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Survey and mark pile cut-off levels: field checklist

Survey and mark pile cut-off levels using an interactive checklist with precise tolerances; commentable steps, evidence photos, and easy export as PDF/Excel for approvals.

Project:
Date:
Filled by:

Pre-Survey Setup	
1	Review latest IFC drawings and pile schedule; confirm design cut-off elevations per grid and pile type. Evidence: marked print with revision, photo. Acceptance: latest revision confirmed; schedule reconciled with RFI responses.
2	Confirm vertical datum and primary benchmarks; run a closed level loop using a calibrated digital level and staff. Evidence: level book scan. Acceptance: loop misclosure ≤ 5 mm; benchmark within ±3 mm of known value.
3	Calibrate/verify instruments (digital level/total station) via two-peg test or manufacturer routine. Evidence: calibration log, photo of test setup. Acceptance: collimation error within manufacturer limits; certificates current (≤ 6 months).
4	Set project cut-off tolerance: adopt ±10 mm unless otherwise stated per approved project specifications and authority requirements. Evidence: signed method statement or ITP reference. Acceptance: tolerance documented and communicated to crew.

Control and References	
5	Install at least two TBMs within 30 m of the pile group, above flood/impact risk. Evidence: photos, coordinates, elevations. Acceptance: stable, protected TBMs on non-movable structures; intervisibility confirmed.
6	Tie TBMs to primary benchmarks with a redundant level run. Evidence: level book, closure calculation. Acceptance: TBM elevation difference from primary ≤ ±3 mm; notes signed by survey lead.
7	Set out pile grid references from control points using a total station. Evidence: stakeout report, screenshots. Acceptance: horizontal closure ≤ ±5 mm; orientation verified by independent check shot.
8	Verify as-built pile coordinates against design positions before marking cut-off. Evidence: comparison table with deltas. Acceptance: position deviations within project limits per approved specifications.

Pile Identification and Measurement	
9	Tag each pile with permanent ID matching the schedule (engraved tag or painted stencil). Evidence: photos by grid. Acceptance: 100% piles in lot tagged and cross-checked to schedule.
10	Measure current top-of-pile elevation from nearest TBM using digital level and staff. Evidence: staff reading photo; reading recorded to 1 mm. Acceptance: repeat readings within ±3 mm.
11	Compute required cut-off adjustment (design cut-off minus measured top). Confirm sign and units. Evidence: calculation sheet initialed by checker. Acceptance: independent check completed; no transcription errors.
12	If pile head is irregular, establish a temporary reference nail/mark on sound concrete to transfer level. Evidence: photo with staff on reference. Acceptance: reference stable; transfer repeatability ±3 mm.

Marking and Protection	
13	Transfer the cut-off elevation to the pile using a level and clamp-on staff or laser receiver. Evidence: photo showing bubble/receiver alignment. Acceptance: marked elevation within ±5 mm of target.
14	Paint a 30–50 mm durable band at cut-off elevation and label with pile ID and “C/O”. Evidence: close-up photo. Acceptance: legible from 2 m; high-contrast, weather-resistant paint used.
15	For groups, establish a laser plane or taut stringline at cut-off level to visually confirm consistency. Evidence: laser screen photo; group photo. Acceptance: all marks within ±5 mm relative to the plane.
16	Protect marks with sleeves, tape, or nail-on gauges to prevent abrasion and wash-off. Evidence: photo after protection. Acceptance: protection intact after 24 h and site traffic.
17	Install clear signage: “Do Not Break Head – Cut-Off Mark Only” to enforce scope boundary. Evidence: area photo. Acceptance: signage visible at access points and near pile groups.

Documentation and Verification	
18	Update cut-off register: pile ID, grid, design cut-off, measured mark elevation, date/time, crew, instrument serials. Evidence: exported PDF/Excel. Acceptance: 100% entries complete for the lot.
19	Attach calibration certificates, level run sheets, weather notes (rain/wind), and photos to the register. Evidence: file links or uploads. Acceptance: documents current and legible.
20	Request Engineer/QA inspection of marked cut-off levels prior to any head breaking. Evidence: approved inspection request. Acceptance: sign-off recorded per approved project specifications and authority requirements.
21	Place a QR code tag at TBM or at the pile group linking to the register. Evidence: scan test screenshot. Acceptance: QR scannable from 1 m; link accessible.
22	Re-verify a sample (≥10%) after 24 h or major weather; confirm no mark drift. Evidence: recheck log. Acceptance: deviation ≤ ±3 mm; investigate and correct if exceeded.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Survey and mark pile cut-off levels is a focused field task ensuring every pile head receives an accurate, durable elevation mark before any trimming activities. This checklist guides pile cut-off elevation marking and pile head level survey using reliable datums, TBMs, and total station or digital level workflows. You will establish a clear cut-off datum, tie temporary benchmarks to primary control, and apply protection so marks remain legible through weather and site traffic. The scope deliberately excludes head breaking or chipping; it concentrates on setting tolerances, references, documentation, and mark protection so downstream teams can execute with confidence. By standardizing methods and acceptance criteria, you reduce rework, avoid uneven pile caps, and maintain consistent concrete cover and reinforcement seating. Use this interactive checklist to tick tasks, add field comments, attach photos or instrument logs, and export to PDF/Excel with a secure QR for verification.	1. Preparation: Gather a calibrated digital level or total station, staff, mini prism or laser receiver, chalk/paint, protective sleeves/tape, permanent tags, QR labels, tablet/phone with camera, and PPE. Confirm access to TBMs, latest drawings, and adequate lighting. Brief the team on the agreed tolerance and scope (no head breaking). 2. Using the Interactive Checklist: Open the checklist on your device, start interactive mode, and work through items sequentially. Tick each step, add comments, and attach photos (staff readings, marks, TBMs). Link calibration logs where prompted. When complete, export the register and evidence as PDF/Excel with embedded QR verification. 3. Sign-Off: Capture digital signatures from the survey lead, contractor representative, and Engineer/QA. Distribute the exported PDF/Excel to stakeholders and archive source files. Post the QR code on-site at the TBM or pile cluster so teams can verify records before any head breaking starts.