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Prepare pile bearing surfaces: flatness and texture guide

Prepare pile bearing surfaces using an interactive checklist to remove laitance, verify flatness and texture, no grout pads; commentable and export as PDF/Excel.

Project:	
Date:	
Filled by:	

Pre-Work Verification	
1	Review drawings and approved project specifications for direct concrete-to-concrete bearing; confirm no grout pads or shim packs are permitted at pile heads.
2	Verify concrete has reached the minimum strength for surface preparation per approved project specifications; record compressive test report ID and date.
3	Hold a task briefing covering methods, flatness tolerance, texture target, debris control, and exclusion of grout pads; capture attendee signatures.
4	Confirm safe access, fall protection, and stable platform; issue permit-to-work and photograph perimeter controls.

Surface Access and Protection	
5	Install edge protection and splash containment to capture slurry/dust; log waste containers and disposal route.
6	Mask or sleeve reinforcing bars/dowels to prevent damage during preparation; photograph protection before work.
7	Mark bearing area limits with a laser and chalk line; record dimensions and take overview photos.

Laitance and Contaminant Removal	
8	Pre-wet, then remove laitance using stiff brushing and high-pressure water jetting (≈14–20 MPa) until runoff is clear; photo evidence of exposed sound aggregate.
9	For stubborn paste, use light bush hammering or a needle scaler; avoid crushing aggregate. Conduct tap test to check for hollow or damaged areas and record findings.
10	Remove oils/curing residues with biodegradable degreaser and rinse; perform water-break test to confirm a clean, film-free surface.

Flatness and Bearing Plane Establishment	
11	Grind high spots with a diamond cup grinder; target deviation from plane ≤ 2 mm across the full bearing area using a 1 m straightedge and feeler gauges.
12	Do not add grout pads or shims. Reprofile by selective removal only; confirm no voids or steps > 5 mm remain within the bearing zone.
13	Check elevation relative to design using a laser level; record readings and confirm compliance per approved project specifications without introducing intermediate layers.
14	Verify local planarity: gap under 300 mm straightedge ≤ 1 mm at representative locations; document gauge readings and locations.

Surface Texture and Integrity	
15	Develop a medium-roughened texture (approximate amplitude 2–5 mm) using controlled bush hammering or rotary scarifier; compare to a reference coupon and photograph close-ups.
16	Vacuum and blow with oil-free air to remove fines; verify cleanliness with a white cloth wipe test (minimal dust transfer).
17	Ensure surface is dry and free of standing water before handover; document with timestamped photos.
18	Inspect for cracks or spalls; flag any crack width > 0.3 mm or delamination for engineer review; annotate a crack map.

Verification and Documentation	
19	Photograph before/after with a scale, straightedge in place, and compass orientation; store filenames in the checklist.
20	Measure and record net bearing area; confirm it meets or exceeds design contact area per approved project specifications.
21	Conduct joint inspection with supervisor/inspector to confirm flatness, texture, cleanliness, and absence of grout pads; obtain digital sign-offs.
22	Collect and dispose of slurry and debris through approved channels; attach disposal tickets and environmental log entry.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Prepare pile bearing surfaces is the focused process of cleaning, flattening, and roughening the concrete pile head so it reliably transfers load to the superstructure without intermediate grout pads. This checklist details pile head preparation, bearing plane development, laitance removal, and controlled surface roughening to produce a uniform, load-ready interface. The scope covers concrete piles only and targets the final bearing surface that mates with a pile cap or structural element. By removing weak paste and contaminants, establishing measured flatness, and achieving a consistent texture, you reduce stress concentrations, avoid slip, and minimize differential settlement. You will also avoid defects such as microcracking from aggressive impact methods, trapped debris, or unintended shim/grout pads that compromise direct bearing. Use the steps, tolerances, and evidence prompts to standardize work, capture photos and readings, and document sign-offs per approved project specifications and authority requirements. Start in interactive mode to tick items, add comments, and export PDF/Excel with a secured QR code.	1. Gather tools: stiff brushes, biodegradable degreaser, pressure washer, diamond grinder, bush hammer/needle scaler, straightedge (1 m), feeler gauges, laser level, vacuum, PPE (eye, hearing, dust, gloves). Set containment for slurry and dust. 2. Confirm prerequisites: approved method statement, strength reports, access permits, and exclusion of grout pads per project specifications. Brief the crew on tolerances and documentation. 3. Open the interactive checklist on your device, enable tick and comment mode, and assign responsibilities to team members. 4. Work through each item sequentially, attach photos (before/after, gauges in frame), and log measurements with locations for traceability. 5. Use comments to flag nonconformances, request approvals, and record corrective actions; tag stakeholders for prompt review. 6. On completion, generate an export as PDF/Excel with embedded photos and readings; include project metadata and drawings references. 7. Capture digital signatures from contractor, inspector, and engineer; archive the file with QR authentication for future audits.