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Technical Specifications, Scope of Works and Method Statements For Borehole Drilling, Casing, Development, and Capacity Testing

BRACES Project, Binga District (Wards 13 and 19) TENDER 11/26

Part A: General Requirements

A1 Project background and purpose

ActionAid Zimbabwe (AAZ), UNESCO and the Government of Zimbabwe, through the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development, are collaborating on the Adaptation Fund-supported Be Resilient Zimbabwe Plus Project titled, "Strengthening Local Communities' Adaptive Capacity and Resilience to Climate Change through Sustainable Groundwater Utilization in Zimbabwe." The Be Resilient Zimbabwe Plus project seeks to strengthen climate adaptation and community resilience in Binga and Buhera through sustainable groundwater utilisation for food security and other productive purposes. The project includes groundwater resource assessments in the Lower Gwayi and Upper Save sub-catchments; strengthened technical, institutional and human capacities for water and land management; demonstration of practical adaptation measures; and learning to inform replication and scale-up. In Matabeleland North, Binga District, AAZ is implementing components of the Be Resilient Zimbabwe Plus project through the Building Resilient Communities and Environmental Sustainability (BRACES) Project in Ward 13 (Saba-Lubanda) and Ward 19 (Pashu). A core output is climate-smart water and food security infrastructure built around Village Business Units (VBUs): fenced community gardens, solar-powered irrigation systems, livestock watering and domestic supply, with four VBUs per ward (one at a school) and one Piped Water Scheme per ward. Each VBU and scheme needs a reliable, safe, solar-pumped groundwater source. This document specifies the works needed to drill, construct, test, and complete those boreholes.

A2 Lots, quantities and locations

The total scope is **18 boreholes**: 8 VBUs × 2 boreholes = 16 boreholes, plus 2 Piped Water Schemes × 1 borehole = 2 boreholes. Each ward has 9 boreholes (4 VBUs × 2 plus 1 scheme). These figures are used identically in A2, C1, the Bill of Quantities (Annex E2) and the Site Schedule (Annex E5).

Lot	Title and summary of works	Boreholes	Sites (see Annex E5)
Lot 1	Drilling, casing, development, sanitary seal and headworks, Ward 13	9	Ward 13: VBUs 1, 2, 3 and 4 plus 1 water piped scheme.
Lot 2	Drilling, casing, development, sanitary seal and headworks, Ward 19	9	Ward 19: VBUs 1, 2, 3 and 4 plus 1 water piped scheme.
Lot T	Capacity testing (4-hour step test and 8-hour constant-rate test), water quality sampling and laboratory testing, disinfection. Priced as rates only	Up to 18	All sites. May be awarded to the Lot 1 to 3 contractors for their own boreholes, or as one stand-alone lot

- **Award structure.** AAZ intends to award **three drilling contracts to three different contractors, six boreholes each** (Lots 1 to 3).

- **Lot T (capacity testing).** Testing is priced as rates only in Section 4 of the BOQ and is not part of the Lot 1 to 3 totals. AAZ reserves the right to award Lot T to the drilling contractor of each lot at the quoted rates, or to award all or part of it as a stand-alone lot to another qualified contractor (Part B5). The Contractor performing the testing is the "Yield Testing Contractor".
- **Locations.** VBU names and approximate coordinates (decimal degrees, WGS84) will be shared by AAZ in site schedule. Lot boundaries are fixed by the Site Schedule. Quantities are indicative and re-measurable. The Bill of Quantities forms part of the tender documents.
- **Site access to work.** Works at any location shall not commence before formal site handover (H1) and a written Site Instruction from AAZ.
- **AAZ's rights.** AAZ may reject non-responsive bids; cancel or withdraw the tender before contract award in line with AAZ and donor procurement rules, with documented reasons; reject non-compliant work on objective technical grounds recorded in writing; issue variations only through the written change-control process in D4; and suspend or terminate contracts only as provided in Part D. After award, depth targets change only by variation (D4).

