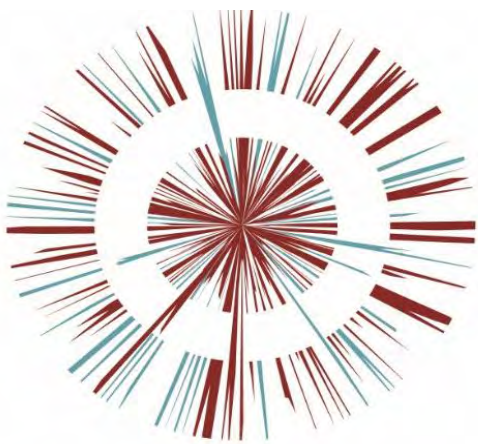




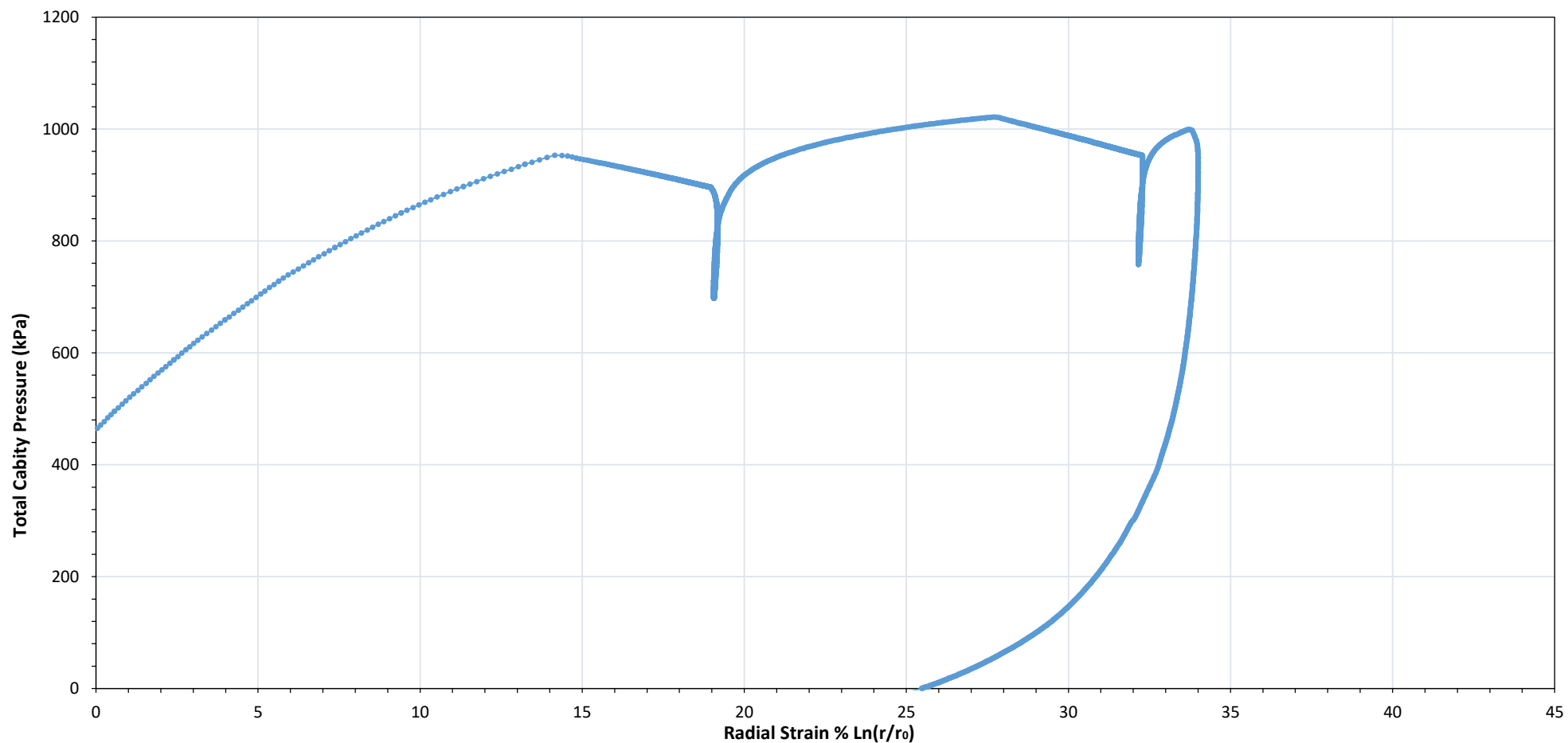
OMEGA ZONE 8, ST HELENS

Omega St Helens Ltd / T J Morris Ltd



Ground Investigation Report
& Remediation Strategy
Appendix D Part 15
OPP DOC. 2.19

