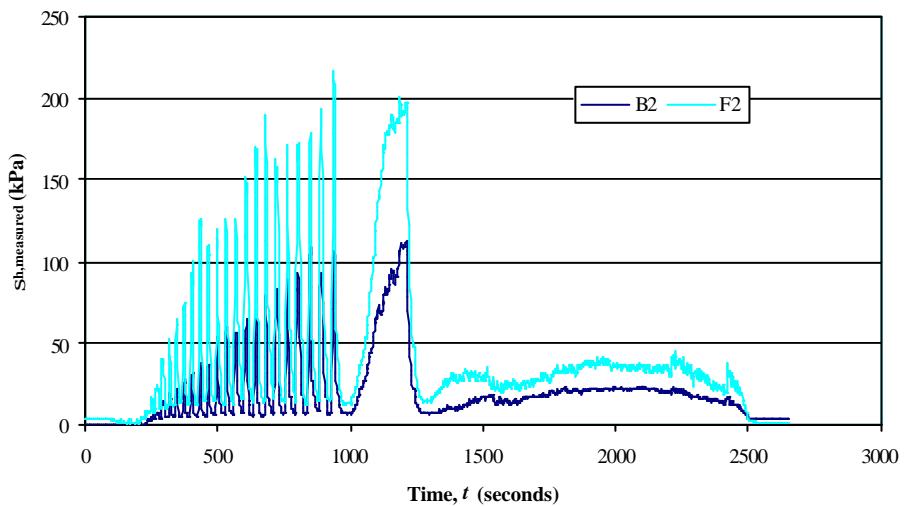


Figure 675 Test T18, B2, F2 pressure cells vs. time (entire test)

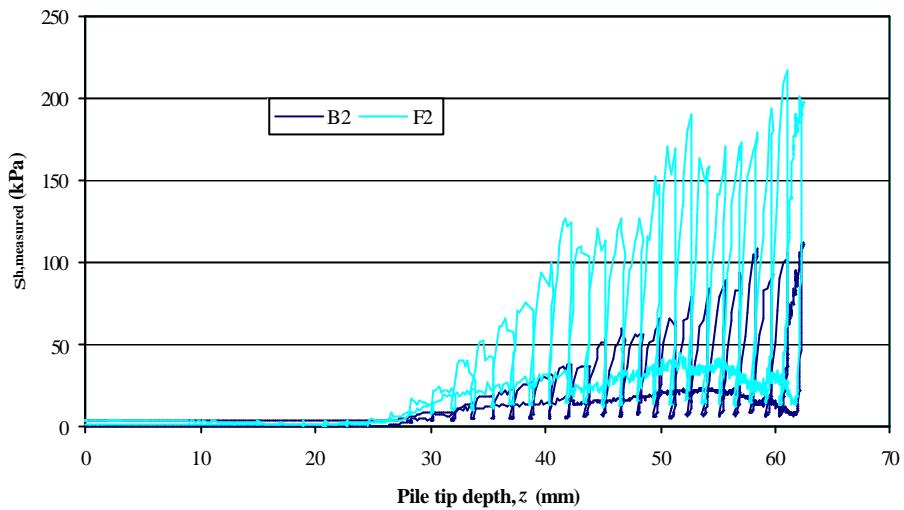


Figure 676 Test T18, B2, F2 pressure cells vs. pile tip depth (entire test)

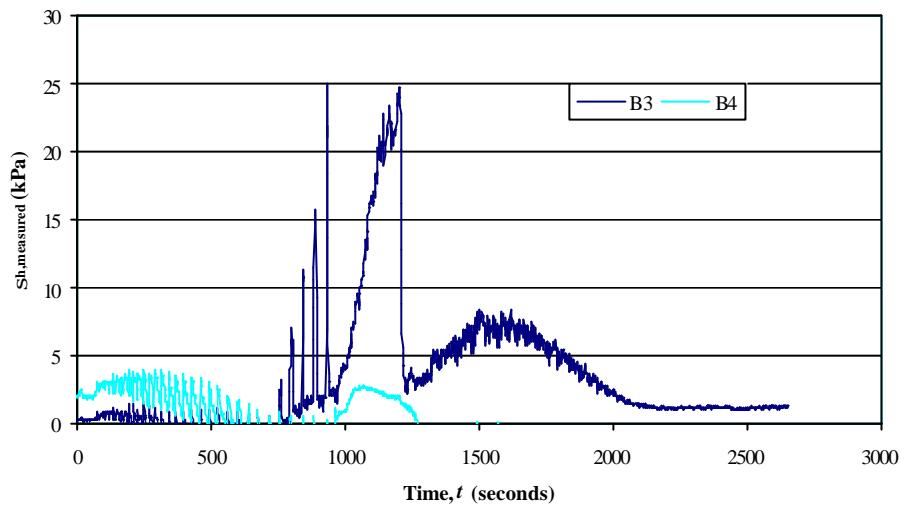


Figure 677 Test T18, B3, B4 pressure cells vs. time (entire test)