A3 Roles, supervision and hold points

- **Client:** ActionAid Zimbabwe. **Client's Representative:** the AAZ-designated project team, who issues Site Instructions and certifies completion.
- **Supervising team:** AAZ, the AAZ Engineer (the engineer appointed by AAZ for this contract, who gives every technical approval and certification in this document), the District Water and Sanitation Sub-Committee (DWSSC) technical person, the local Environmental Health Technician (EHT) and a community representative. At least one AAZ representative and one DWSSC representative must be present at every hold point. UNESCO may inspect at any time. The AAZ Engineer gives the technical approvals (H2, H5); the EHT witnesses the water-quality points (H3, H6); the community representative witnesses H1 and H6.
- **Contractor:** responsible for method, labour, plant, materials, safety and quality of all works under the lot awarded. The **Yield Testing Contractor** is responsible for capacity testing, water sampling and disinfection (Lot T).
- **Forms:** the AAZ Site Inspection Form completed at each stage, signed by AAZ, community, government/district and contractor representatives, and the Site Instruction Form, are mandatory. No payment is made for a borehole without the signed forms for the stage claimed (D2).

Hold points (H) and witness points (W)

Ref	Point	Signed by
H1	Site handover and pre-drilling verification: marker, coordinates, access and community agreement confirmed; Site Instruction issued. (Siting and community agreement are completed by AAZ and DWSSC before handover; the Contractor attends to confirm the marker and access, receive the Site Instruction and sign the handover record.)	AAZ, DWSSC, community, contractor
W1	Mobilisation and material inspection: rig, bits (12 in and 8 in), compressor, certificates for casing, screens, solvent cement, bentonite and gravel, and the approved gravel-placement method statement	AAZ, DWSSC

Ref	Point	Signed by
H2	Approval of casing and screen design after drilling and logging, before casing is lowered	AAZ Engineer, Contractor's hydrogeologist, contractor
W2	Gravel pack, bentonite seal, backfill and grouting placement (depths measured)	AAZ, DWSSC
H3	End of development: water clear, turbidity at or below 5 NTU, sand content at or below 5 mg/L	AAZ, EHT
H4	Verticality and alignment accepted (12 m dummy) and clear depth confirmed; the borehole is capped, locked and handed over to AAZ's custody with its construction data, awaiting capacity testing	AAZ Engineer, DWSSC, Drilling Contractor
H5	Borehole released by AAZ to the Yield Testing Contractor; approval of step-test discharge rates (based on airlift yield) and start of testing	AAZ Engineer, DWSSC, Yield Testing Contractor
H6	Final acceptance and handover: capacity test report, water quality results, headworks, completion report, Pump Design Data Sheet and Completion Certificate	AAZ, DWSSC, EHT, community

Hold points are passed in order. No work beyond a hold point proceeds until it is signed. H4 precedes H5 because the dummy must pass before a test pump is installed. The headworks (C3.7) follow H4 and do not wait for H5, H6, the capacity test or laboratory results.

A4 Standards, permits and compliance

- **Contractor obligations.** The Drilling Contractor must hold, and keep valid for the whole contract, its registration as a drilling contractor with the Zimbabwe National Water Authority (ZINWA). Every Contractor, including the Yield Testing Contractor, must hold and keep valid its corporate, tax, statutory and operating licences and any registration or licence that the law requires for the work it performs (for test pumping, only where the law requires one). Each is responsible for its own compliance with the Water Act [Chapter 20:24], the Environmental Management Act [Chapter 20:27], the Public Health Act [Chapter 15:17], and the requirements of ZINWA and the Gwayi Catchment Council.
- **AAZ obligations.** AAZ is responsible for project-level notifications and approvals that fall to the client (including water-related authorisations for the project), community site access and clearance, and the Site Schedule.
- **Drinking water quality:** the Zimbabwean drinking water standard (SAZS 560, current edition) and the WHO Guidelines for Drinking-water Quality. Where they differ, the more stringent applies. Annex E1 lists the acceptance parameters (physical, microbiological and chemical) and the report-only parameters (total dissolved solids, total coliforms and the irrigation parameters). The only variance permitted is for iron, and only on a documented technical water-treatment assessment and a written AAZ decision; community acceptance alone is not sufficient. No other variance applies.
- **Materials** in contact with drinking water must be non-toxic and certified (for example ISO 1452 for uPVC casing, NSF/ANSI 60/61 or equivalent for drilling additives, bentonite and solvent cement). Equivalent national or regional standards are acceptable only where AAZ approves in writing. All materials are subject to inspection before use; non-conforming materials will be rejected.

- **Safeguarding and conduct:** AAZ and UNESCO apply a zero-tolerance policy on sexual exploitation, abuse and harassment (PSEAH). The contractor and all staff must sign the project code of conduct before mobilising. Breaches have the contractual consequences in D12.

