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Re-grout pile shafts/micropiles: pressure, volume, lock-off

Re-grout pile shafts/micropiles with an interactive checklist. Control pressures, volumes, and lock-off. Commentable steps and evidence. Export as PDF/Excel with secure QR.

Project:	
Date:	
Filled by:	

Pre-Work Verification	
1	Confirm scope excludes base grouting; review approved procedure, stage elevations, maximum allowable pressures, target volumes, and acceptance criteria; obtain pre-pour sign-off from superintendent/inspector; attach approved ITP.
2	Verify pile ID, diameter, length, casing, and port/TAM continuity from as-builts; inspect for damage or blockage; photograph each port and tag with elevation.
3	Calibrate pressure gauges (0–5 MPa) and flowmeter before use; attach certificates and date labels; record zero checks at start/end of shift.
4	Conduct safety briefing: PPE (gloves, goggles, respirator if required), pinch-point, pressure-release, and spill controls; file signed JSA.

Equipment & Materials	
5	Prepare grout per approved mix (e.g., water–cement ratio per submittal); test flow (Marsh cone) and density (kg/m³); record temperature (°C) and batch time.
6	Record batch tickets, cement lot numbers, admixture type/dosage, and water source; photograph tickets and upload to pile record.
7	Function-test pump; verify relief valve setting below structural limit; bleed air from lines; acceptance: no leaks at 1.0 MPa for 60 s; photo evidence.
8	Inspect packers, hoses, non-return valves; wet-test packer seal in a water bucket at 0.5 MPa for 30 s; acceptance: no bubbles.

Port & Stage Setup	
9	Identify and label stage elevations on all ports/TAM sleeves; confirm sequence (bottom-up unless specified); mark on drawing; photo of tags.
10	Flush each target port with clean water ≤0.1 MPa to prove continuity; measure return at surface/adjacent port; record volumes (L).
11	Install calibrated pressure gauge at the manifold within 0.5 m of port; ensure visibility for photos; confirm units in MPa.
12	Fit check valves and whip-checks; verify flow direction toward shaft; color-code supply/return lines; photo verification.

Grouting Execution	
13	Begin Stage 1: ramp at 0.05–0.1 MPa/s to stage pressure limit per approved project specifications; log pressure/flow every 5–10 s; photo gauges at start/peak.
14	Track incremental volume with flowmeter and container cross-check; acceptance: meter and physical measure within ±5%; record cumulative L.
15	Observe returns at adjacent ports or collar; document color/consistency; if water-rich, continue until stable grout; attach photos at 1-minute intervals.
16	At target volume or refusal (no take at constant pressure for 60–180 s), hold stage pressure; record hold duration and ending pressure.
17	If leakage appears at the surface/structure, stop; install/adjust packer, reduce ramp rate by 50%, and resume; document corrective action and outcome.
18	Do not exceed the lower of design or structural pressure limit; stop at 90% of limit and notify engineer; log alert time and response.
19	Flush hose and cap port after each stage to prevent set; record residual volume flushed (L) and waste handling method.
20	Advance to next stage per sequence; verify prior stage pressure remains stable (loss ≤10% in 5 min); photo of gauge before proceeding.

Lock-Off & Acceptance	
21	Set final lock-off pressure at manifold (e.g., 0.3–1.0 MPa per approved project specifications); hold 5 min; acceptance: pressure loss ≤10%.
22	Install permanent caps/plugs; tag each port with lock-off pressure, date, pile ID, and initials; photo tags and caps.
23	Acceptance review: minimum stage volumes achieved or refusal at limit; no uncontrolled leakage; inspector sign-off with digital signature.
24	Protect work: restrict vibration and traffic for ≥24 h; record ambient temperature (°C) and weather; note curing observations.

Records & Handover	
25	Complete pile sheet with stage elevations, pressures, hold times, returns, and volumes; attach time-stamped gauge photos.
26	Upload calibration certificates, batch tickets, grout tests, and port photos to project system; QC review and comments logged.
27	Update as-built drawings highlighting regrouted stages; cross-reference pile IDs; export PDF/Excel pack with QR for verification.
28	Conduct post-grout check (e.g., gentle hammer tap at accessible shaft or port leak check); document need for additional pass per specifications.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Re-grout pile shafts/micropiles focuses on staged shaft regrouting—managing pressure, volume, and lock-off—to densify annular zones and seal defects without engaging base grouting. This checklist supports micropile re-grouting and shaft regrouting via ports or tubes-à-manchette, emphasizing pressure staging, grout take measurement, return observation, and documented acceptance. By controlling ramp rates and maximum pressure, teams mitigate risks such as shaft cracking, sleeve blowouts, grout washout, and heave of weak strata. Accurate volume logging and calibrated instrumentation deliver repeatable outcomes and traceable QA evidence. The scope excludes all base grouting operations; use this only for shaft stages above the pile tip. Field users can tick each step, attach photos of gauges and returns, add comments for anomalies, and capture sign-offs. Start in interactive mode, collaborate with your inspector, and export your record set as PDF/Excel with a secure QR code link.	1. Preparation: Gather approved regrouting procedure, ITP, stage plan, calibrated gauges (0–5 MPa), flowmeter, packers, hoses, grout mixer/pump, PPE, spill kit, and tagging materials. 2. Site readiness: Verify pile IDs and port continuity, set up safe access and lighting, and brief the team on pressure control, leak response, and communication signals. 3. Start interactive mode: Open the checklist, select the pile ID, and enable tick and comment features to capture observations, photos, and instrument readings in real time. 4. Record data: For each stage, enter pressure ramp, hold times, and volumes; attach time-stamped gauge and return photos; log corrective actions if leakage occurs. 5. Review acceptance: Confirm minimum take or refusal, stable lock-off, and clean caps/tags; add inspector comments and digital signatures per approved project specifications. 6. Export and distribute: Generate an export as PDF/Excel; share with stakeholders and archive; include the QR code for secure verification of the record set.