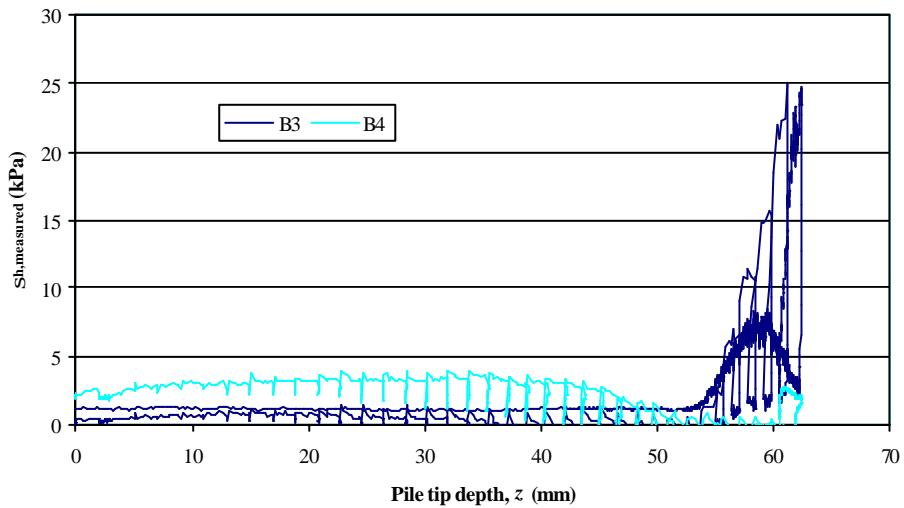


Figure 678 Test T18, B3, B4 pressure cells vs. pile tip depth (entire test)

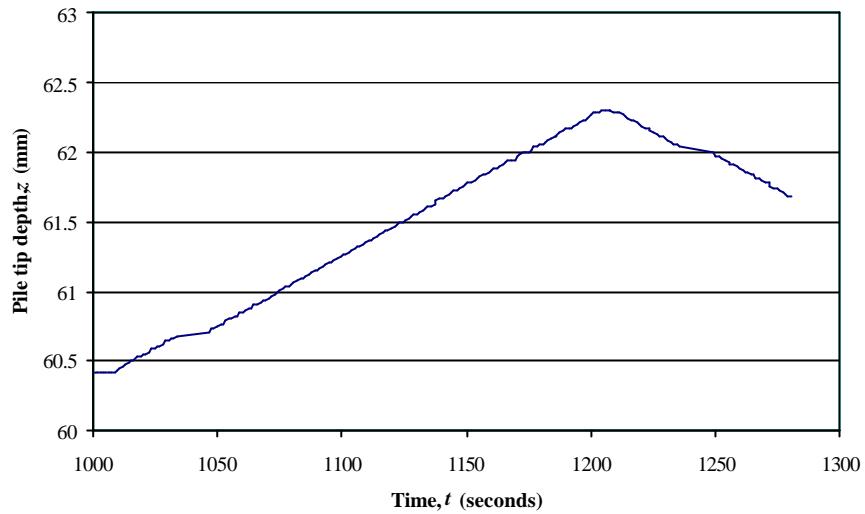


Figure 679 Test T18, Pile tip depth vs. time (load test 1: compression at L/2)