A5 Contractor qualifications and key personnel

#	Minimum contractor experience	Key personnel (CVs submitted with bid, approved by AAZ)
1	Drilling Lots 1 to 3: registered drilling contractor; at least 3 completed borehole contracts of 80 m or more in the last 5 years; own or leased rig with depth capacity of at least 130 m, able to drill a 12 in (305 mm) surface hole and an 8 in (203 mm) main hole; compressor of at least 21 bar / 900 CFM, or another size that the bidder justifies as fit for the Works. Experience of drilling in Binga terrain is a plus.	Drilling supervisor (at least 5 years) on site throughout; hydrogeologist (may also be the siting hydrogeologist) to log and approve design; test-pumping technician (at least 3 years of capacity-testing experience), required in every bid.
2	Lot T (Yield testing): at least 3 completed step-drawdown and constant-rate test assignments in the last 5 years; own or leased test pump (at least 3 L/s at +130 m head), generator, flow meter and dip meters.	Test-pumping technician (at least 3 years of capacity-testing experience); hydrogeologist or analyst for test interpretation.

The contractor must keep the approved supervisor on site. Replacement of any key person requires prior written approval by AAZ and equal or better qualifications.

A6 Health, safety, environment, safeguarding and community relations

- Submit a site-specific HSE plan with the bid, covering rig operations, mud pits, manual handling, electrical safety, heat stress (Zambezi valley conditions), snake and wildlife risk, and emergency evacuation. Provide PPE to all workers and a first-aid kit with trained first aider on every site.
- Fence or mark open mud pits and holes; line mud pits, never discharge drilling fluid or test-pumping water into rivers, wetlands, gardens or near latrines; backfill and restore all pits. Test-pumping discharge must be led at least 50 m from the wellhead and away from drainage to the borehole.
- Sites must stay clear of project-protected wetlands and gully reclamation areas. Store fuel in bunded containers and remove all waste.
- Report to the village head and ward councillor on arrival and departure. Respect sacred and burial sites, livestock routes, and cropping schedules. Recruit local unskilled labour from the host ward and include women and youth. No child labour or forced labour. Pay fair wages on time.
- Establish a simple community complaints channel with AAZ before work starts. Report any incident, injury or safeguarding concern to AAZ within 24 hours.

A7 Programme, access and seasonal risk

Item	Target (bidders propose a work plan)
1	**Drilling lots:** 15 calendar days per lot (six boreholes) from the commencement date in the written Notice to Commence to H4 of the last borehole. One rig is the minimum; bidders may propose two rigs or more. Bidders must show that the plan is achievable.
2	**Headworks:** built by the Drilling Contractor after H4 and completed within 10 calendar days of H4, per borehole. The headworks do not wait for the capacity test or laboratory results.

Item	Target (bidders propose a work plan)
3	**Lot T (Yield testing):** programme set by AAZ. Each borehole test takes about 14 hours (12 pumping hours plus recovery). The Yield Testing Contractor mobilises within 5 days of AAZ's notice and tests boreholes in the order released by AAZ at H5.

The rainy season runsroughly from November to March. Sandy tracks and seasonally flooded areas can delay rigs, trucks and test-pumping. Site visits are not mandatory but are encouraged. Bidders must price access and terrain risk and state how rainfall delays will be managed. AAZ may approve time extensions only for documented force majeure, Client-caused delay or an approved variation (D7).

A8 Reporting, payment, retention and defects liability

- **Data standard:** all coordinates in decimal degrees (WGS84) with GPS accuracy of 5 m or better; photos geo-tagged; daily records kept on site and open to inspection; reports in English in Word/PDF.
- **Payment** is in USD against invoices that follow the BOQ item structure, supported by signed Site Inspection Forms and the deliverables required for that stage. Payment terms are in D2. AAZ pays an approved invoice within 14 calendar days of receipt.
- **Retention:** 10 percent of each approved payment under Lots 1 to 3 (including mobilisation) is retained and released at the end of the Defects Liability Period (DLP). There is no retention on Lot T. **DLP: 12 months from H6** acceptance of the last borehole in the lot. Defects due to workmanship or materials must be rectified at the contractor's cost within 14 days of written notice; if not, AAZ may have them rectified by others and deduct the cost from retention.
- All unused materials, debris and temporary structures must be removed, and each site cleared to the Client's Representative's satisfaction before final payment.
- Errors or omissions found in these documents must be reported immediately, not exploited.

