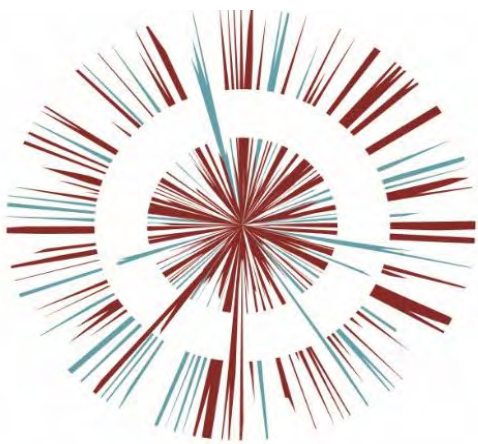




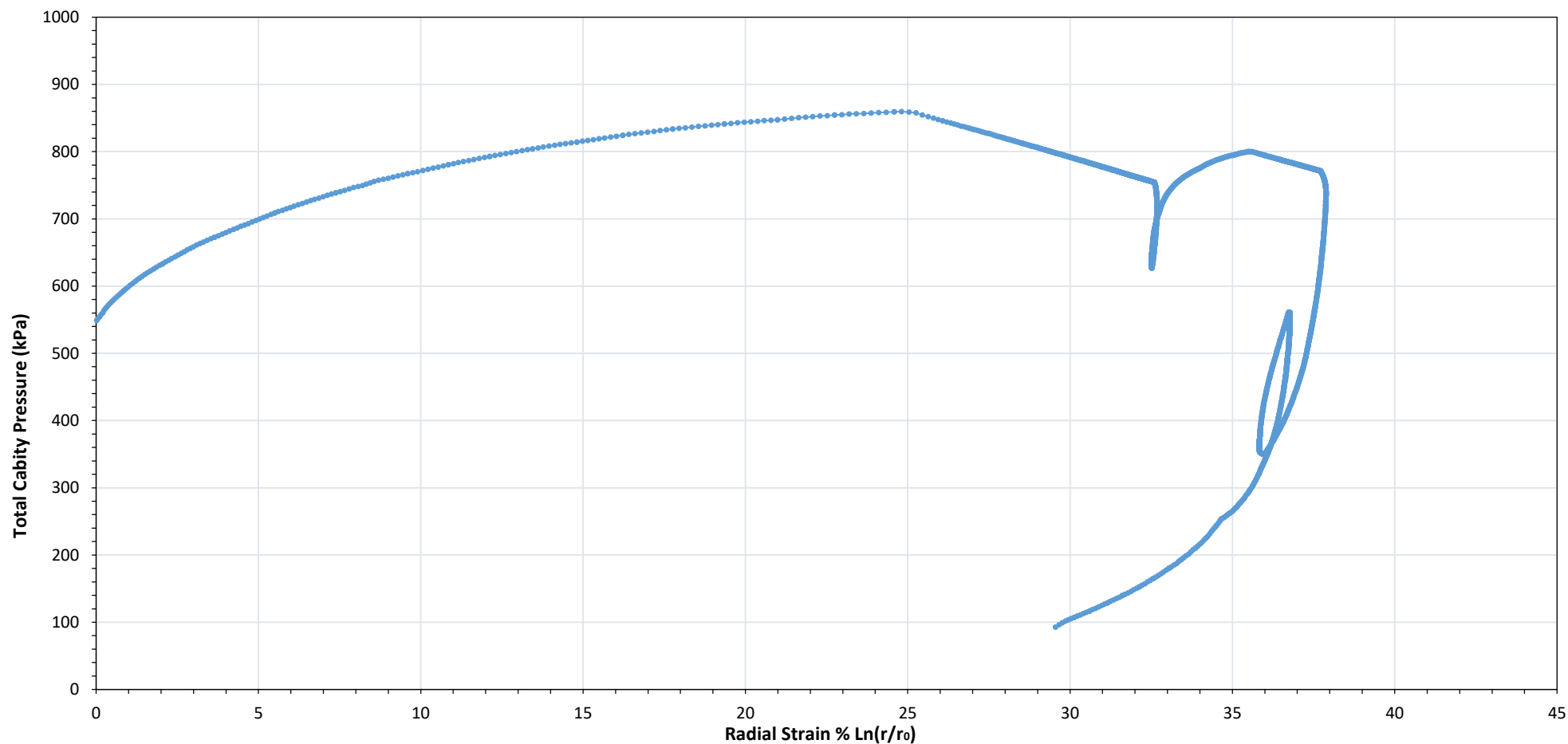
# OMEGA ZONE 8, ST HELENS

Omega St Helens Ltd / T J Morris Ltd



Ground Investigation Report  
& Remediation Strategy  
Appendix D Part 12  
OPP DOC. 2.16