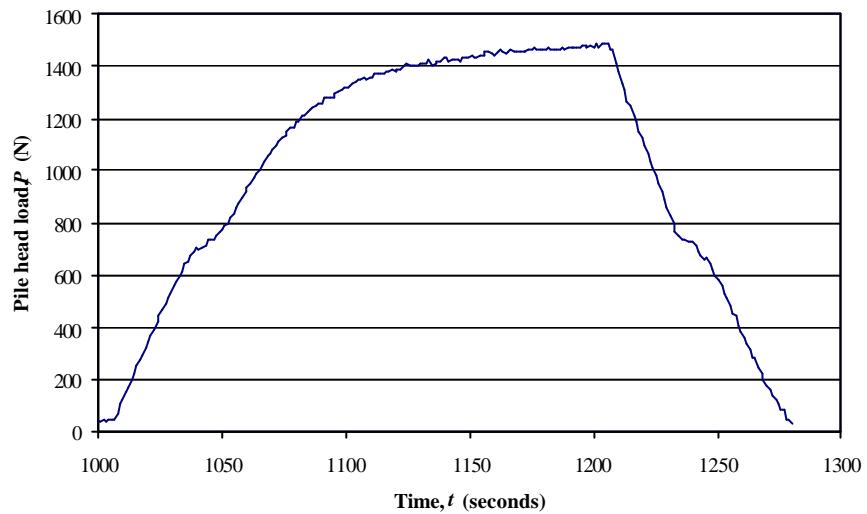


Figure 680 Test T18, Pile head load vs. time (load test 1: compression at L/2)

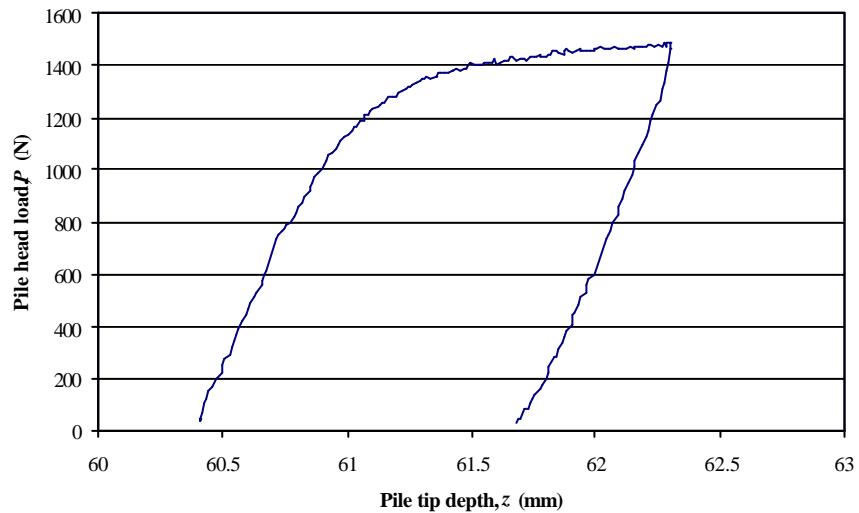


Figure 681 Test T18, Pile head load vs. pile tip depth (load test 1: compression at L/2)

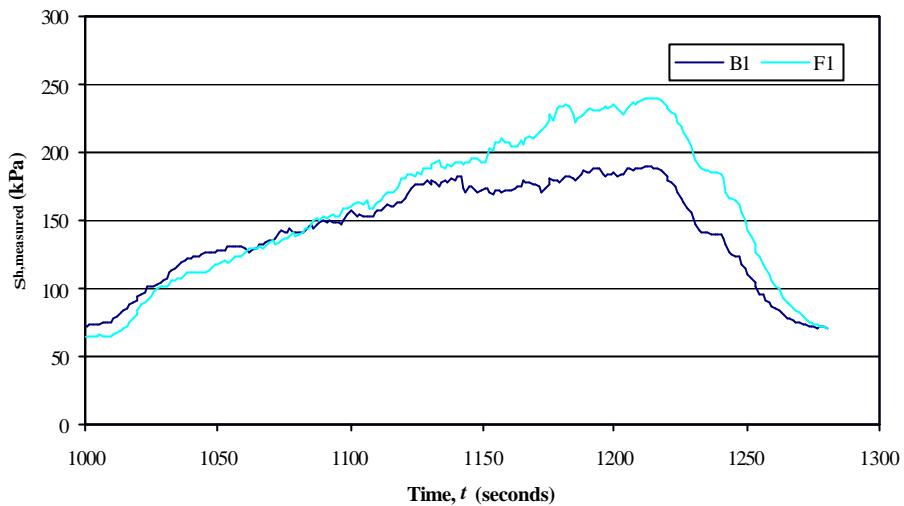


Figure 682 Test T18, B1, F1 pressure cells vs. time (load test 1: compression at L/2)