Part B: Bid Submission, Evaluation and Award

B1 Bid submission, validity and clarifications

Item	Requirement
Issue date	**Saturday 14 November 2026**
Clarifications	Written questions to procurement.zimbabwe@actionaid.org by **Monday 16 November 2026 1700hrs.** AAZ will answer all questions in writing to all bidders by **Wednesday 18 November 2026 by 1700hrs**. No other channel is official.
Site visit	Not mandatory (encouraged)
Bid closing	**Monday 23 November 2026 at 1700hrs**, at procurement.zimbabwe@actionaid.org . Late bids are rejected.
Bid opening	**Wednesday 25 November 2026** at 26 Divine Road, Milton Park. Technical proposals are opened first; financial proposals are opened only for bidders who pass Stage 1 and reach the technical pass mark.
Bid validity	90 calendar days from the closing date.
Format	Two separate parts: (1) Technical Proposal with Stage 1 documents, and (2) Financial Proposal (completed Annex E2 BOQ in Excel and PDF). All forms in Annex E6 must be completed and signed.
Currency and tax	USD. Rates exclude VAT (D14).
Lots	State the lot(s) bid for. If bidding for more than one drilling lot, give an order of preference (used only as the last tie-break in B5). State whether Lot T rates are offered (Section 4 of the BOQ must be fully priced to be considered for Lot T). A bidder may bid for Lot T alone.
Bid security	

B2 Stage 1: Preliminary and Mandatory Compliance (pass/fail)

Failure to submit or satisfy any of the following results in disqualification:

- Valid company registration (Certificate of Incorporation).
- Valid tax clearance certificate.
- Valid ZINWA drilling contractor registration (drilling lots).
- Minimum experience in A5 with client reference letters or completion certificates.
- Rig ownership or lease agreement for an operational rig rated to at least 130 m (drilling lots); test equipment evidence (Lot T).
- CVs and professional certificates for the key personnel in A5.
- Site-specific HSE and environmental plan.
- Signed declarations: acceptance of tender terms; safeguarding commitment and code of conduct; conflict of interest; anti-fraud, anti-bribery and non-collusion (D10).

B3 Stage 2: Technical and Financial evaluation (100 points)

Evaluation area	What is assessed	Points
1. Track record and experience	Depth and relevance of past borehole contracts, Binga or Zambezi valley experience, reference checks	20
2. Technical methodology and work plan	Method statement including the drilling and casing procedure for the 12 in surface and 8 in main holes, gravel placement through the narrow	15

Evaluation area	What is assessed	Points
	annulus, mud control, mobilisation logistics, sand aquifers and flooding risk, and a programme that meets the 15-day target	
3. Equipment capacity and verification	Rig condition, compressor rating (at least 21 bar / 900 CFM, or another size justified as fit for the Works), dip meters, back-up equipment; for Lot T the test pump, generator and flow-measurement equipment	15
4. Key personnel	CV strength, accreditation and years of experience of the supervisor, hydrogeologist and test technician	10
5. HSE, environmental and safeguarding	Robustness of the HSE plan, wildlife management, waste containment, worker protection and PSEAH measures	10
Technical total	**Minimum technical pass mark 70 percent = 49 of 70 points** to qualify for financial opening	**70**
6. Financial proposal	Price score = (lowest evaluated price ÷ bidder's evaluated price) × 30	30
TOTAL		**100**

B4 Financial evaluation

- One set of rates applies to any lot awarded. The **evaluated price of a lot** is the lot total in Annex E2 (Sections 1 to 3 plus provisional Section 5 at the stated quantities, excluding VAT). Section 5 is included only to compare rates; it is paid only as instructed.
- Arithmetic errors are corrected by AAZ; unit rates prevail over amounts. Unpriced items are treated as included in other rates.
- **Lot T** is priced from Section 4 rates on the indicative quantities (all 18 boreholes) and scored separately from Lots 1 to 3. Section 4 rates do not affect the Lot 1 to 3 financial score.
- Bidders must give a total price per borehole and a consolidated price for each lot bid (Annex E2 summary).

