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Install vibro-replacement stone columns: inspection checklist

Install vibro-replacement stone columns using an interactive checklist. Commentable checks confirm logs, stone take, spacing, densification. Export as PDF/Excel.

Project:	
Date:	
Filled by:	

Pre-Construction & Submittals	
1	Review and approve the method statement and ITP explicitly excluding rigid inclusions; use a document register to cloud-mark exclusions; acceptance: superintendent and QC signatures filed in project DMS.
2	Confirm design grid spacing, column diameter, and improvement depth on IFC drawings; method: drawing takeoff and design check; acceptance: design targets recorded with tolerances and reviewer’s signature.
3	Approve a trial/test section plan (first 3–5 columns) defining lift heights, stone size, and logger outputs; acceptance: signed trial plan uploaded to DMS.

Equipment & Calibration	
4	Calibrate depth sensor/encoder against a surveyed reference; method: staged rod checks; acceptance: ±0.10 m across full depth; evidence: calibration certificate and photos.
5	Verify data logger setup (depth, time, current, vibration, stone feed); sampling ≥1 Hz; acceptance: test file reviewed; evidence: screenshot and CSV sample.
6	Check hopper or weigh-belt scales for stone mass; method: test weights; acceptance: ±2% accuracy; evidence: scale calibration certificate and log.
7	Inspect bottom-feed pipe/tremie for internal diameter and wear; method: caliper/tape check; acceptance: ID ≥150 mm and no holes; evidence: dated photos.
8	Confirm vibroflot power and current range meet design; method: no-load and load test; acceptance: within manufacturer limits; evidence: nameplate photo and test record.

Layout & Spacing Verification	
9	Set out each column location with total station/GNSS; acceptance: horizontal offset ≤50 mm from design; evidence: as-set-out file and marked-stake photos.
10	Validate overall grid spacing before production; method: survey check on a sample of points; acceptance: RMS spacing error ≤30 mm; evidence: survey report.
11	Mark utilities and exclusion zones; method: permit review and site paint; acceptance: clearances per approved drawings; evidence: utility map and prestart sign-off.

Installation Monitoring & Probe Logs	
12	Advance vibroflot to design depth; acceptance: termination at design depth +0.20/–0.00 m or refusal; evidence: continuous depth/time log and supervisor sign-off.
13	Install aggregate in 0.5–1.0 m lifts with stepwise withdrawal; hold ≥10 s per lift; evidence: logger graph showing lift plateaus and timestamps.
14	Monitor electrical current or vibration intensity rise during compaction; acceptance: upward trend per lift indicating densification; evidence: annotated trend chart.
15	Capture stone feed rate and mass per lift; method: weigh-belt and batch tickets; acceptance: lift mass within ±10% of plan; evidence: tickets linked to column ID.
16	Confirm dry bottom-feed method; if groundwater encountered, implement casing/seals to maintain dry feed; evidence: site log entry and photos.

Stone Take & Materials Control	
17	Verify aggregate gradation 25–75 mm, clean, angular; method: on-site sieve and visual inspection; acceptance: meets approved submittal; evidence: sieve report and photos.
18	Record total stone take per column; method: cumulative scale readings; acceptance: within ±10% of calculated take; evidence: take summary by column.
19	Prevent spoil/fines or cementitious materials entering the column; acceptance: zero grout/concrete used; evidence: foreman declaration and installation photos.
20	Survey top-of-column elevation; acceptance: design elevation ±20 mm; evidence: survey shot list and marked stake photo.

Densification, Testing & Handover	
21	Construct trial columns and adjust lift height/stone size as needed; acceptance: target bulbing and take achieved; evidence: trial report with photos and logs.
22	Perform post-treatment CPT or DPH at specified locations; acceptance: meets target qc/N-values per approved project specifications and authority requirements; evidence: plots and interpreted report.
23	Run plate load or modulus testing where required; acceptance: settlement under design load within allowable; evidence: load–settlement curve and approval.
24	Compile as-built package: layout plan, probe logs, stone take, calibrations, and photos; acceptance: complete index signed by contractor and engineer.
25	Verify final column position deviations ≤75 mm and surface restored; evidence: post-survey and site handover photos.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install vibro-replacement stone columns safely and consistently with this focused inspection checklist. Also known as vibro replacement and vibro stone columns, this method densifies granular soils and forms load-sharing inclusions using clean aggregate. The scope here is production installation quality control: verifying probe logs, confirming stone take, validating location spacing, and documenting densification acceptance. Rigid inclusions (grouted or concrete elements) are explicitly excluded. Following this guide helps avoid common risks—underlength columns, insufficient bulbing, segregation of aggregate, mislocated positions, and inadequate post-treatment capacity—that can lead to settlement, differential movement, or non-compliance. You'll capture evidence from data loggers, scales, and surveys, and align acceptance with approved project specifications and authority requirements. The outcome is a defensible as-built package proving target improvement was achieved without grout or cementitious materials. Use the interactive features to tick each step, add comments where adjustments are made, and export a complete, QR-secured PDF/Excel report for stakeholders.	1. Preparation: assemble IFC drawings, approved method statement, ITP, logger setup guide, calibration certificates, weigh tickets, survey gear, PPE, and a camera. Brief the crew on dry bottom-feed stone columns and exclusion of rigid inclusions. 2. Using the Interactive Checklist: open the checklist on a tablet, start interactive mode, tick items as completed, and add comments where adjustments are made or issues arise. 3. Attach Evidence: upload logger CSVs, calibration sheets, weigh tickets, and geotagged photos directly to the relevant item so each requirement has traceable proof. 4. Export and Share: generate an export as PDF/Excel for daily reports, including comments and attachments, and distribute to the site team and engineer. 5. Sign-Off: capture digital signatures from the contractor's supervisor and the engineer, archive the QR-authenticated report in the DMS, and proceed to the next lot.