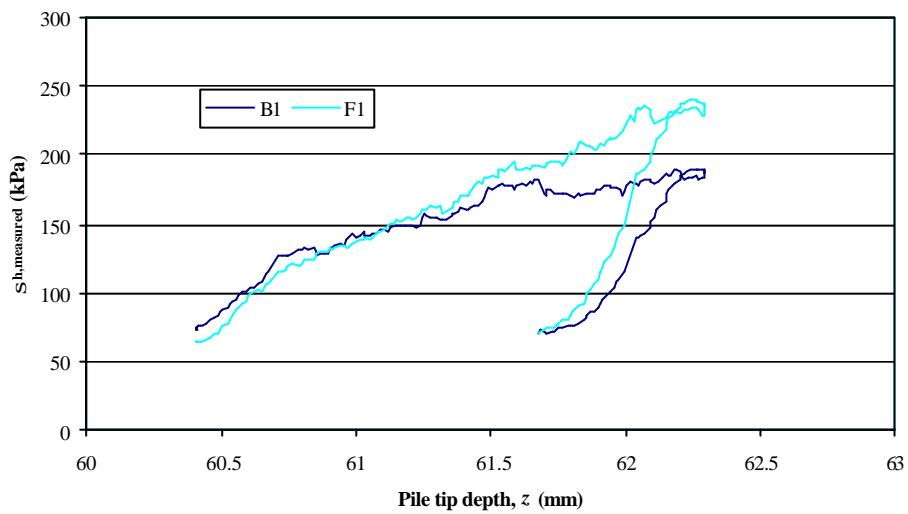


Figure 683 Test T18, B1, F1 pressure cells vs. pile tip depth (load test 1: compression at L/2)

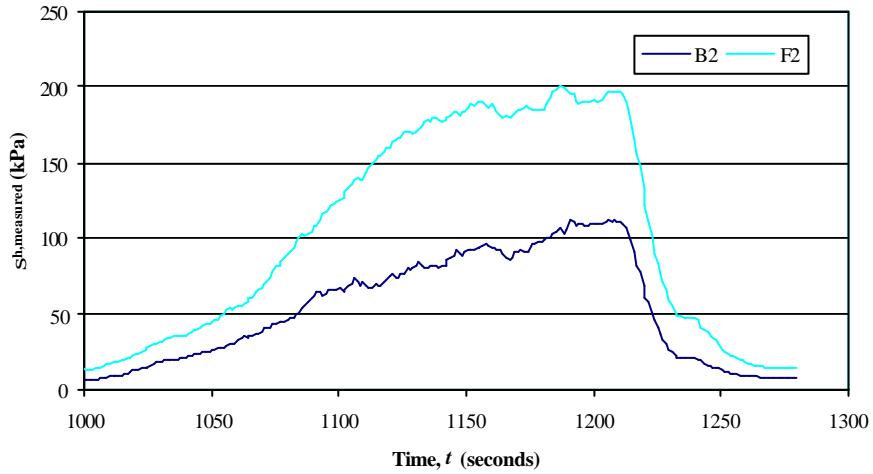


Figure 684 Test T18, B2, F2 pressure cells vs. time (load test 1: compression at L/2)

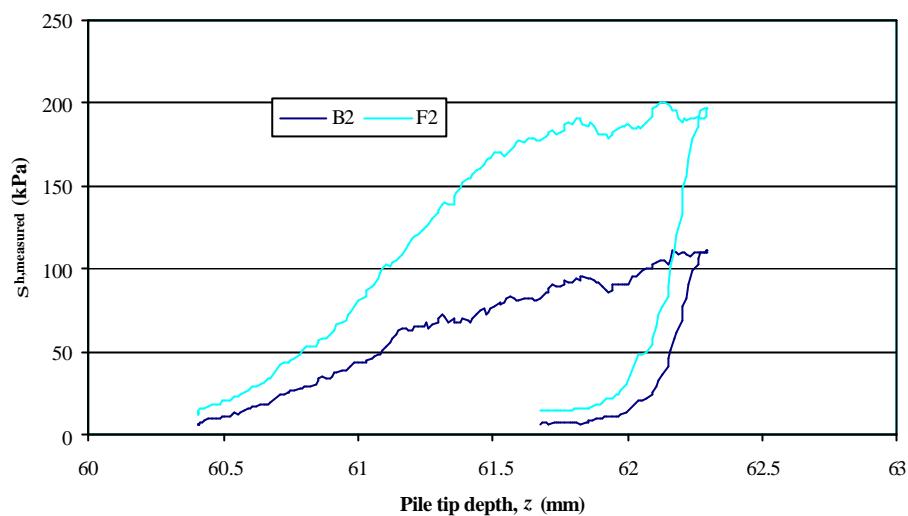


Figure 685 Test T18, B2, F2 pressure cells vs. pile tip depth (load test 1: compression at L/2)