Pressuremeter Test - Total Pressure with Radial Strain



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Test Engineer: JH

Date: 26/09/2019

Unload-reload Loops: 2

Drainage behaviour: Undrained

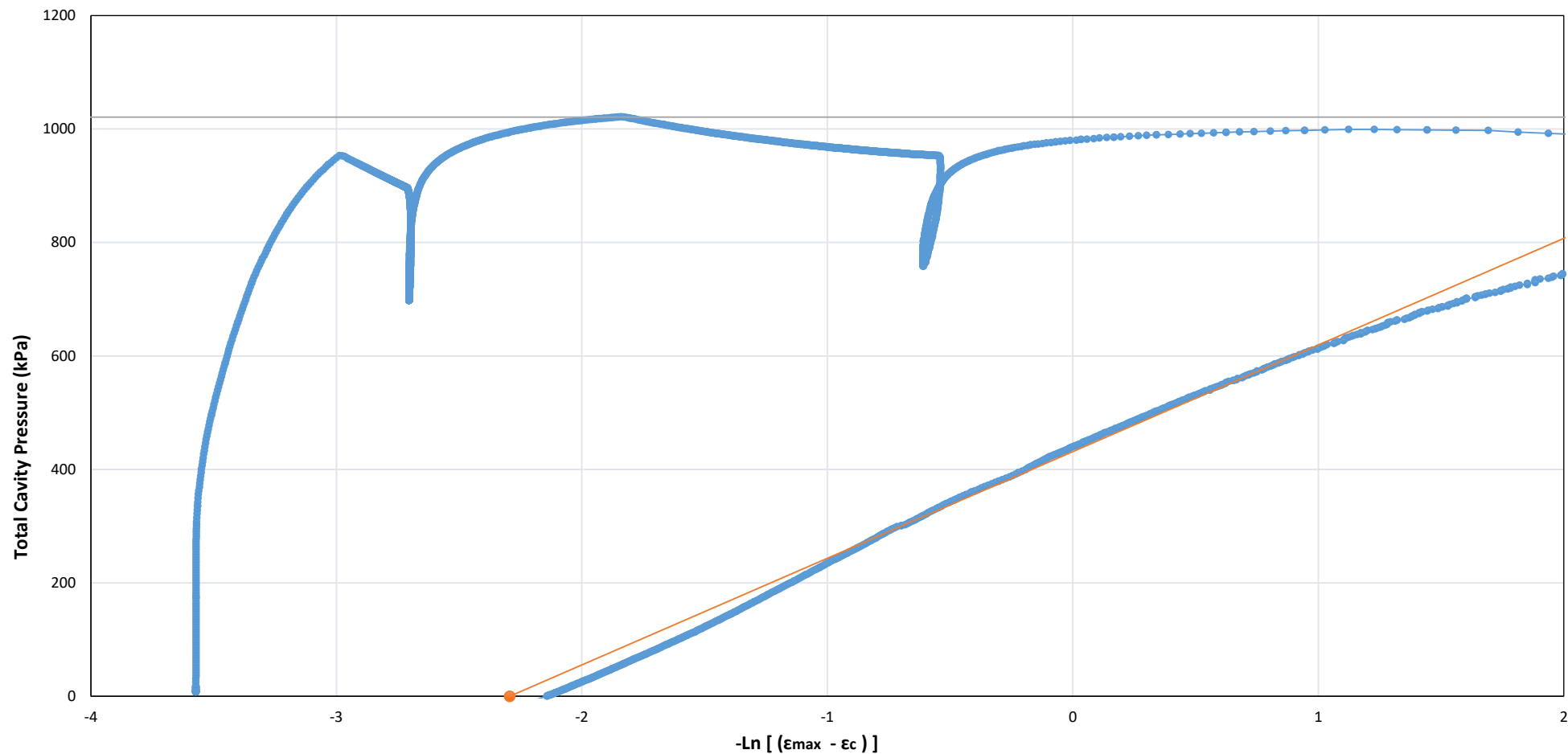
Test type: FDPM

Duration: 62 mins

Location ID: CPT8B01

Depth: 3.5 m

Comments:



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Shear strength S_u : 94 kPa

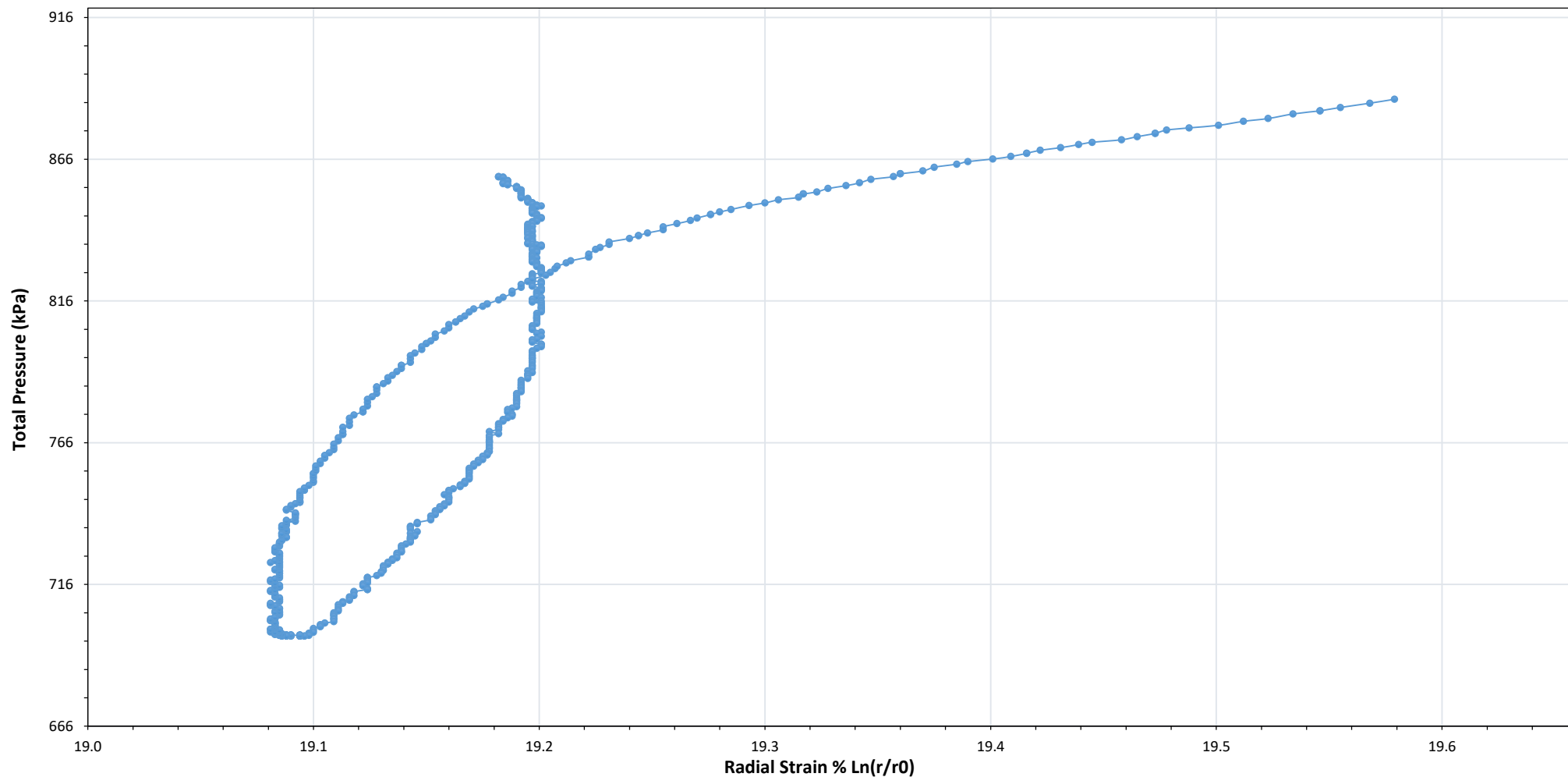
Drainage behaviour: Undrained

Location ID: CPTP8B01

Depth: 3.5 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: 12.1 mins

