



Soil Nail Pull-Out Testing Checklist and Acceptance Guide

Soil Nail Pull-Out Testing interactive checklist for proof/performance, load–displacement measurement, and acceptance criteria; fully commentable and export as PDF/Excel.

Project:

Date:

Filled by:

Test Planning & Safety

1	Confirm test type (proof/performance), nail IDs, locations, and test loads against the approved schedule; acceptance: test list approved by engineer; evidence: signed plan, nail tags, location sketch.
2	Verify grout age and compressive strength before testing per approved project specifications; acceptance: strength \geq specified minimum; evidence: cube/cylinder results, batch ID, date.
3	Establish exclusion zone and barricades around jack and reaction frame; acceptance: zone per site risk assessment; evidence: photos and toolbox talk record.
4	Conduct pre-task briefing covering loading sequence, stop criteria, and emergency response; acceptance: all crew sign attendance; evidence: briefing sheet with signatures.

Instrumentation & Calibration

5	Check load cell calibration traceable to a national standard within valid period; acceptance: certificate current and range covers test load; evidence: certificate copy and serial number photo.
6	Verify hydraulic jack and pressure gauge calibration; acceptance: calibration within validity and within $\pm 1\%$ of reading; evidence: certificates and calibration stickers.
7	Install displacement transducer(s) (LVDT/dial gauge) with resolution ≤ 0.01 mm; acceptance: zeroed at seating load; evidence: zeroing photo and initial reading log.
8	Set up rigid reference beam/stand independent of nail, jack, and reaction; acceptance: no measurable movement under preload; evidence: check with secondary gauge and note.
9	Configure data logger or manual log sheet with time synchronised to site clock; acceptance: sampling per plan; evidence: test file name and time sync screenshot.

Test Setup & Alignment

10	Clean nail head and threads; fit coupling, reaction plate, and spherical seat; acceptance: axial alignment within 2° ; evidence: square/angle check photo.
11	Ensure free length is isolated (e.g., debonding sheath) if required by plan; acceptance: isolation confirmed; evidence: photo and note 'as per plan'.
12	Center reaction plate and jack; measure eccentricity; acceptance: load line offset ≤ 5 mm; evidence: measurement record and photo with scale.
13	Apply seating load (e.g., 5–10% of test load) to take up slack; acceptance: stable reading for ≥ 60 s; evidence: seating displacement recorded.

Loading Procedure	
14	Increase load in planned increments (e.g., 25% steps) using jack; acceptance: hold each increment for specified time; evidence: time–load–displacement entries.
15	At maximum test load, maintain hold for specified creep duration; acceptance: creep rate \leq project limit; evidence: minute-by-minute displacement log.
16	If performance test requires cycling, unload/reload per plan; acceptance: cycles completed without instability; evidence: cycle curves on graph.
17	Unload in steps to zero; record rebound at each step; acceptance: residual displacement within project limit; evidence: residual value documented.

Measurement & Recording	
18	Record environmental conditions (temperature, precipitation, ground vibration); acceptance: within plan limits or test paused; evidence: weather log and photos.
19	Verify reference beam stability during test; acceptance: reference movement \leq 10% of nail displacement; evidence: secondary gauge reading logged.
20	Plot real-time load–displacement curve; acceptance: smooth trend without sudden slips; evidence: saved graph with file name and date.
21	Capture photos of setup, gauges, and dial/LVDT readings at each stage; acceptance: minimum six clear photos; evidence: photo set uploaded with captions.

Acceptance & Reporting	
22	Compare displacement at test load with project criterion; acceptance: pass/fail per approved project specifications and authority requirements; evidence: signed acceptance box.
23	Evaluate creep rate and residual displacement against criteria; acceptance: both within limits; evidence: calculations attached to report.
24	Issue test report including site details, instruments, calibrations, graphs, photos, and signatures; acceptance: distributed to stakeholders; evidence: PDF/Excel exported and QR archived.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
<p>Soil Nail Pull-Out Testing verifies bond capacity by applying controlled axial tension and measuring load–displacement response. This checklist covers soil nail proof test and performance test procedures focused on accurate instrumentation, stepwise loading, creep measurement, and clear pass/fail acceptance. It excludes installation checks such as drilling records, centralizers, grout take, or nail head construction. You will plan tests, set up a rigid reference beam, calibrate a hydraulic jack and load cell, and log displacement using LVDTs or dial gauges to produce a reliable load–displacement curve. The process mitigates risks like gauge drift, eccentric loading, reference movement, and unsafe exclusion zones, helping avoid false failures and rework. Outcomes include defensible acceptance decisions per approved project specifications and authority requirements, traceable data with photos and signatures, and a standardised report suitable for geotechnical design validation. Use this interactive checklist to tick items, add comments, and export a signed report as PDF/Excel via a secure QR code.</p>	<p>1. Preparation: confirm test plan, mobilise calibrated jack, load cell, LVDTs, rigid datum beam, PPE, barriers, and reporting templates; verify grout strength eligibility and site safety arrangements. 2. Open the interactive checklist, select project and nail IDs, and switch to live mode; assign roles for load control, gauge reading, and data entry to avoid missed readings. 3. During testing, tick items in sequence, enter time–load–displacement readings, attach photos, and add comments for anomalies; use the built-in graph to validate curve shape and creep. 4. After completion, generate the acceptance decision, compile calibration attachments, and export the report as PDF/Excel; include graphs, photos, and signatures for stakeholders. 5. Sign-Off: capture digital signatures from responsible parties, distribute the report, and archive with QR authentication for future verification and audits.</p>