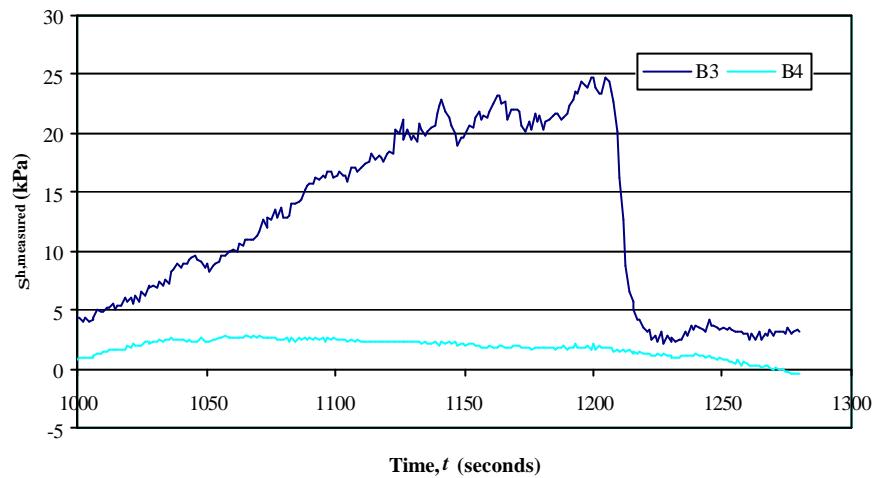


Figure 686 Test T18, B3, B4 pressure cells vs. time (load test 1: compression at L/2)

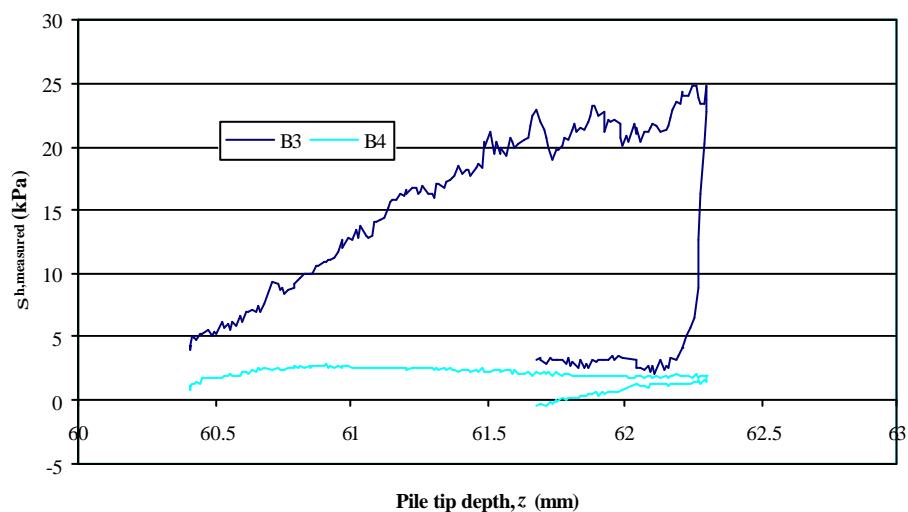


Figure 687 Test T18, B3, B4 pressure cells vs. pile tip depth (load test 1: compression at L/2)

