

**31 Kip MICROPILE LOAD TEST REPORT
40 Kip PILE MICROPILE LOAD TEST REPORT
469 East 147th Street, Bronx, NY**

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1. INTRODUCTION

Two (2) Micro Pile Quick Load Tests in accordance with New York City Building Code and ASTM D 1143, were performed by Procomm Systems, Inc. The Pile Load Tests were inspected by Demerara Engineering, PLLC. Load Test 1 was conducted on Micro Pile TP1 on February 23rd thru February 24th 2015 and Load Test 2 on Micro Pile TP-2 on February 26th thru February 27th 2015. The Test Piles were loaded to twice the design load, with Test Loads of 62 Kips and 80 Kips used for Load Test 1 and Load Test 2 respectively. Both of the load tests attained the Pile Load Design Capacity in accordance with the requirements of the NYC Building code 2014 Edition.

The intent of the Pile Design Engineer of Record, is to use the higher design load capacity of 40 Kips with a corresponding Soil Bond Zone of 26 feet as attained from the results of Load Test 2, The Test Piles performed as Micro Piles attaining their design strength from Side Friction only. Production Piles shall therefore be installed to a depth similar to that of Test Pile TP-2.

The Loading Frame for the test consisted of structural steel girders initially resting on timber cribbing. 4 Reaction Piles were utilized to allow the applied axial load to be transferred from the Load Jack to the Test Pile. The load test utilized a calibrated Load Jack, Serial No.: WB988 to apply and maintain the Test Load incrementally.

Three (3) Dial Gauges were set up radially on a reference frame to measure the vertical movements of the pile as the test progressed. The Dial Gauge readings were used as the primary monitoring for the Load Test. Dial gauge readings are plotted in Appendix I.

A Piano wire was installed with a steel measuring gauge and was monitored for pile settlement for each load increment. The piano wire readings were of the same order of magnitude as the Dial Gauges. Optical Survey Readings were performed to establish a bench mark on the site and to monitor the reference frame, the reaction piles and thus ensure that there was no movement of the referenced items during the load test. The results of the optical survey revealed no movement of the reference frame or the reaction piles.

Elastic shortening of the pile was calculated as 0.0454 inches. The structural capacity was determined to be 126 Tons Allowable Load therefore the Pile Load Test Capacity of 40 Tons and 31 Tons represent the Working Pile Capacity.

Table 1 - TEST PILE DATA SUMMARY

PILE DESIGNATION	PILE BOND ZONE DEPTH (Feet)	AXIAL LOAD DESIGN CAPACITY (Kips)	COMMENTS
TP-1	18	31 Kips	Pile Annulus formed by the grouting of an approx. 12ö dia. With 4000 psi grout
TP-1	26	40 kips	Pile Annulus formed by the grouting of an approx. 12ö dia. With 4000 psi grout

The piles used for the load test, can be described as Stelcor Part # SC 1200-14128 5.50ö X 0.304 W Drilled-In Displacement MicroPiles. See Appendix B for details of the Test Pile.

2. LOAD TEST SUMMARY

Axial compression loading was applied to the two (2) MicroPiles that were Load Tested, using a Calibrated Load Jack with Gauge Serial No. WB988. The capacity of the Jack is 10,000 psi, and it possess a four (4ö) inch dial. The Gauge Certification was dated 3/6/15. See Appendix V for the calibration data verification.

3. SETTLEMENT SUMMARY OF TEST PILES

3.1 Test Pile TP-1

The 31 Kip Design Load, 62 Kip Test Load Test Micro Pile TP-1 showed a total settlement of 0.1197 inches after the full test load was applied. The pile settled to 0.1437 inches at the end of the 12 hour Test Load Hold Period.

After TP-2 was unloaded a 24 hour rebound reading was recorded for a settlement of 0.1177 inches.

3.2 Pile TP-2

The 40 Kip Design Load, 80 Kip Test Load for MicroPile TP-2 showed a total settlement 0.0117 inches after the full 80Ton Test Load was applied. The pile settled to 0.1287 inches at the end of the 12 hour Test Load Hold Period.

After TP-2 was unloaded settlement recovered to 0.0530 inches, and a 24 hour rebound reading was revealed a settlement of 0.0720 inches.

4. ACCECPTANCE OF TEST PILES

The Pile load tests were conducted in accordance with the requirements of the 2014 NYC Building Code.

For Test Pile 1 the Test Load = 62 Kips did not produce a net settlement, with a value equal to or greater than $\frac{3}{4}$ ".