Shear modulus Gur: 5422.8 MPa

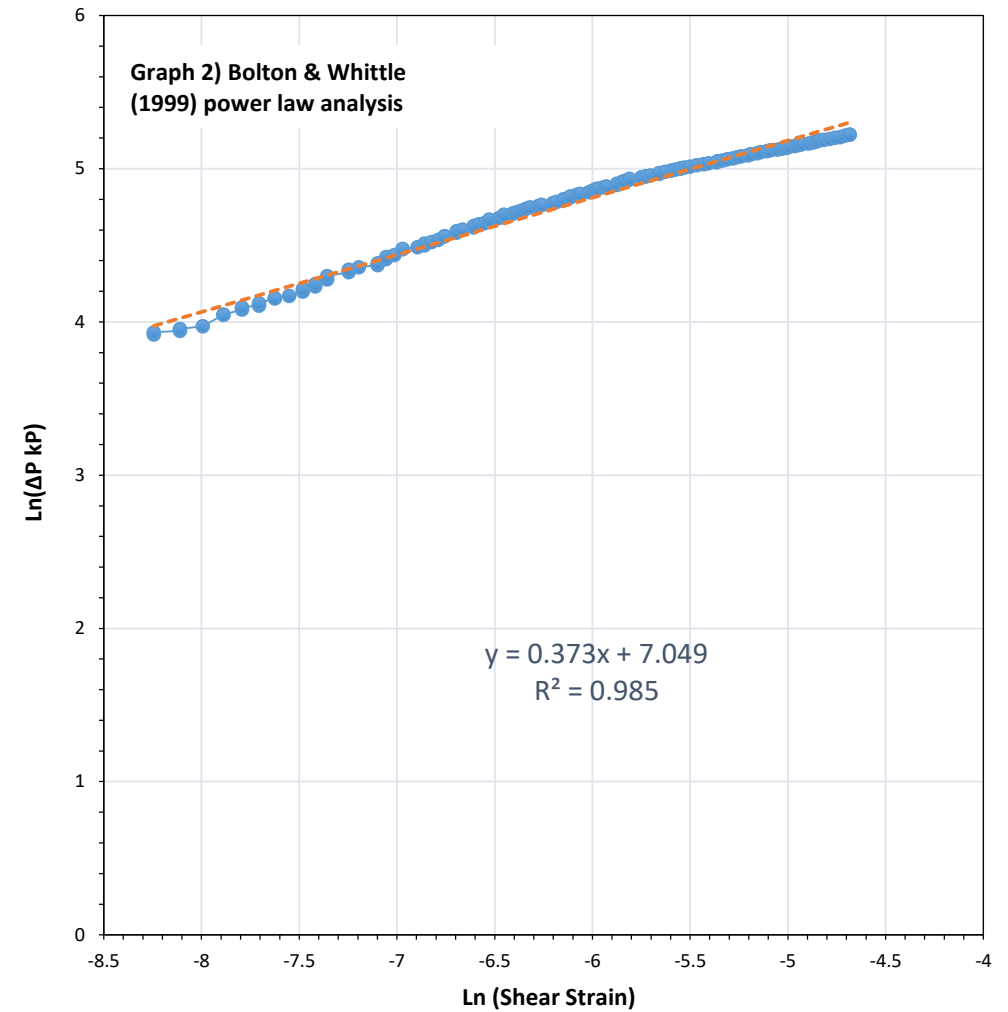
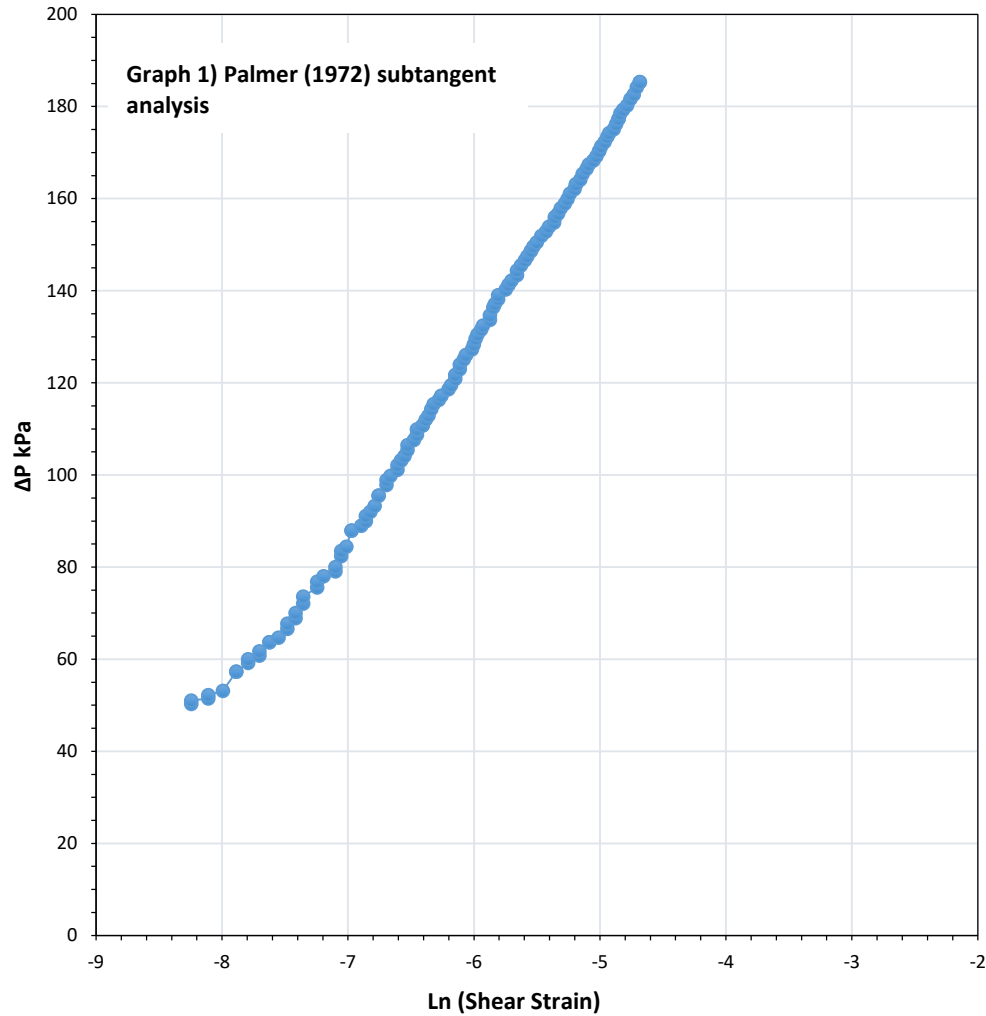
Cavity strain range: 0.06 %

Location ID: CTP8B01

Depth: 3.5 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 (β) (gradient): 0.373