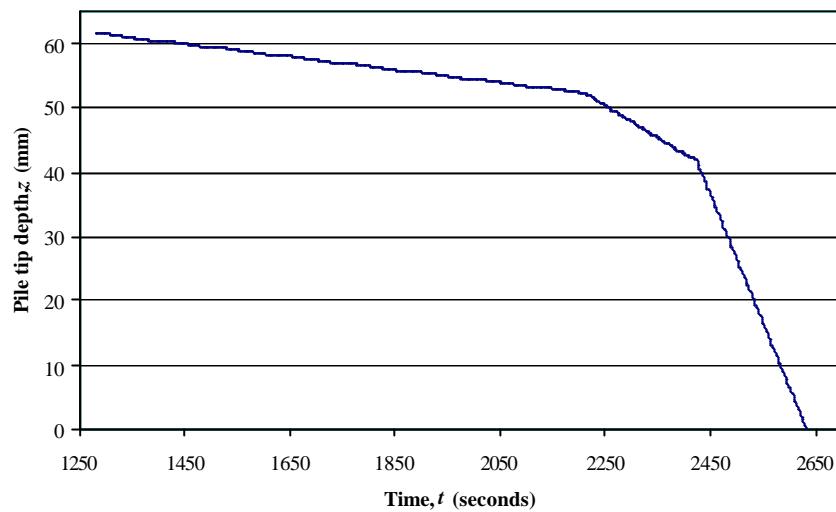


Figure 688 Test T18, Pile tip depth vs. time (load test 2: tension at L/2)

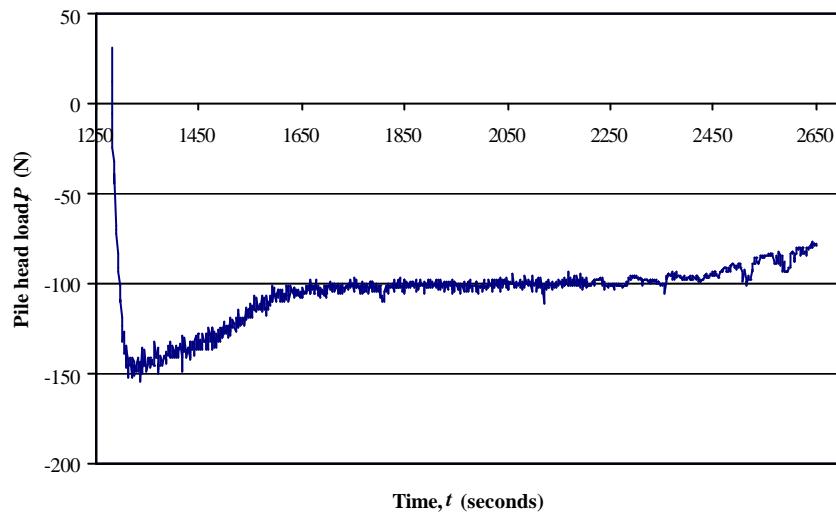


Figure 689 Test T18, Pile head load vs. time (load test 2: tension at L/2)

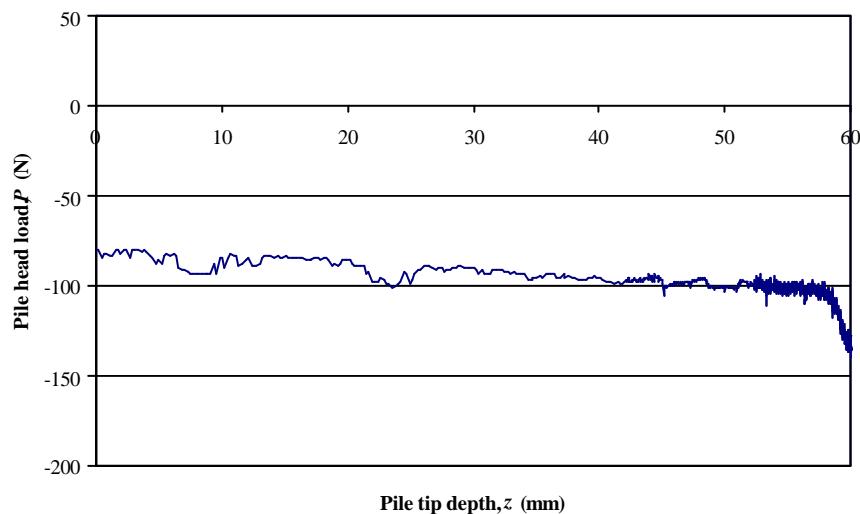


Figure 690 Test T18, Pile head load vs. pile tip depth (load test 2: tension at L/2)

