



# Shaft Camera Inspection: Verify Sidewalls, Base, and Debris

Shaft camera inspection checklist to verify sidewall and base conditions and debris. Interactive, commentable, and export as PDF/Excel for reliable records.

Project:

Date:

Filled by:

## Pre-Inspection Planning

1	Confirm shaft ID, design diameter, and target depth against latest drawings; record from bore log and layout reference. Evidence: photo of marker board showing shaft ID, design diameter (mm), and planned depth (m). Acceptance: IDs match documents, no conflicting revisions.
2	Verify excavation status: drilling complete, cleanout equipment available on standby, and no reinforcement installed yet. Evidence: supervisor confirmation and timestamped photo of open shaft. Acceptance: safe access confirmed by superintendent prior to camera deployment.
3	Assess water presence and clarity from surface; if submerged, plan lighting and stabilization. Acceptance: ability to resolve 10 mm scale at 1.0 m distance on test shot; else schedule clarification/pump-and-settle.
4	Brief team on scope (visual only; exclude NDT analyses), roles, emergency retrieval, and hold points. Evidence: toolbox talk record with names/signatures. Acceptance: all roles acknowledged, rescue plan in place.

## Equipment Setup and Function Check

5	Inspect camera lens and housing; clean with lint-free wipes; verify no scratches or leaks. Evidence: close-up photo of lens before use. Acceptance: lens free of defects; O-rings intact.
6	Check lighting output and beam angle; set brightness to avoid washout. Evidence: calibration photo against a 10 mm/50 mm test card at 1.0 m. Acceptance: features clearly visible without glare.
7	Zero and verify depth encoder against a steel tape. Evidence: encoder reading at 5.0 m equals tape $\pm 0.10$ m. Acceptance: deviation $\leq 0.10$ m across the check range.
8	Confirm date/time stamp, video resolution $\geq 1080p$ , storage space $\geq 10$ GB, and battery $\geq 80\%$ . Evidence: settings screenshot. Acceptance: all thresholds met before descent.

## Access and Safety Controls

9	Establish a 2 m exclusion zone with barriers and signage; secure tripod or boom over the shaft. Evidence: site photo showing barriers and anchor points. Acceptance: no unprotected openings or trip hazards.
10	Fit camera tether and retrieval line rated above equipment mass $\times 5$ ; verify connections. Evidence: tag photo showing working load limit (N). Acceptance: all connections locked and inspected.
11	Assign a spotter to monitor descent and depth callouts; maintain radio contact. Evidence: names recorded on checklist. Acceptance: continuous communication maintained throughout operation.

<b>Visual Survey – Sidewalls</b>	
12	Lower camera at $\leq 0.3$ m/s; pause every 1.0 m to rotate 360°. Evidence: still images per metre with depth overlay. Acceptance: continuous video plus clear stills at each metre.
13	Identify sloughing, raveling, or cavities; estimate depth/extent using depth overlay and a scaled reticle. Acceptance: no cavities $> 50$ mm deep or continuous slough $> 25$ mm thick; otherwise flag for cleanout or stabilization.
14	Note groundwater inflows, seams, or obstructions that could trap debris. Evidence: annotated photos with arrows and depth. Acceptance: inflows not eroding fines; if jets observed, escalate to engineer.
15	Verify no foreign objects (tools, cables) along the wall. Evidence: clean sweep video segment. Acceptance: zero foreign objects; any found must be retrieved and re-inspected.

<b>Visual Survey – Base and Debris</b>	
16	Set camera at base; pan slowly to capture full circumference. Evidence: stitched or continuous video covering 360°. Acceptance: base surface visible without obscuring turbidity.
17	Measure loose sediment thickness with a marked rod adjacent to the camera. Evidence: photo showing gradations (mm) and depth overlay. Acceptance: loose sediment $\leq 50$ mm over $\geq 90\%$ of base; else cleanout required.
18	Check for standing water depth and clarity over base. Evidence: rod reading (mm) and visibility note. Acceptance: water condition suitable for concreting per approved project specifications and authority requirements.
19	Confirm absence of foreign objects on base (cuttings bags, tools, wire). Evidence: close-up photos at suspected locations. Acceptance: zero foreign objects; if present, remove and re-verify.

<b>Documentation and Closeout</b>	
20	Rename media with convention: Project_ShiftID_Date_Depth(m). Save raw video, stills, and checklist. Acceptance: complete dataset stored in project repository with read access for stakeholders.
21	Summarize findings: sidewall condition, base cleanliness, water notes, anomalies, and required actions. Evidence: signed inspection report with depth-indexed photo table. Acceptance: report approved by superintendent/inspector.
22	If cleanout performed, repeat critical base and affected sidewall visuals to confirm closure. Evidence: before/after comparison images with identical depth overlays. Acceptance: all previous nonconformances resolved.

**Comments:**

Filled by:

Signature:

Introduction	How to use this checklist
<p>Shaft camera inspection provides a direct, visual method to verify sidewall and base conditions and identify debris before concreting. Also known as a borehole video inspection or downhole camera survey, this process focuses on cleanout confirmation, sidewall stability, and bearing surface readiness while deliberately excluding NDT analyses such as sonic integrity testing. Using a high-resolution camera with integrated lighting and depth overlay, inspectors document sloughing, cavities, soft seams, sediment thickness, and foreign objects. By capturing clear evidence at defined intervals, the team reduces risks of inclusions, laitance, and compromised load transfer. The scope is strictly visual: observe, measure with simple tools (marked rod), and document; any structural capacity assessment remains out of scope and must follow per approved project specifications and authority requirements. Use this interactive checklist to standardize preparation, execution, and documentation; tick off steps, leave comments at anomalies, and export your record as PDF/Excel with a QR code for traceable approval.</p>	<p>1. Preparation: gather shaft camera with lighting, depth encoder, marked rod, barriers, tripod/boom, radios, PPE (helmets, gloves, high-visibility, eye protection), and cleaning kit for lens. Verify site is ready: drilling done, access safe, cleanout tools available, and scope limited to visual inspection (exclude NDT analyses). 2. Open the interactive checklist on your device. Start a new record, enter project and shaft ID, and photograph the marker board. Enable time/depth overlay on the camera and confirm storage and battery status. 3. Tick items as you proceed. Add comments at each anomaly with depth, estimated extent, and required action. Attach photos and short video clips to the relevant steps for evidence. 4. If acceptance cues are not met (e.g., sediment too thick), pause the inspection, perform targeted cleanout, then re-run the affected depths. Use comments to link before/after media and record closure. 5. Export deliverables: generate PDF/Excel outputs including checklist, photos, and links to original media. Ensure depth overlays are visible on key frames for review by stakeholders. 6. Sign-Off: capture digital signatures from inspector and superintendent, share with stakeholders, and archive in the CDE. Verify QR code on the export for authentication and traceability.</p>