Intercept (η): 1.151 MPa

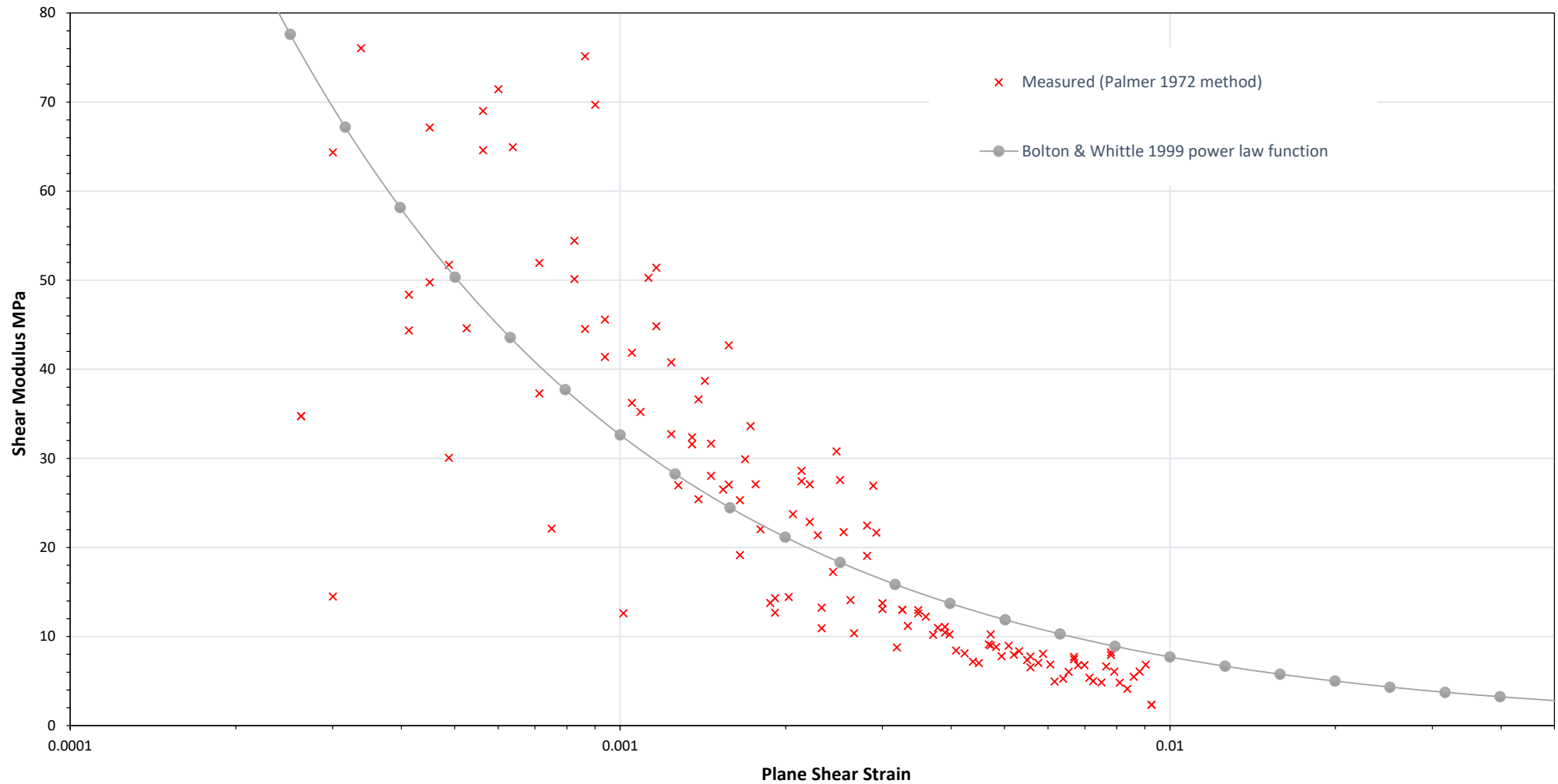
Shear stress constant α ($\beta * \eta$): 0.429 MPa

Location ID: CTP8B01

Depth: 3.5 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 (β): 0.373

Intercept (η): 1.151 MPa

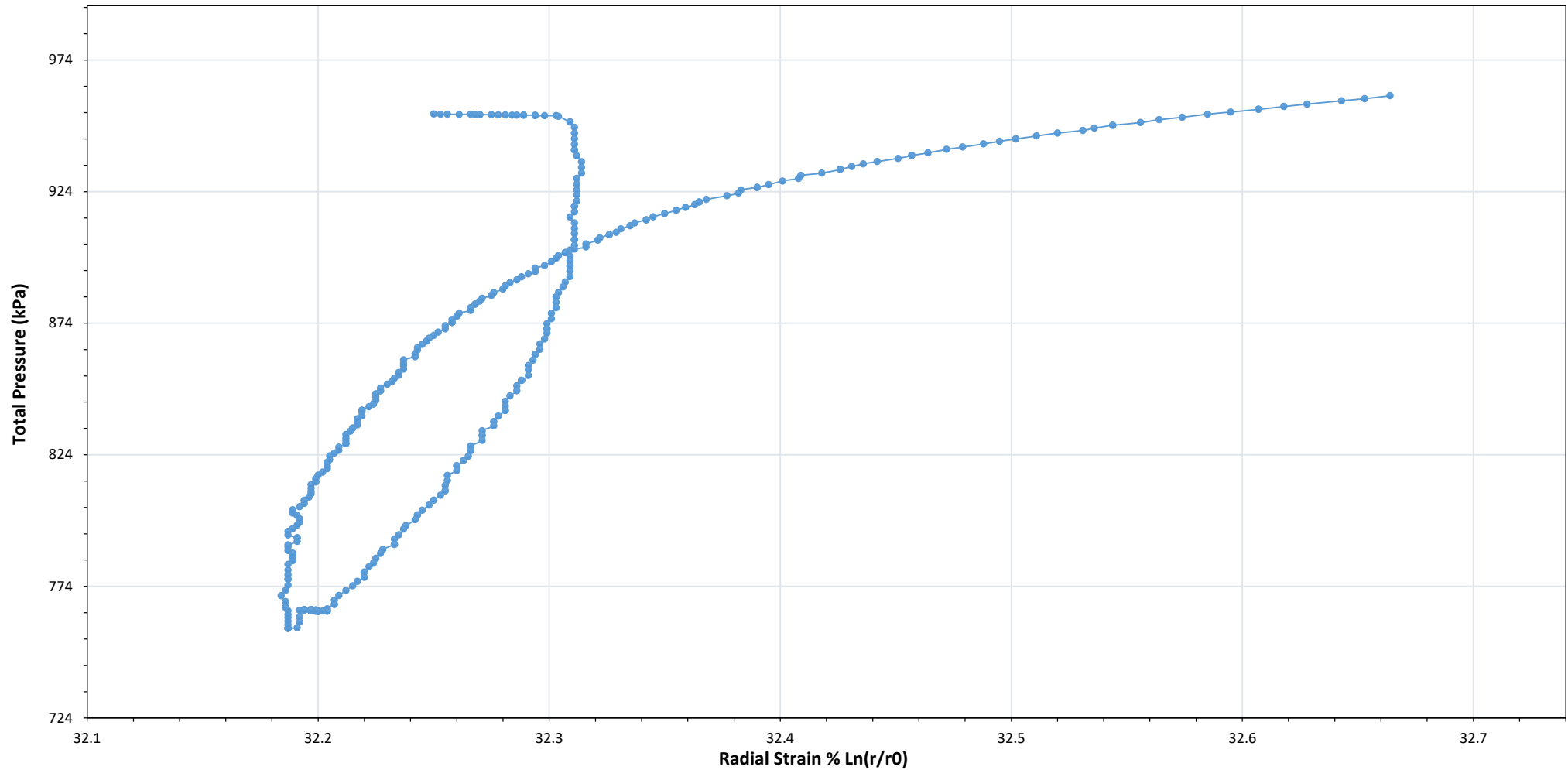
Shear stress constant $\alpha = (\beta * \eta)$: 0.429 MPa