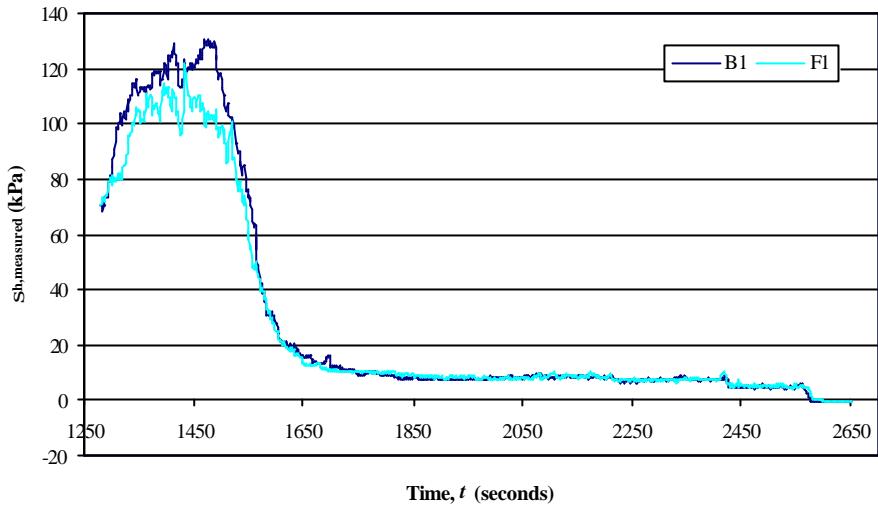


Figure 691 Test T18, B1, F1 pressure cells vs. time (load test 2: tension at L/2)

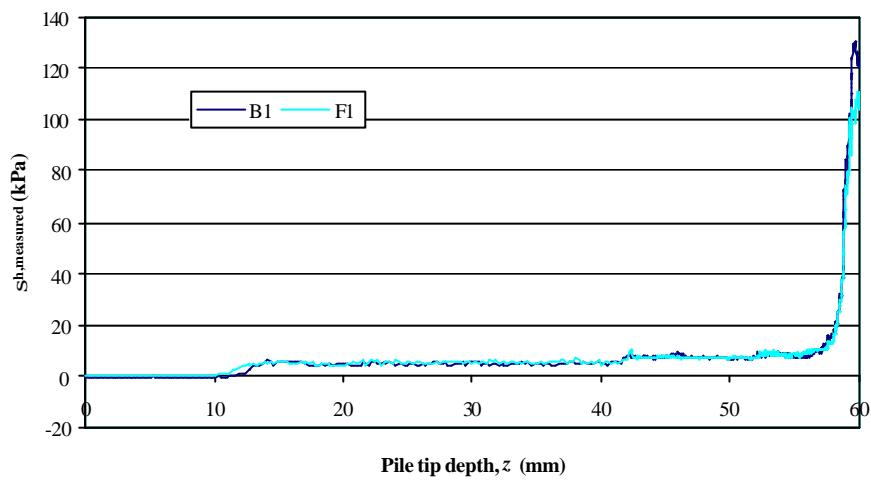


Figure 692 Test T18, B1, F1 pressure cells vs. pile tip depth (load test 2: tension at L/2)

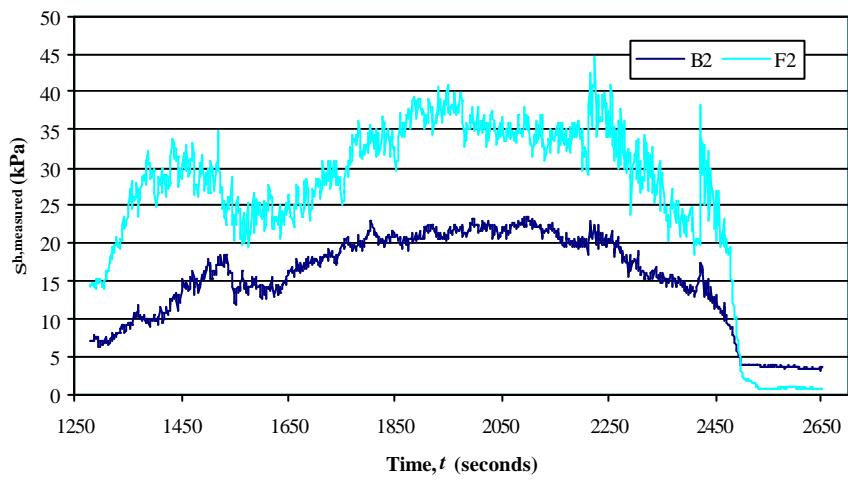


Figure 693 Test T18, B2, F2 pressure cells vs. time (load test 2: tension at L/2)