B5 Award and allocation of lots

1. **Ranking.** Each bidder that reaches the technical pass mark is scored for each drilling lot it bids for: technical score plus financial score (out of 100), with the financial score based on the evaluated price of that lot (B4).
2. Each bidder must demonstrate capacity for two lots (18 boreholes in the target programme) with its own rig, crew and key personnel.
3. **Lot T (capacity testing).** Lot T bids are scored in the same way: technical score for testing, and financial score from the Section 4 evaluated price (B4). AAZ awards Lot T in whole to the highest-scoring qualified Lot T bidder. Where programme, access or cost makes it better value, AAZ may instead award Lot T by lot to the drilling contractor of each lot at that contractor's quoted Section 4 rates, or split it between contractors, recording its reasons in writing. A bidder may bid for a drilling lot alone, for Lot T alone, or for both. Award of one does not depend on award of the other, and no price may be conditional on winning both.
4. AAZ may award fewer than three lots or re-tender any lot where bids are insufficient, non-responsive or above budget, in line with AAZ and donor rules and with documented reasons.

Part C: Borehole Drilling, Casing, Development, Sanitary Seal and Capacity Testing

C1 Scope of works

For each borehole in the lot awarded (18 boreholes in total across Lots 1 to 3) the Contractor shall supply all labour, supervision, plant, transport, materials, fuel, water and consumables to:

1. Mobilise, establish the site and drill the borehole: a 12 in (305 mm) surface section and an 8 in (203 mm) main hole (down-the-hole hammer permitted in competent rock);
2. Sample, log and record yields while drilling;
3. Design (with the Contractor's hydrogeologist and the AAZ Engineer) and install uPVC casing, screens, sump, centralisers and bottom plug;
4. Place gravel pack, bentonite seal, backfill and cement grout to form the sanitary seal;
5. Develop the borehole, test verticality and hand the borehole over to AAZ at H4;
6. Hand over to AAZ at H4 a clear, capped and locked borehole with its construction data, to await capacity testing;
7. After H4, and without waiting for the capacity test or laboratory results, construct the wellhead, concrete apron, lockable chamber and identification plate;
8. Produce the drilling completion report; and
9. Clear and restore the site.

Lot T scope (Capacity Yield Testing Contractor): capacity testing (4-hour step test and 8-hour constant-rate test with recovery), the test report and the data for the Pump Design Data Sheet (C3.9, C3.10, C3.12). Where one contractor holds both a drilling lot and Lot T, both scopes apply.

C2 Design basis

Pipe sizes are specified by outside diameter (OD) in mm and govern. Hole and bit sizes are given in inches with mm in brackets.

Section	Depth below ground (m)	Hole diameter	Lining and annular fill
Surface section	0 to 15	Not less than 12 in (305 mm) bit	**250 mm OD uPVC Class 10 (PN10) surface casing**, grouted in place, with a stick-up of not more than 1.0 m above ground
Main hole drilling and construction	15 m to terminal / design depth (budgeted maximum 100 m)	Drilled in a single pass with a bit of not less than 8 in (203 mm), straight and plumb, to the design depth plus 1 m	**140 mm OD uPVC Class 10 (PN10)** casing and screens, solvent-cement jointed, full depth, run from surface through the surface casing, with a stick-up of not more than 1.0 m above ground; annulus of at least 30 mm (gravel pack below 15 m)
Sump	Bottom 3 m maximum	As main hole	Plain 140 mm uPVC Class 10 casing with glued bottom plug
Stick-up	Production casing and surface casing not	n/a	Casing terminates in sanitary cap inside lockable chamber

Section	Depth below ground (m)	Hole diameter	Lining and annular fill
	more than 1.0 m above ground		

- **Depth:** drilled depth follows the siting report and must penetrate the shallow aquifer to tap the productive aquifer. The budgeted maximum is 100 m. Additional depth requires a written Site Instruction and is paid at the tendered extra-depth rate. The driller drills one extra metre below the design depth to leave space for fill (backfill) during casing installation; this metre is not paid separately.
- **Required performance:** sustainable yield of at least 1.0 L/s (3,600 L/h) for solar mechanisation.
- **Size chain:** the 140 mm casing accommodates a 4-inch solar submersible pump and, in the 8 in (203 mm) hole, leaves an annulus of about 31 mm (at least 30 mm) for the gravel pack. The Contractor's hydrogeologist may propose alternatives for AAZ Engineer approval at H2 where formation conditions demand (for example 125 mm OD casing, which leaves about 39 mm).
- **Clearances:** the annulus outside the 250 mm surface casing in the 12 in (305 mm) hole is about 27 mm and is pressure-grouted (C3.6). Inside the surface casing, the radial clearance around the 140 mm string is about 40 mm (to be confirmed from the casing supplier's wall thickness) and the 8 in (203 mm) bit passes freely. Joint collars and sockets reduce the annulus locally; their outside diameter must be declared in the bid, approved at W1, and must not prevent gravel placement. The Contractor must submit at W1 a method statement showing how gravel will be placed without bridging, and AAZ may approve gravel grading for this purpose.
- Losses of temporary casing, tools or fluids are the contractor's risk.