Design capacity of the Pile shall be 50% of the Test Load of 62 Kips which is equal to a design load capacity of 31Kips.

If a 31 Kip MicroPile is used as the Production Pile, a minimum Soil Bond Zone of 18 feet is required.

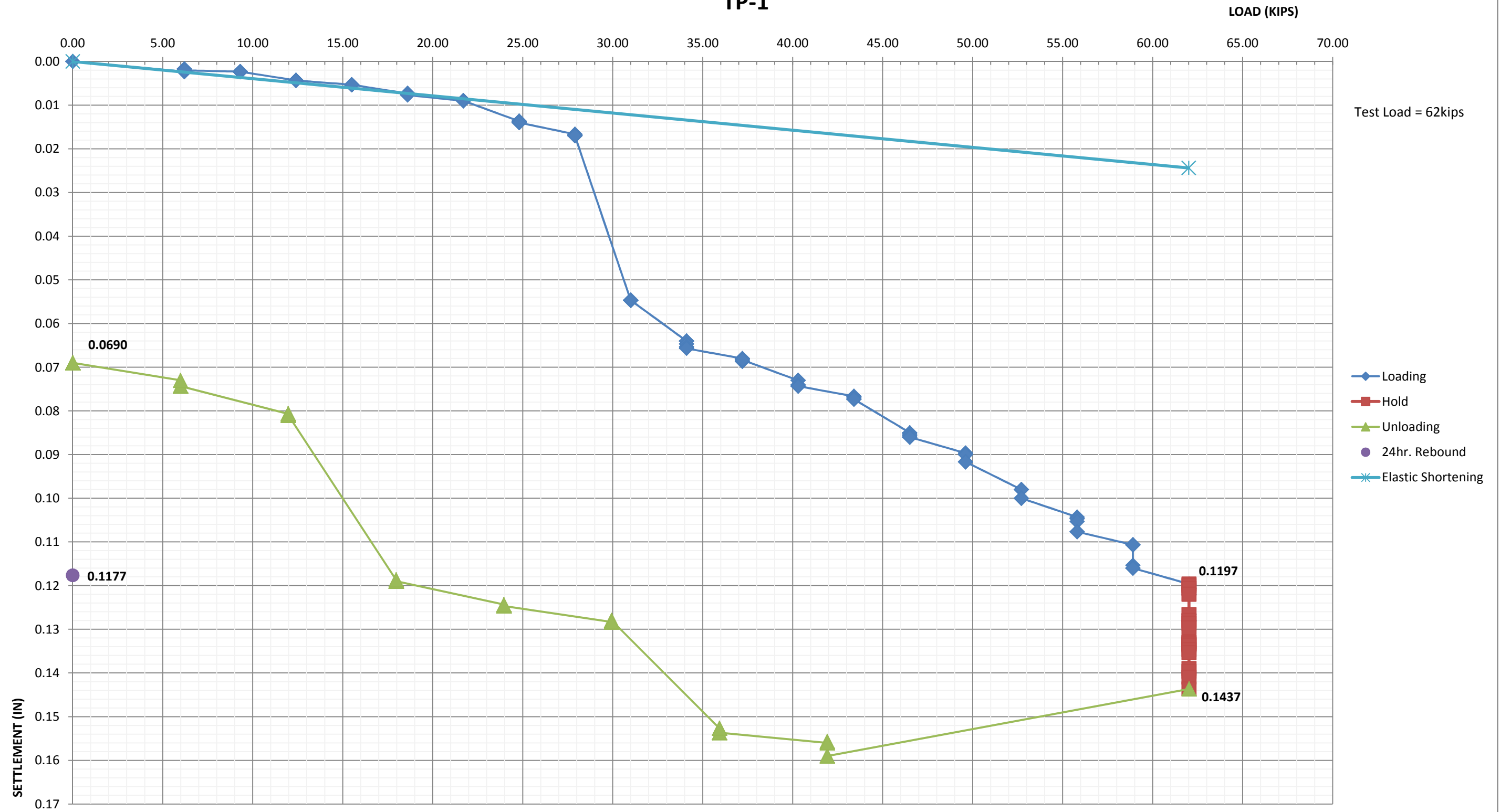
For Test Pile 2 the Test Load = 80 Kips did not produce a net settlement of a value equal to or greater than $\frac{3}{4}$ ".