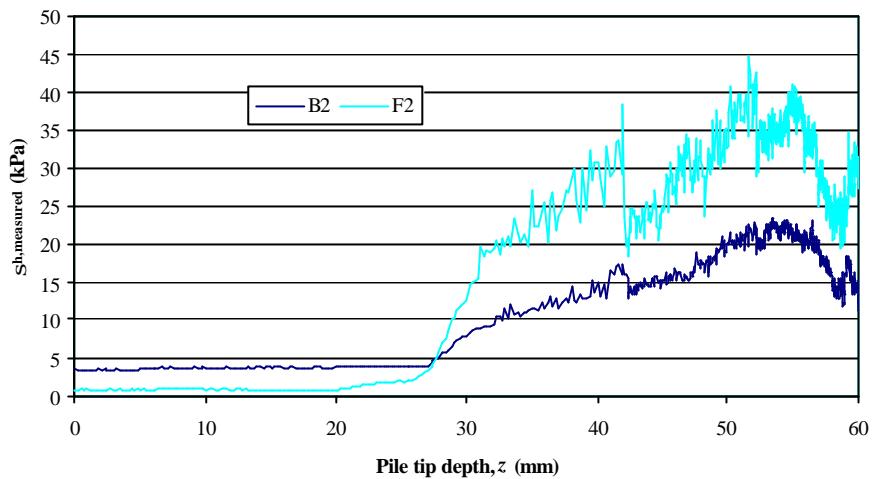


Figure 694 Test T18, B2, F2 pressure cells vs. pile tip depth (load test 2: tension at L/2)

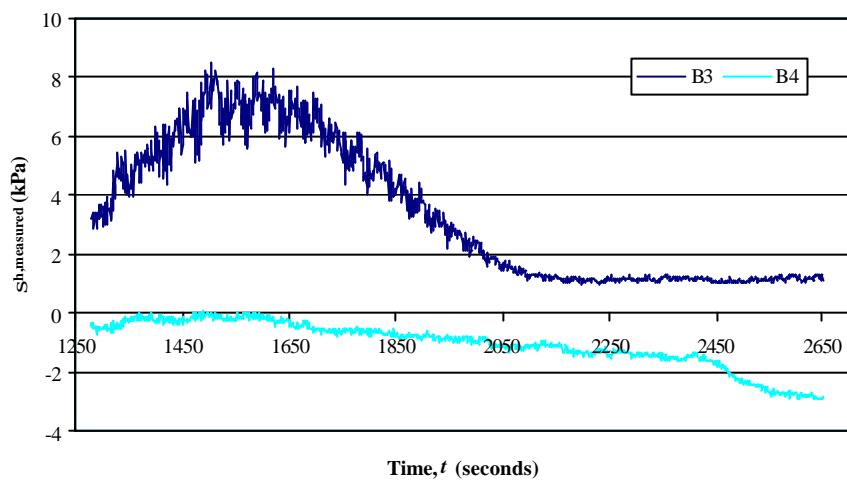


Figure 695 Test T18, B3, B4 pressure cells vs. time (load test 2: tension at L/2)

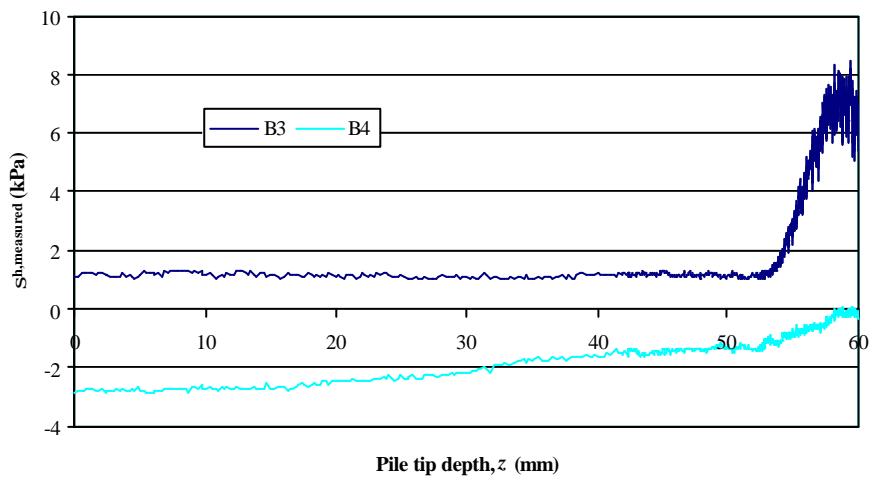


Figure 696 Test T18, B3, B4 pressure cells vs. pile tip depth (load test 2: tension at L/2)