Location ID: **CPTP8B01**

Depth: **3.5 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: 6 mins

Shear modulus G_{ur} : 5400.5 MPa

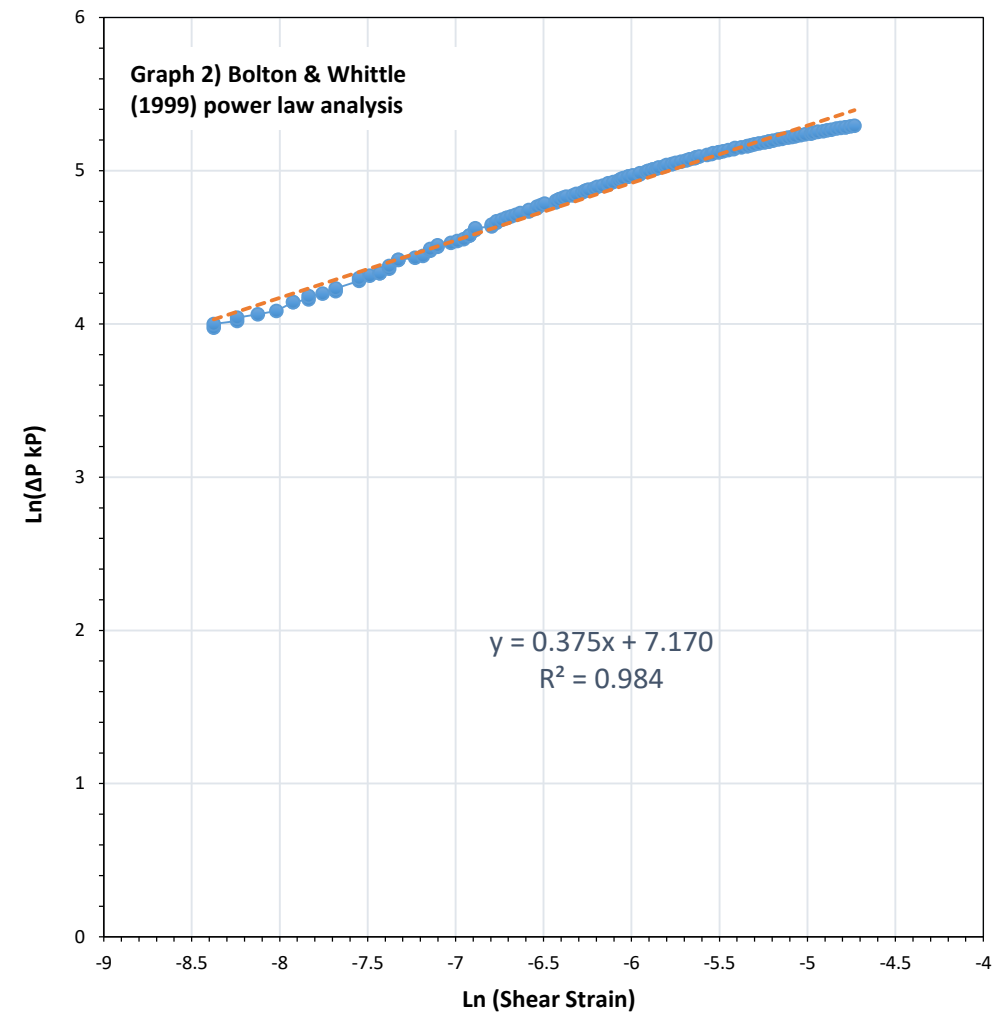
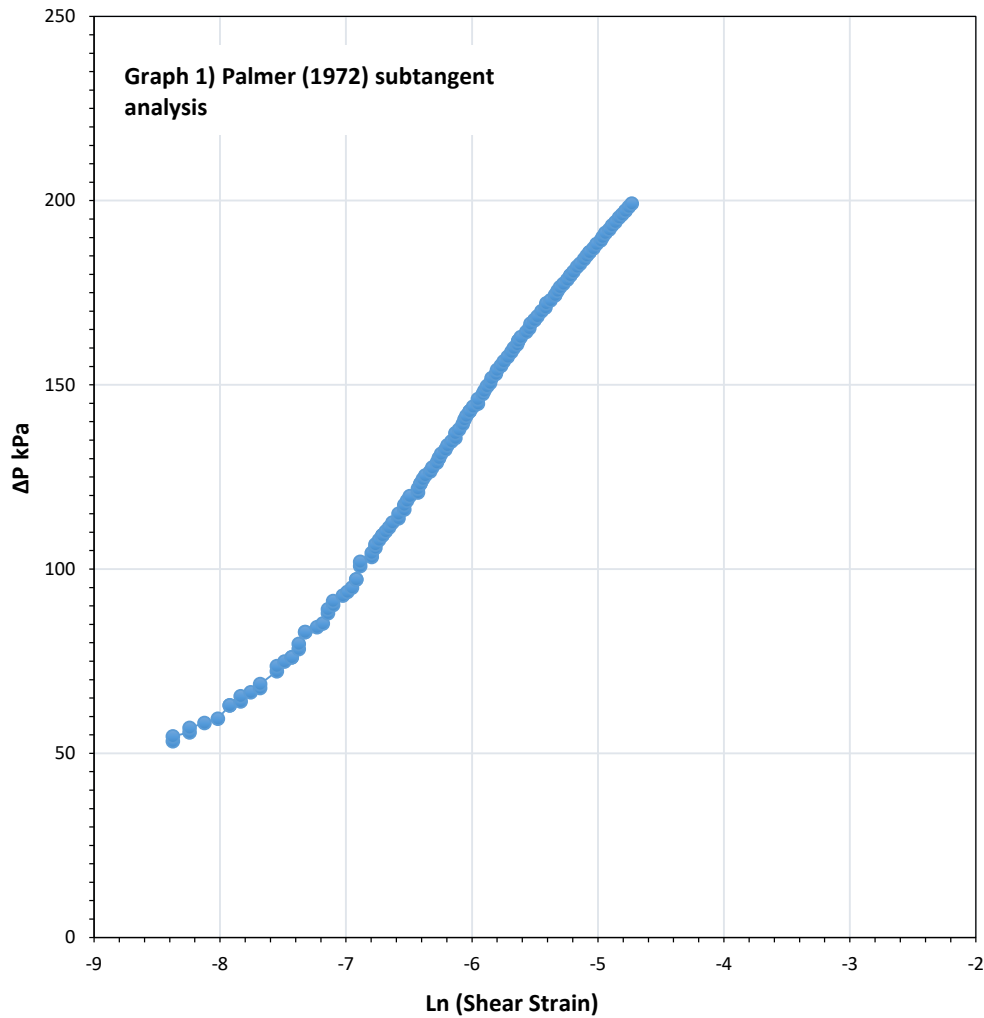
Cavity strain range: 0.08 %