## Pressuremeter Test - Total Pressure with Radial Strain



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Test Engineer:** PC

**Date:** 30/09/2019

**Unload-reload Loops:** 2

**Drainage behaviour:** Undrained

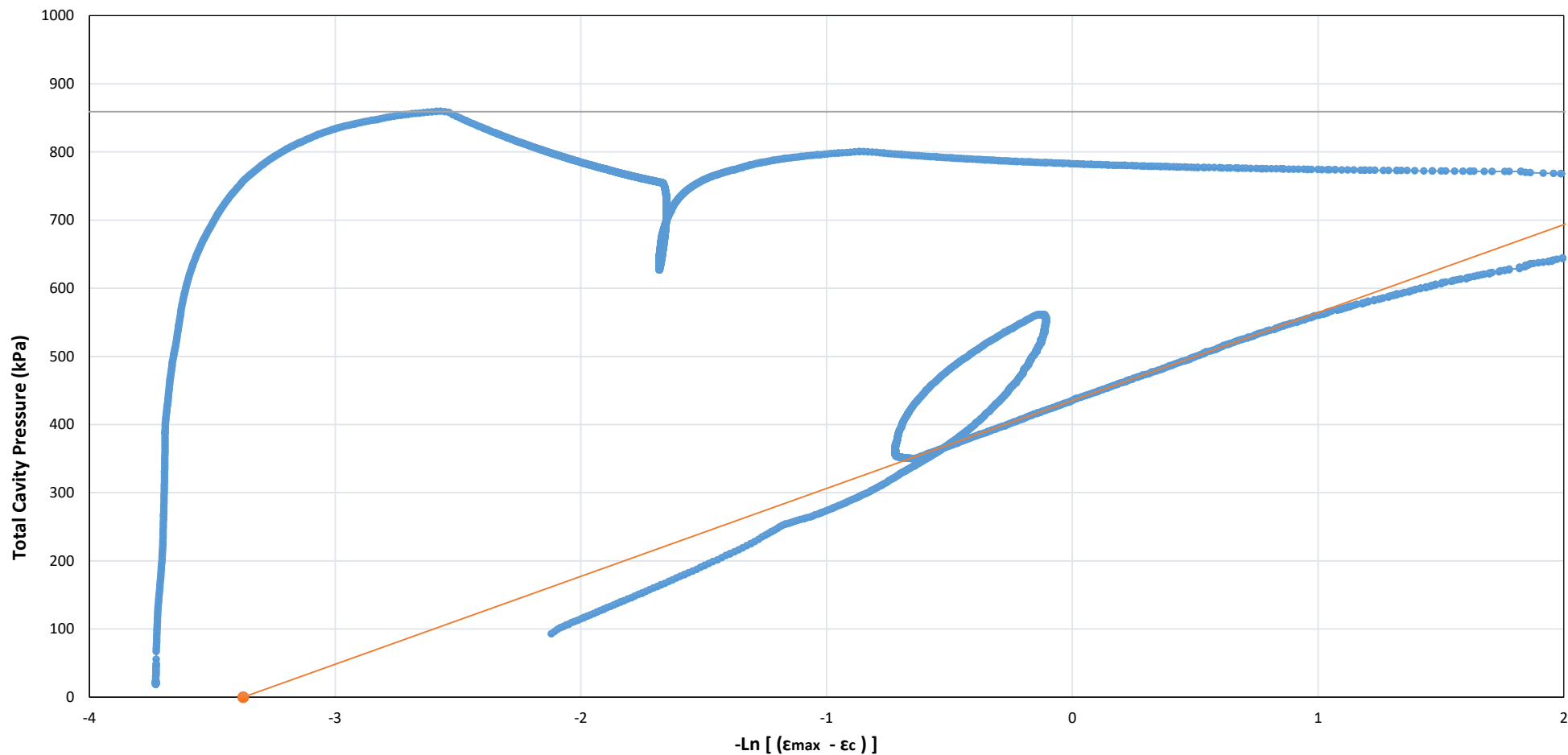
**Test type:** FDPM

**Duration:** 61 mins

**Location ID:** CPTP8A04A

**Depth:** 4.5 m

**Comments:**



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Shear strength  $S_u$ :** 65 kPa

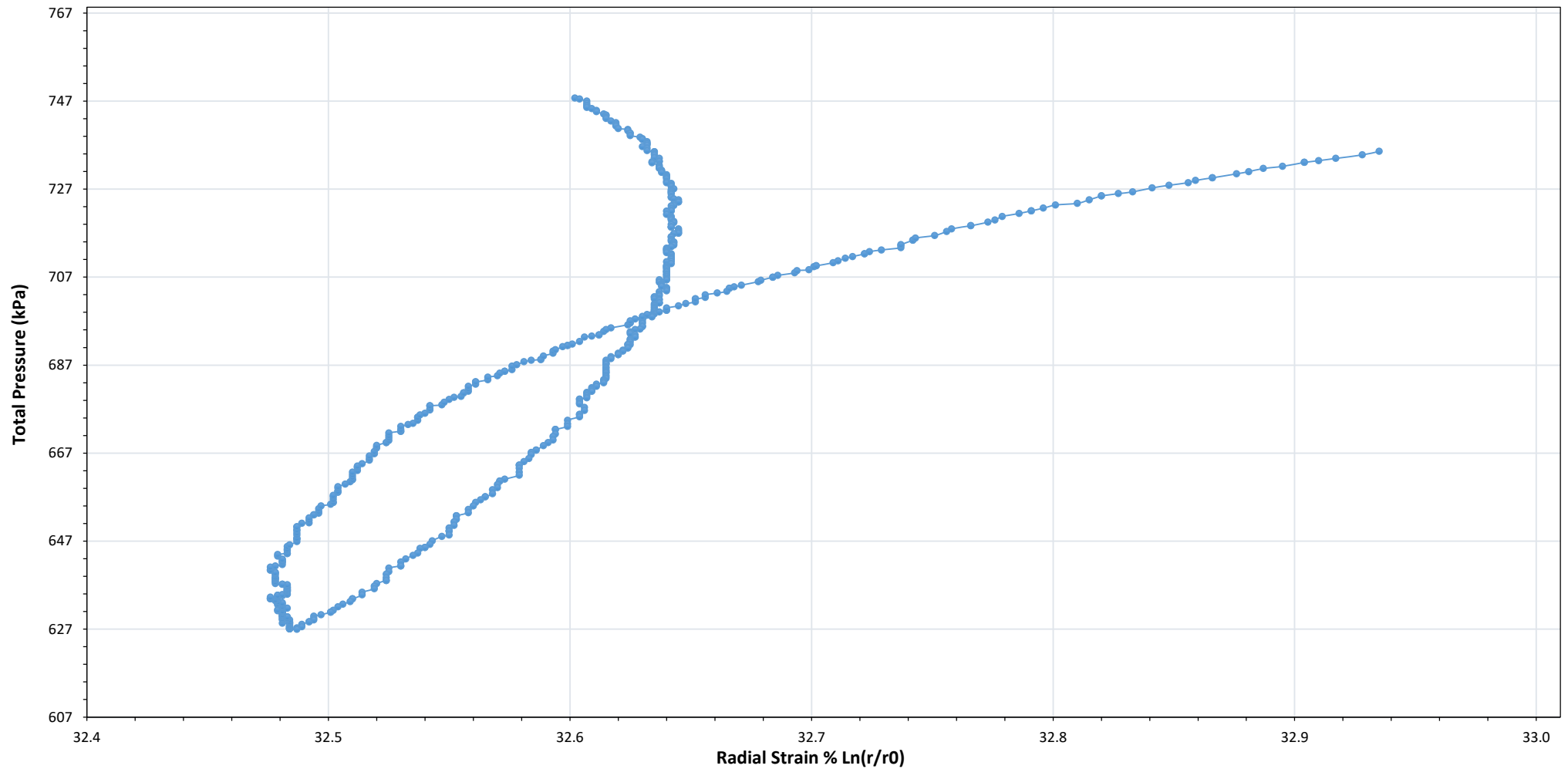
**Drainage behaviour:** Undrained

**Location ID:** CPTP8A04A

**Depth:** 4.5 m

**Comments:**

### Loop 1 Total Pressure with Radial Cavity Strain



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Drainage behaviour:** Undrained

**Test type:** FDPM

**Loop duration:** 9.3 mins

**Shear modulus Gur:** 2189 MPa

**Cavity strain range:** 0.09 %

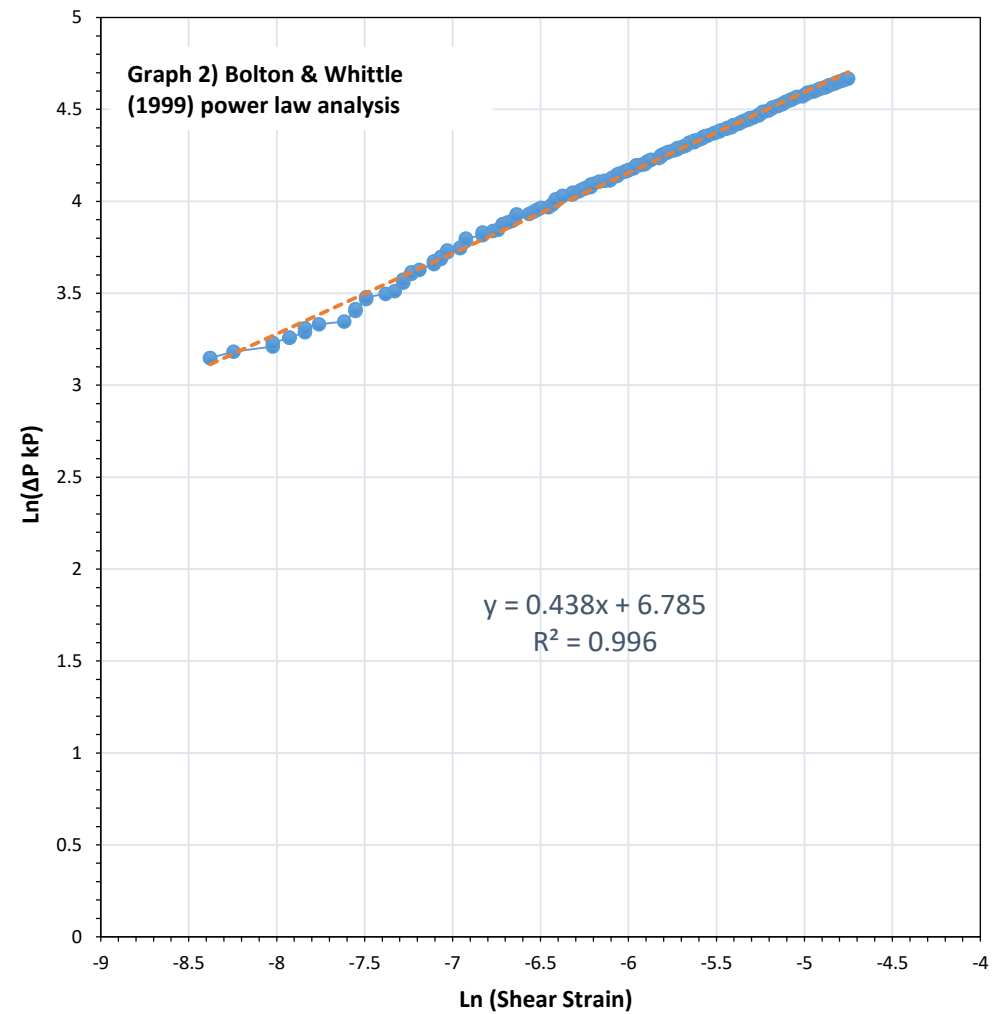
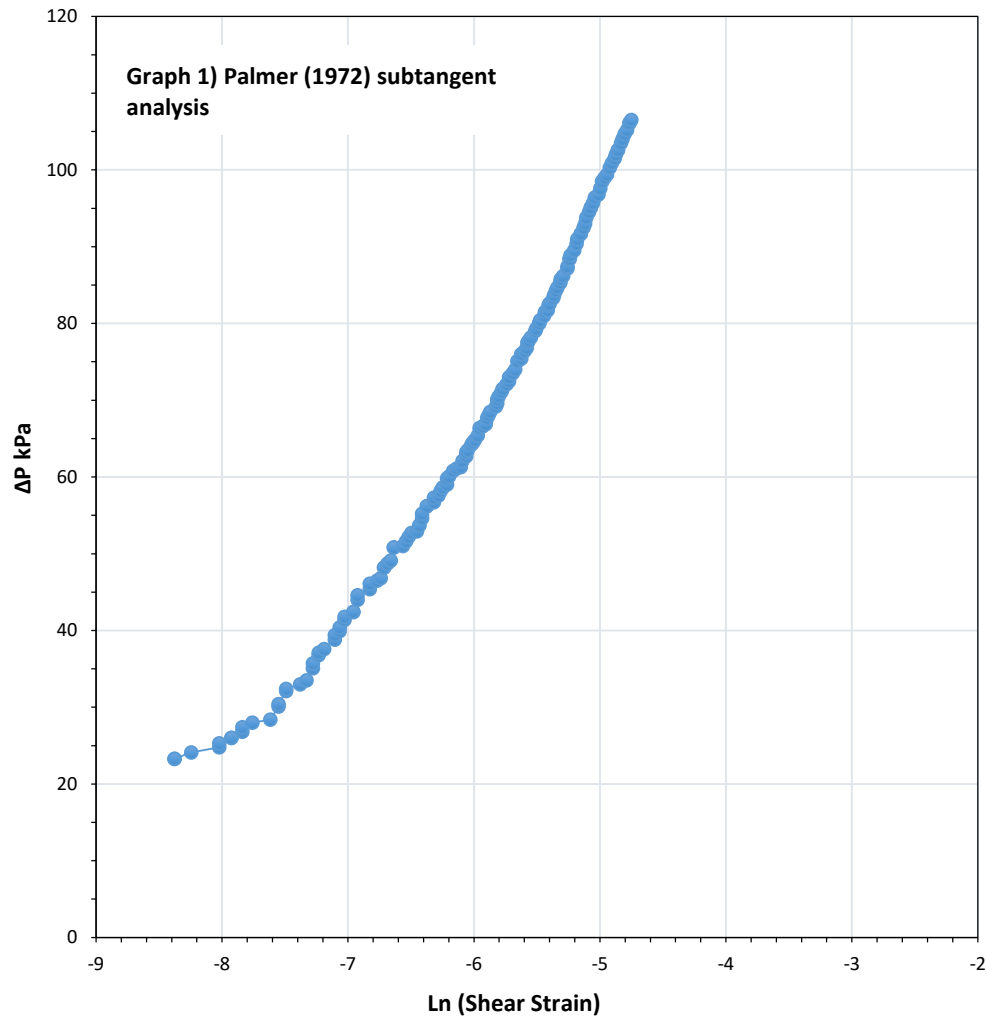
**Location ID:** CPTP8A04A