C3 Technical specification

C3.1 Drilling method and fluids. DTH drilling with potable-safe bentonite (NSF/ANSI 60 or equivalent). Mud rotary methods are permitted in loose formations (for example Kalahari sand). Polymers or other additives only if non-toxic, biodegradable and approved by AAZ. Keep mud properties within a range that stabilises the hole without sealing aquifers, and thin or flush mud before casing. Drilling fluid costs and temporary casing are included in the metre rates.

C3.2 Hole diameters and depth. As C2. The contractor must keep the hole straight and plumb. Drilled metres are measured from ground level to the accepted depth; metres lost to collapse are not paid.

C3.3 Sampling, logging and interim yield tests.

- Collect unwashed cuttings at every 1 m (and at each change of formation), lay out in rows of ten, pack in solid polythene bags and label with community, borehole number, date and depth. Deliver the samples to AAZ at completion.
- Record the penetration time for every metre with a stopwatch, by a nominated crew member, plus bit type and size, loss of circulation and rig downtime with causes.
- Record all water strikes and carry out an interim airlift yield measurement at the end of each rod after the first water strike, measured with a weir or calibrated vessel.
- The hydrogeologist produces a lithological log with water strikes, penetration log and yield data (daily and final), using the log in Annex E4.

C3.4 Casing, screens, centralisers and bottom plug.

- **Production casing:** 140 mm OD Class 10 (PN10) uPVC, drinking-water grade, in 6 m lengths, permanently joined with high-pressure solvent cement and external uPVC alignment collars or sockets. The solvent cement must be certified for potable water (A4). The Contractor must ensure joints are fully cured before lowering the string, keep the string suspended, and protect pipes in transport and storage to prevent bending or deformation.
- **Screens:** factory-made slotted uPVC, 140 mm OD, slot width 0.8 to 1.0 mm (finer slots, for example 0.5 mm, in fine sediments, selected from sieve analysis) and open area not less than 9 percent per linear metre. The contractor takes responsibility for screen design and positions, to be approved at H2. Screen the productive zones with a margin of at least 1 m above and below each.
- **Centralisers** at 6 m intervals on casing and screens, of a low-profile type that clears the surface casing.
- **Sump** of not more than 3m with a dedicated uPVC bottom plug glued to the lowest pipe. Concrete plugs are not permitted.
- **Surface casing:** 250 mm OD Class 10 (PN10) uPVC set to 15 m, with a stick-up of not more than 1.0 m, kept central in the hole, grouted on the outside and left plumb. No fixed waiting period applies before drilling resumes, but the Contractor remains responsible for the integrity of the seal (D3).

C3.5 Filter pack. Clean, well-rounded hard quartz gravel (no crushed stone, weathered or calcareous material). Grain size 1 to 4 mm with slots of 0.8 mm or wider; 0.5 to 2 mm with finer slots where fine or loose sediments (for example Kalahari sand) are met. Contractors must hold sieves for the sizes used and sieve on site. Place by continuous feed in increments of no more than 3 m, withdrawing any temporary casing in step with the packing, measuring depth by tape after each increment, and extending to 3 m above the top screen. Record the volume placed. Pack volume and placement cost are included in the rate. Placement must follow the method approved at W1 (C2).

C3.6 Bentonite seal, backfill and sanitary seal. Place a seal of at least 3 m of bentonite pellets or chips above the gravel pack, hydrated in place. Backfill with clean cuttings or other approved inert material between the top of the bentonite seal and 15 m. Then place cement grout from 15 m to ground level between the production casing and the surface casing, and pressure-grout around the outside of the surface casing so the first 15 m is fully sealed. The grout is continuous with the concrete apron. Place and measure each stage with the AAZ representative (W2).