Location ID: CTP8B01

Depth: 3.5 m

Comments:

Loop 2 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 (β) (gradient): 0.375

Intercept (η): 1.299 MPa

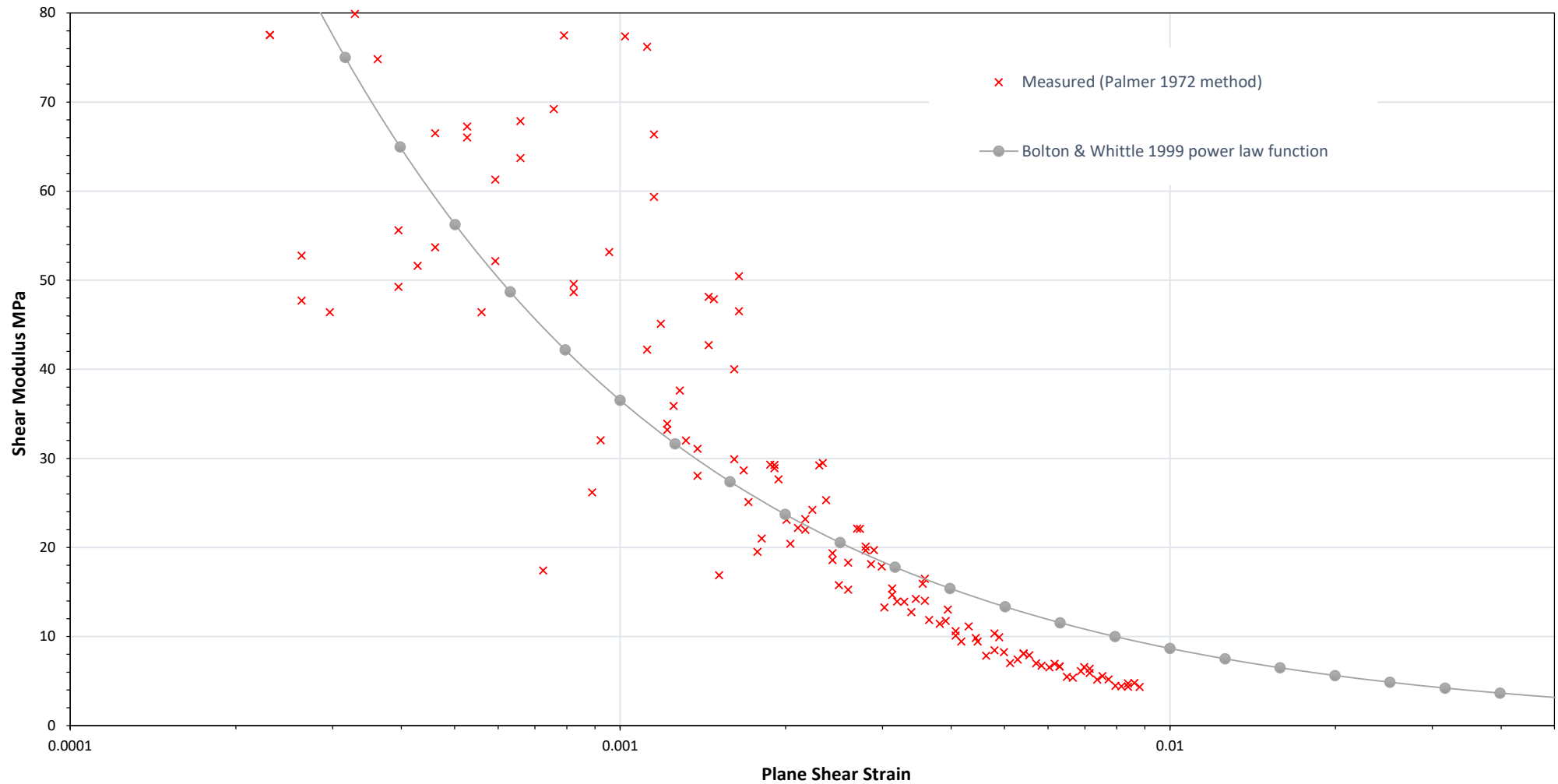
Shear stress constant α ($\beta \cdot \eta$): 0.487 MPa