The Design Capacity of the Pile shall be 50% of the Test Load of 80 Kips, which is equal to a design load capacity of 40 Kips

If the 40 Kip MicroPile is used as the Production Pile, a minimum Soil Bond Zone of 27 feet is required

**APPENDIX I – LOAD SETTLEMENT DISTRIBUTION FOR TEST PILES
TP-1 AND TP-2**

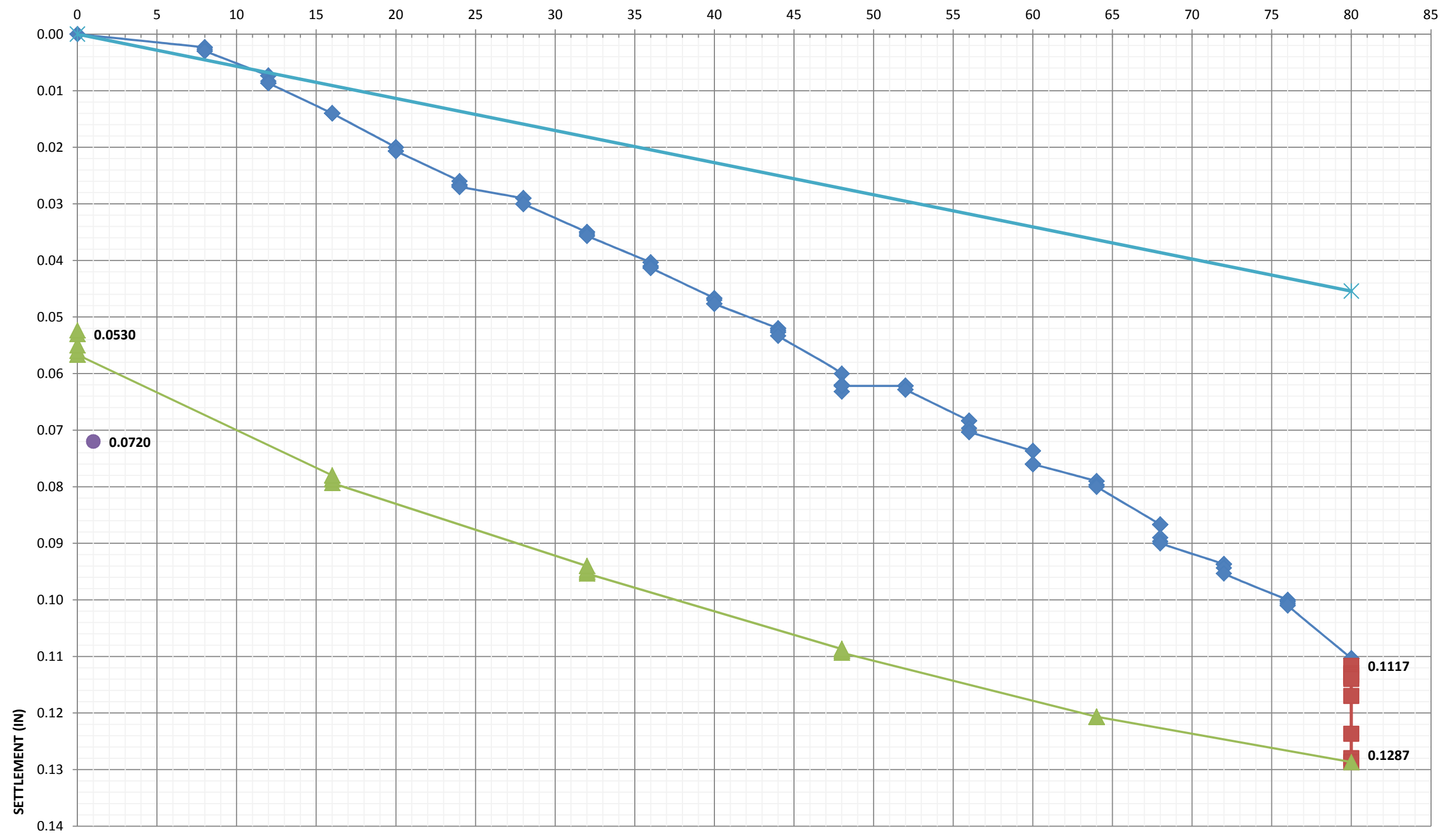
469 E147th STREET BRONX, NY
61Kip PILE QUICK LOAD TEST
TP-1



469 E147th STREET BRONX, NY
80Kip PILE QUICK LOAD TEST
TP-2

LOAD (KIPS)

Test Load = 80kips



- ◆ Loading
- Hold
- ▲ Unloading
- 24hr. Rebound
- * Elastic Shortening