**Depth:** 4.5 m

**Comments:**



## Loop 1 Non-Linear Stress-Strain Analysis



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Obtained Power Law Parameters (right hand side graph)**

**Non-linearity exponent ( $\beta$ ) (gradient):** 0.438

**Intercept ( $\eta$ ):** 0.885 MPa

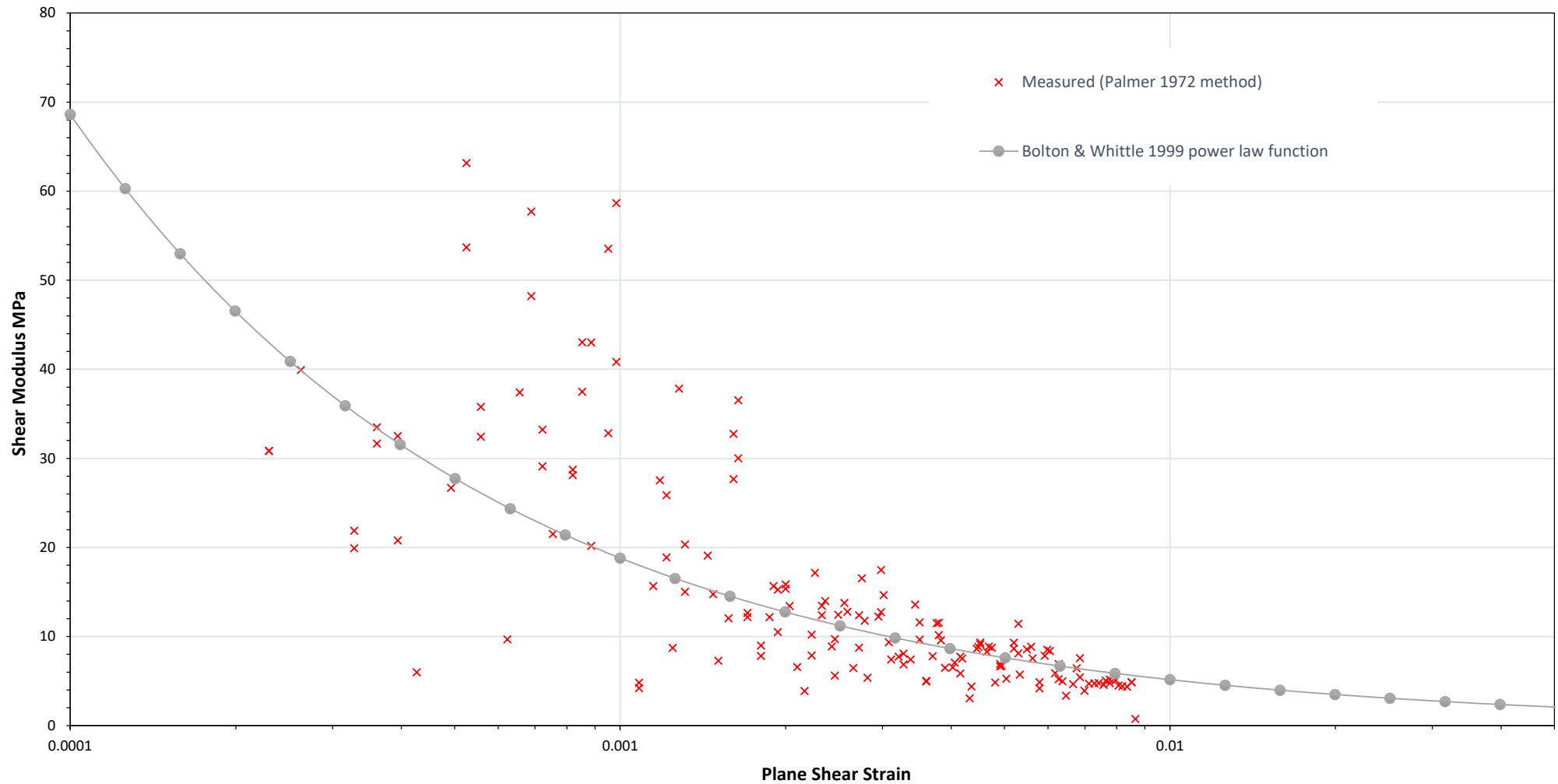
**Shear stress constant  $\alpha$  ( $\beta \cdot \eta$ ):** 0.388 MPa

**Location ID:** CPTP8A04A

**Depth:** 4.5 m

**Comments:**

## Loop 1 Non-Linear Analysis - Secant Shear Modulus with Plane Shear Strain



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Bolton & Whittle 1999 power law parameters applied**

**Non-linearity exponent ( $\beta$ ):** 0.438

**Intercept ( $\eta$ ):** 0.885 MPa

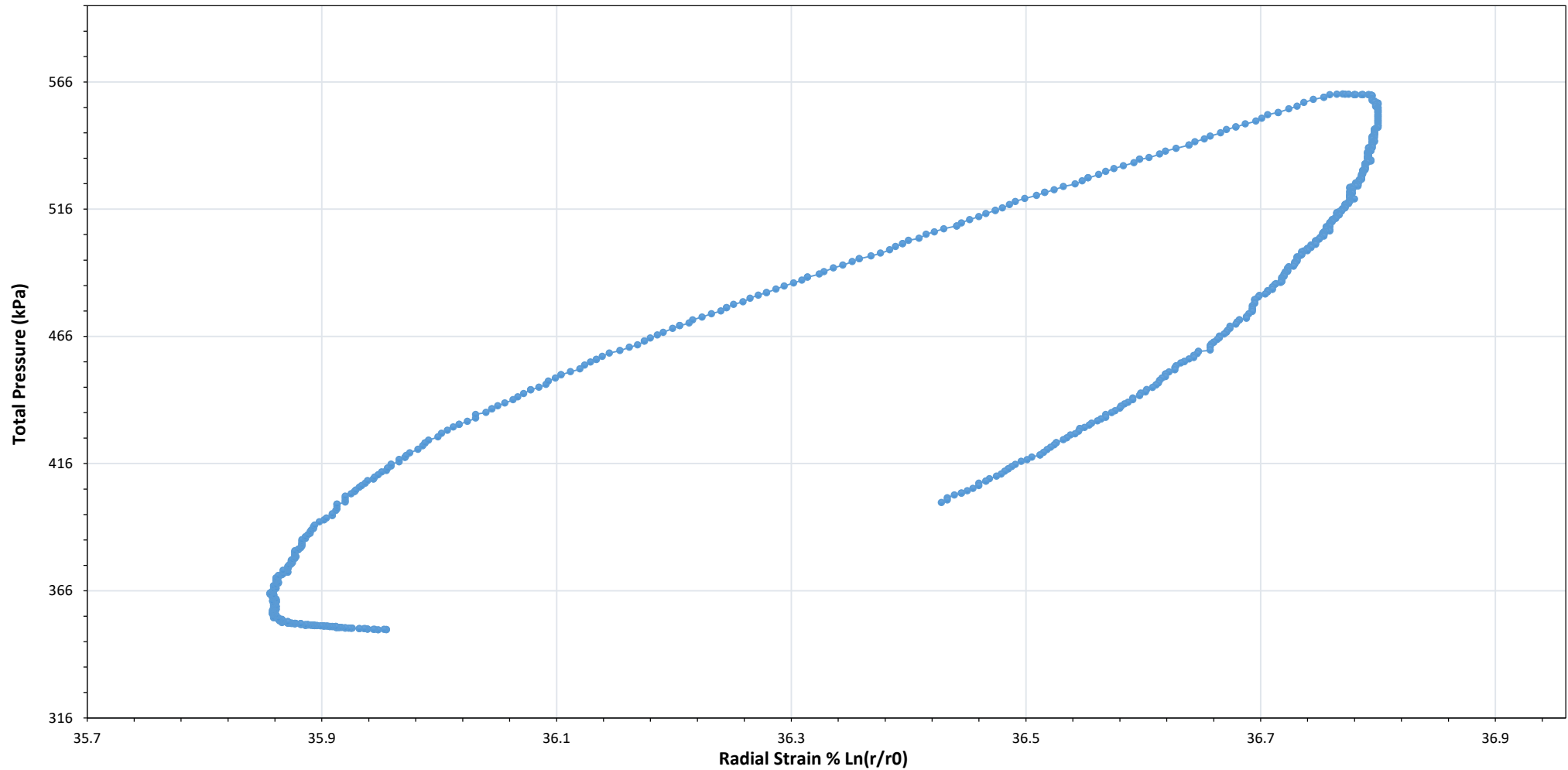
**Shear stress constant  $\alpha = (\beta * \eta)$ :** 0.388 MPa

**Location ID:** CPTP8A04A

**Depth:** 4.5 m

**Comments:**

## Loop 2 Total Pressure with Radial Cavity Strain



**Project Ref:** 107284

**Client:** Geotechnics

**Client Ref:**

**Location:** Warrington, UK

**Drainage behaviour:** Undrained

**Test type:** FDPM

**Loop duration:** 12.2 mins

**Shear modulus  $G_{ur}$ :** 1052 MPa

**Cavity strain range:** 0.59 %

**Location ID:** CTP8A04A

**Depth:** 4.5 m

**Comments:**