Location ID: CPTP8B01

Depth: 3.5 m

Comments:

Loop 2 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 (β): 0.375

Intercept (η): 1.299 MPa

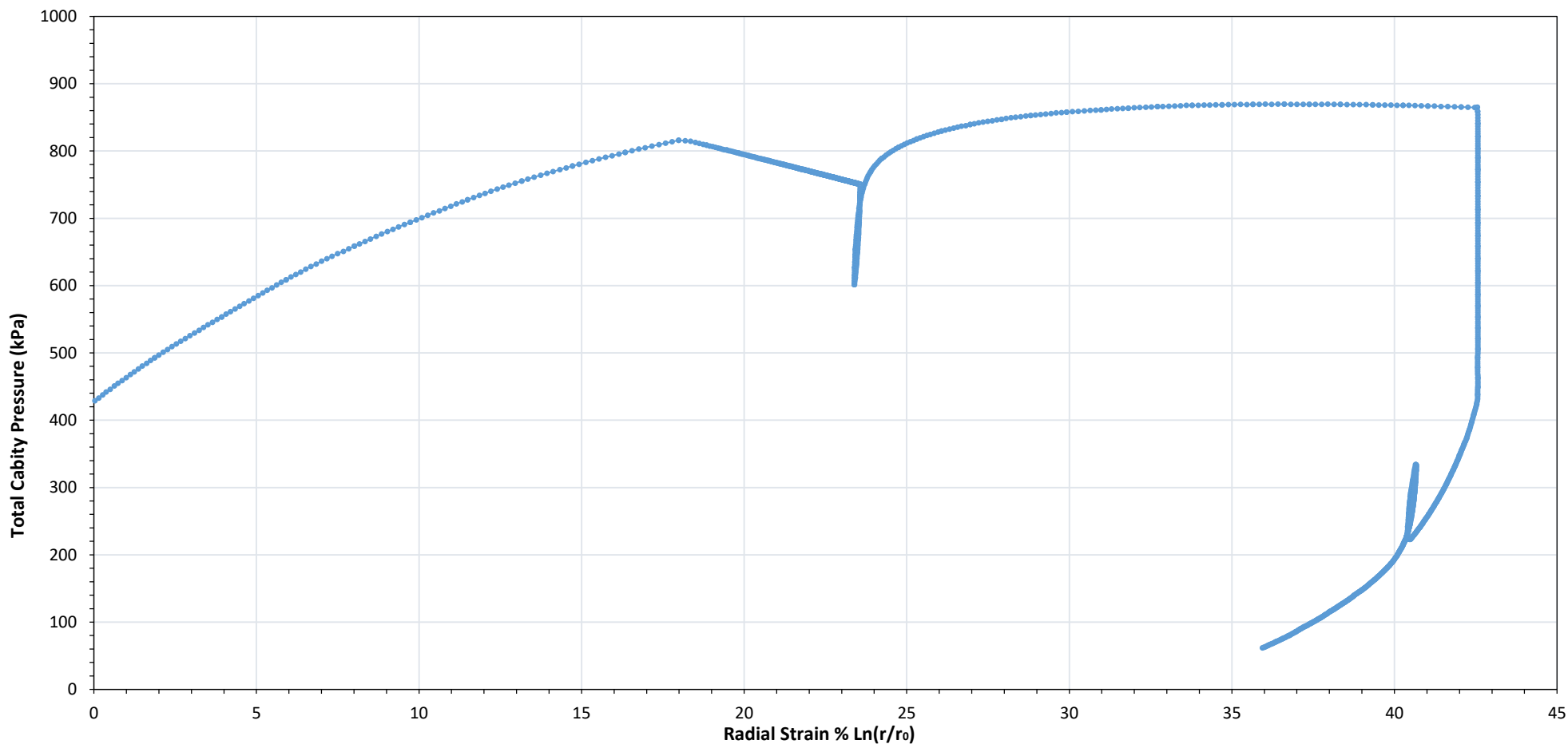
Shear stress constant $\alpha = (\beta * \eta)$: 0.487 MPa

Location ID: CPTP8B01

Depth: 3.5 m

Comments:

Pressuremeter Test - Total Pressure with Radial Strain



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Test Engineer: JH

Date: 26/09/2019

Unload-reload Loops: 2

Drainage behaviour: Undrained

Test type: FDPM

Duration: 28 mins

Location ID: CPTP8B01

Depth: 4.2 m

Comments: