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Execute Dynamic Compaction: Grid, Energy, Backfill QA

Execute dynamic compaction with an interactive checklist that is commentable and export as PDF/Excel. Confirm grid, energies, backfill, settlement monitoring, and acceptance with documented evidence.

Project:
Date:
Filled by:

Pre-Works Verification	
1	Confirm treatment limits exclude foundations and match IFC drawings; set out boundary with survey to ±0.10 m; capture geo-referenced photos and upload survey file (DWG/CSV).
2	Verify approved method statement and dynamic compaction plan (grid, passes, energy); record approvals and release hold point per approved project specifications and authority requirements.
3	Inspect crane, drop system, and tamper; confirm certification dates valid; weigh tamper (scale photo) to verify mass within ±2% of design.
4	Establish site control and QA survey; calibrate instruments; record atmospheric/temperature corrections; verify closure error ≤ 1:10,000; upload calibration report.

Compaction Grid Setup	
5	Set out grid points at designed spacing (e.g., 3–6 m); check 10 random intervals within ±0.10 m; attach as-built file and point photos.
6	Create sequence plan and unique IDs for each grid point; post route map at rig and upload PDF to checklist.
7	Mark buried utilities and exclusion zones with fencing at ≥3 m offset; add utility mark-out sketch and locate scan report.
8	Install signage and barricades defining exclusion radius ≥1.5× drop height; photo verification each shift before works commence.

Energy and Drop Control	
9	Confirm energy per drop E = m×g×h meets design within ±5%; record tamper mass (kN), height (m), and energy (kN·m) with calculations.
10	Fit drop counter and inclinometer; maintain verticality ≤ 1:100; log drops per point and export automatic logger file daily.
11	Control drop count per pass (e.g., 5–15); stop when rebound/penetration stabilizes; capture final drop count and rig operator sign-off.
12	Measure crater depth after each pass with survey staff; if depth exceeds design (e.g., >1.5 m) seek approval before continuing; record readings.
13	Observe rest/stand time between passes (≥1–2 h or per plan) to dissipate pore pressure; log start/stop times and ambient conditions.

Crater Backfill and Passes	
14	Backfill craters with well-graded granular material; moisture at OMC ±2%; compact in 0.20–0.30 m lifts to ≥95% MDD; attach density and moisture test results.
15	Record backfill source, lot numbers, and delivery dockets; photograph materials and stockpiles; reject contaminated or oversize material.
16	Reinstate surface level at each point within ±20 mm of surrounding grade; verify with survey and upload level shots.
17	Apply dust suppression and manage runoff; maintain silt controls; document water usage (L) and weather; photo evidence of controls in place.

Settlement Monitoring	
18	Install settlement plates or survey benchmarks before first pass; baseline to ±5 mm; record coordinates and photos of installations.
19	Survey settlement after each pass and at 24/48 h; compare to design envelope; trigger alert if deviation exceeds ±20%; escalate to engineer.
20	Monitor adjacent assets with seismograph and crack gauges; maintain PPV within project limits; attach PPV time history and inspection photos.
21	Update heatmap of drops, energy, and settlement by grid point; export daily dashboard (PDF/CSV) and share with stakeholders.

Acceptance and Documentation	
22	Perform post-treatment tests (e.g., CPT/SPT/PLT) per plan; compare to acceptance thresholds; attach raw data, interpreted profiles, and locations.
23	Verify final surface RL matches design within ±30 mm; provide as-built survey (DWG/PDF) and coordinate list (CSV).
24	Compile dossier: approvals, daily reports, energy logs, density/moisture tests, settlement surveys, photos; obtain digital signatures (contractor/consultant/client) and archive.
25	Issue acceptance certificate per approved project specifications and authority requirements; close hold points and distribute final package.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Execute dynamic compaction with a focused, field-ready checklist that aligns crews, validates grid spacing, and controls drop energy from start to acceptance. Also known as dynamic soil densification and drop weight ground improvement, this process relies on measured energy input, disciplined crater backfill, and systematic settlement monitoring to deliver uniform improvement. This checklist excludes foundations and concentrates solely on ground improvement execution within the designated treatment area. By standardizing grid confirmation, energy calculations, pass control, and density testing, it reduces risks of soft pockets, differential settlement, excessive vibration, and costly rework. Real-time documentation, photos, and readings create a defensible record for consultants and owners, supporting timely approvals. Use this interactive tool to tick tasks, attach comments, and capture evidence; then export as PDF/Excel with an embedded QR code for secure verification.	1. Preparation: Gather approved plans, method statement, survey control data, logger setup, density/moisture test kits, PPE, barricades, and signage; brief the crew on grid, energy targets, passes, and safety zones. 2. Project setup: Create a checklist instance, enter grid spacing, pass counts, energy targets, tolerances, and required evidence types (photos, CSV, PDFs) to standardize field capture. 3. Using the Interactive Checklist: Start interactive mode on a tablet; tick tasks as completed, attach photos, upload survey/logger files, and record readings at each grid ID. 4. Collaboration: Tag responsible roles, leave time-stamped comments for clarifications, and request engineer approvals at defined hold points directly in the checklist. 5. Quality control: Review auto-flagged out-of-tolerance entries (e.g., energy ±5%, spacing ±0.10 m); create corrective actions and link them to affected grid points. 6. Export and sharing: Export the commentable record as PDF/Excel with an embedded QR code; share with stakeholders for daily reviews and sign-offs. 7. Sign-Off and Archiving: Collect digital signatures from contractor, consultant, and client; lock the record, store in the project archive, and reference the QR for audits.