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Install CFA/Auger-Cast Piles: Speed, Pressure, Volume

Install CFA/auger-cast piles with controlled speed, pressure, and volume using an interactive checklist. Fully commentable and export as PDF/Excel for traceable approvals and records.

Project:	
Date:	
Filled by:	

Pre-Construction & Approvals	
1	Confirm pile layout, diameter, design length, and theoretical volume per pile from drawings; tolerance: setout within ±50 mm; evidence: calculation sheet, marked stakes, photos; acceptance: engineer/superintendent sign-off.
2	Verify approved grout/concrete mix for CFA use (workability, strength class); method: review submittal and batch tickets; acceptance: approved mix ID; evidence: batch IDs, delivery times, temperature readings.
3	Brief crew on method statement and contingencies (loss of returns, obstructions); method: toolbox talk; acceptance: attendees sign; evidence: agenda, signatures, photos of exclusion zones.
4	Establish exclusion zone and lifting plan; method: barriers and spotter assignment; acceptance: barriers continuous with clear signage; evidence: site map and photo log.

Equipment Setup & Calibration	
5	Calibrate flow meter and pressure transducer using water test and certified gauge; acceptance: ±2% flow accuracy, ±0.05 MPa pressure; evidence: certificates, calibration photos, worksheet.
6	Zero depth encoder at ground level; method: tape verification; tolerance: reading within ±50 mm over 20 m; evidence: zeroing screenshot and tape photo.
7	Check auger diameter, flight wear, and tip condition; method: calipers/gauge ring; tolerance: diameter not less than design –5 mm; evidence: measurement photos.
8	Verify mixing plant and pump output capacity; method: timed discharge test; acceptance: continuous flow meeting required withdrawal rate; evidence: flow vs time sheet.

Drilling Operations Control	
9	Position rig over pile center using total station/GNSS; tolerance: center within ±50 mm; evidence: instrument screenshot and paint mark photo.
10	Set mast verticality using inclinometer; tolerance: out-of-plumb ≤ 1:100; evidence: inclinometer reading pre-drill and at final depth.
11	Control penetration rate to match soil strength; target 0.3–0.8 m/min; evidence: rig data log; acceptance: stable bore with no excessive spoil collapse.
12	Achieve design toe elevation; method: depth encoder; tolerance: depth ≥ design and ≤ +0.10 m overdrill; evidence: depth trace screenshot.

Grouting & Volume Control	
13	Start pumping before reaching final depth to prime hollow stem; acceptance: continuous returns at collar; evidence: timestamped photo of first returns.
14	Begin extraction while pumping to maintain positive head; method: synchronized controls; acceptance: uninterrupted returns with no air; evidence: operator log and photos.
15	Link withdrawal speed to flow rate; calculation: $v = Q/(A \times f)$; acceptance: placed volume 95–110% of theoretical per 0.5 m; evidence: lift-by-lift log.
16	Maintain grout pressure at tool 0.7–1.5 MPa (as specified); evidence: pressure-time trace; acceptance: no sudden drops >0.2 MPa without corrective action.
17	Monitor spoil/grout returns; method: visual watch at collar; acceptance: steady mound, no cavitation; evidence: photo every 1 m of rise.
18	If pressure/returns fall, halt extraction and increase flow; acceptance: pressure restored within 10 s; evidence: incident note with times and settings.
19	Record cumulative placed volume vs depth; method: rig logger plus manual cross-check; acceptance: final total ≥ theoretical; evidence: signed volume sheet.
20	Finish with collar overfill 150–300 mm above grade; acceptance: no honeycombing; evidence: before/after trim photos.

Reinforcement & Finish	
21	Insert reinforcement cage/bar immediately after extraction; method: vibrator/oscillator if allowed; acceptance: full embedment to level; evidence: tag line length, photo.
22	Verify centralizers at ≤3 m spacing; tolerance: cover ≥50 mm all around; evidence: cage photos before insertion and as-built note.
23	Mark pile ID, top elevation, and timestamp at collar; method: painted/stamped; acceptance: legible; evidence: photo and level reading.

Documentation & Acceptance	
24	Export rig data (depth, torque, speed, pressure, volume) and daily report; acceptance: pile IDs match logs; evidence: PDF/Excel export and digital signatures.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install CFA/auger-cast piles with disciplined control of auger speed, grout pressure, and placed volume. This field-ready guide focuses on continuous flight auger (CFA) production, also known as augercast piles, emphasizing parameter monitoring, pump flow management, and real-time logging against theoretical volume. You will find practical steps to calibrate sensors, regulate auger withdrawal rate, maintain positive head, and document outcomes. The scope covers setup, drilling, pumping, and reinforcement insertion only; post-install integrity testing methods are intentionally excluded and handled separately per approved project specifications and authority requirements. Following this checklist helps avoid necking, inclusions, and uncontrolled ground movement, while delivering the designed geometry and continuity of the pile shaft. Use it to brief crews, run shifts, and close out daily reports with defensible records. Switch to interactive mode to tick items, add comments and photos, and export results to PDF/Excel secured via a QR code.	1. Preparation: gather approved drawings, method statement, mix approvals, and rig calibration certificates. Ensure camera-enabled device access, a QR scanner, PPE, and site control (barriers, lighting, communications). 2. Create project and piles: set pile IDs, diameters, design lengths, and theoretical volumes. Assign roles for operator, supervisor, and inspector with permission levels. 3. Start interactive mode: open the checklist, tick items as work progresses, attach photos, and record readings (depth, flow, pressure, volumes) at required intervals. 4. Use comments: flag deviations (pressure drops, volume variance, verticality issues), note corrective actions, and request approvals with @mentions for rapid resolution. 5. Review and reconcile: compare placed vs theoretical volumes per lift and total, verify signatures, and ensure reinforcement and marking steps are completed. 6. Sign-off: obtain digital signatures from responsible parties, then export the report as PDF/Excel with embedded photos and rig data. 7. Archive and verify: store the export, share with stakeholders, and use the QR code to authenticate the final record on-site or during audits.