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Install Utility Manholes: Base, Walls, Covers, Steps Guide

Install utility manholes with an interactive checklist covering base, walls, covers, steps, watertightness, and benching; fully commentable and easy to export as PDF/Excel.

Project:
Date:
Filled by:

Base Installation	
1	Survey excavation footprint and founding level with laser level and grade rod; acceptance: plan location within ±10 mm, base level within ±10 mm; evidence: marked photos with elevations and station references.
2	Compact subgrade to 95% MDD using plate compactor/roller; acceptance: in-situ density test meets specification; evidence: test report with location grid and operator signature.
3	Place 150 mm crushed aggregate leveling course, screed to plane; acceptance: thickness ±10 mm, surface even; evidence: depth-probe photos and straightedge check across 1 m.
4	Install base formwork and cover blocks; acceptance: dimensions per drawing, clear cover ≥50 mm; evidence: tape readings, cover block spacing photo, foreman sign-off.
5	Fix base reinforcement per bar schedule; acceptance: bar size/spacing correct, laps per drawings; evidence: bar tag lot numbers and overall reinforcement photo before pour.
6	Place C30/37 concrete with poker vibrator at 300 mm grid; acceptance: finish levelness ±5 mm over 1 m, no honeycombing; evidence: slump/cylinder IDs and surface level photo.

Wall Construction and Joints	
7	Set first precast ring on mortar bed or gasket; use certified lifting clutches; acceptance: uniform bearing, joint gap <3 mm; evidence: close-up photos around full circumference.
8	Check ring level and plumb with laser/spirit level; acceptance: verticality ≤5 mm/m, overall deviation ≤10 mm; evidence: recorded readings at four quadrants.
9	Install subsequent rings with approved sealant/gasket; compress per manufacturer guidance; acceptance: continuous 360° squeeze-out, no fish-mouths; evidence: photos and sealant batch numbers.
10	Seal exterior joints with shrink-resistant grout; acceptance: dense, crack-free finish; evidence: hammer tap soundness check and timestamped photos after initial set.
11	Where cast-in-place walls are specified, erect forms and vibrate concrete; acceptance: no voids/honeycombing, cover ≥50 mm; evidence: pour log, photos after stripping.

Steps and Ladders	
12	Mark step locations with drilling template; acceptance: vertical spacing 300 ±10 mm, alignment ±5 mm; evidence: template-in-place photo with tape measurements.
13	Install corrosion-resistant steps using epoxy grout; clean holes, inject, set; acceptance: pull-out ≥2.5 kN (sample test); evidence: test record and product batch labels.
14	Verify embedment depth 150 ±5 mm and clearances; acceptance: ≥200 mm foot clearance from wall; evidence: depth gauge and clearance photos with scale.
15	Provide secured temporary access ladder during works; acceptance: extends ≥1 m above rim, tied at two points; evidence: daily pre-use inspection log.

Covers and Frames	
16	Bed frame on non-shrink grout/mortar using levelling wedges; acceptance: frame level within ±3 mm; evidence: spirit level photos at four quadrants.
17	Set cover to finished ground/pavement level using laser; acceptance: pavement flush ±3 mm, landscaped crown +0 to +10 mm; evidence: level staff photo and notes.
18	Check frame anchorage/dowels as specified; torque anchors with calibrated wrench; acceptance: torque within manufacturer range; evidence: torque log and anchor serial numbers.
19	Confirm clear opening and cover class; acceptance: dimensions per drawing, load class per project specification; evidence: measurement photo and cover casting markings.

Watertightness Verification	
20	Plug lift holes and any penetrations with inflatable plugs; acceptance: all openings sealed before testing; evidence: interior photos of each plug in position.
21	Conduct vacuum test with pump and gauge; acceptance: 24 kPa hold for 60 s, drop ≤2.5 kPa; evidence: gauge close-up, time-stamped log.
22	Alternatively perform hydrostatic exfiltration test; fill to rim; acceptance: level drop ≤1.0 L/m²·h; evidence: initial/final level photos and calculation sheet.
23	Inspect joints and step penetrations with dye; acceptance: no damp streaks or bubbles; evidence: annotated photos showing clean, dry surfaces.

Benching and Internal Finish	
24	Form channel invert to design radius/grade using screed templates; acceptance: smooth finish, no lip edges; evidence: ruler-and-level photos along channel.
25	Construct bench side slopes 1:6 to 1:12 toward channel; acceptance: confirmed with digital level; evidence: slope readings at three stations.
26	Provide non-slip broomed finish and rounded arrises; acceptance: uniform texture, no loose aggregate; evidence: close-up finish photos.
27	Cure base and benching using compound or wet coverings; acceptance: minimum 7 days moist curing; evidence: curing log and product data sheets.
28	Final clean; remove debris and all plugs; acceptance: safe, clean chamber ready for inspection per approved project specifications and authority requirements; evidence: final interior photo and supervisor sign-off.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install utility manholes with a rigorous, field-ready process focused on base, walls, covers, steps, watertightness, and benching. This checklist supports manhole construction teams using precast rings or cast-in-place walls to deliver durable, watertight chambers. It excludes external utility networks, connections, and pipelines, keeping attention on the structural unit only. By specifying tools, tolerances, and evidence, it reduces leaks, misaligned frames, poor step embedment, and inconsistent benching. You will see practical cues like laser levels for plumbness, torque readings for anchors, vacuum or hydrostatic testing for leakage, and finishing methods for safe, non-slip benching. The sequence helps crews coordinate concrete placement, gasketed joints, rung installation, and frame seating without clashes. Acceptance records, photos, and batch data streamline approvals per approved project specifications and authority requirements. Start in interactive mode to tick tasks, add comments, attach photos, and export results as PDF/Excel with a secure QR link.	1. Preparation: Confirm drawings, approved materials, and inspection/test plans. Assemble tools—laser level, torpedo/spirit levels, torque wrench, vibrators, inflatable plugs, density kit, dye, depth gauge, cameras, and PPE. 2. Set up the project: Create a checklist session, define manhole ID and chainage, assign roles, and preload documents (shop drawings, product data, pour logs). 3. Using the Interactive Checklist: Start interactive mode, tick items as completed, add comments, and attach photos, readings, and batch numbers from the field. 4. Export and share: Generate a live report and export to PDF/Excel for reviewers. Use the QR code link to verify authenticity during walkthroughs. 5. Sign-Off: Capture digital signatures from superintendent, QA/QC, and client. Archive the record and notify stakeholders for formal acceptance.