C3.7 Wellhead, apron and chamber. Built by the Drilling Contractor after H4. Construction does not wait for the capacity test or for laboratory results, and the chamber lid and sanitary cap must remain removable so that the Yield Testing Contractor can install and remove the test pump.

- Cut the production casing to a stick-up of not more than 1.0 m above ground (the surface casing to not more than 1.0 m) and fit a lockable, bolted sanitary cap with provision for cable and rising main.
- Reinforced concrete apron 2.0 m x 2.0 m x 150 mm, sloped at 1:50 away from the wellhead, with a drain channel leading at least 5 m away.

- Lockable masonry or concrete chamber with a heavy-duty steel lid and two padlock hasps, with a height above the apron of at least the casing stick-up plus 0.2 m (not less than 1.2 m), and an internal size large enough for fittings and a cable and pipe exit.
- Identification plate (aluminium or stainless steel) showing borehole number, ward, depth, completion date and GPS position, plus project signage supplied by AAZ.
- Until H4, the Contractor protects the borehole against vandalism and foreign material with a temporary lockable cap. From H4 the borehole is in AAZ's custody (C3.9, Interface), except for damage caused by the Drilling Contractor's own headworks work.

C3.8 Development. Develop by jetting (jetting tool moved continuously along the whole screened length using lightweight pipe, not hydraulic hose) and airlift surging. Duration: minimum 1 hour and continuing until the water is clear with no visible sand, sand content at or below 5 mg/L and turbidity at or below 5 NTU measured with a portable turbidity meter. There is no maximum time; hours beyond the minimum are paid at the provisional rate (BOQ 5.2) only where AAZ confirms the extra time was needed. Remove fill from the sump by airlift or bailer. Confirm clear depth by tape. AAZ certifies completion (H3). Any damage caused by development is repaired at the contractor's cost.

C3.9 Capacity testing (Lot T). The Drilling Contractor estimates the yield (Q) from airlifting during development and certifies the borehole successful or lost. For successful boreholes the Yield Testing Contractor provides and operates a test-pumping unit and carries out the 12-pumping-hour protocol below (4 hours step test plus 8 hours constant-rate test, with recovery monitoring after each, about 14 hours on site):

Phase	Duration	Requirement
Step-drawdown test	4 steps of 60 minutes (4 pumping hours)	Rates at 0.50Q, 0.75Q, 1.00Q and 1.25Q, increasing without stopping, approved by AAZ Engineer and DWSSC at H5
Recovery after step test	At least 60 minutes	Until at least 90 percent of drawdown has recovered. Not paid separately (included in test rate)
Constant-rate test (CRT)	8 pumping hours	At the design rate chosen from the step test, not less than 1.0 L/s, with the dynamic level stabilised. Any deviation must be communicated and approved by AAZ and DWSSC
Recovery after CRT	At least 60 minutes	Continue to at least 80 percent recovery, pump not removed until finished. Not paid separately (included in test rate)

- **Equipment:** submersible test pump capable of at least 3 L/s at the pumping head (+130 m), generator, gate valve, flow meter and calibrated tank/container, electric dip meter graduated in cm with audible signal and light (plus a spare), pump intake set above the top screen and at least 6 m below the predicted pumping level.
- **Discharge control:** hold discharge within 10 percent of the target rate. Stoppages of more than 5 minutes cumulatively in the CRT, or fluctuation outside tolerance, void the test, which is repeated after full recovery at the Yield Testing Contractor's cost.
- **Readings** follow the frequency in Annex E3 and are recorded on the AAZ capacity-testing log sheet: dynamic water level, drawdown, discharge, temperature, EC and weather. Pumped water is discharged at least 50 m away.

- **Analysis:** report static water level, drawdown, specific capacity, transmissivity (for example Cooper-Jacob), well losses, recommended maximum pumping rate and daily pumping hours, recommended pump setting depth, and sand content at the end of the CRT (not more than 5 mg/L). The AAZ Engineer certifies the test data.
- **Interface:** at H4 the Drilling Contractor hands the capped and locked borehole to AAZ, with its construction data (depth, casing tally, screen positions, airlift yield estimate) and a signed handover record. From H4 the borehole is in AAZ's custody, whether testing is done by the same contractor or by a separate Yield Testing Contractor. At H5 AAZ releases the borehole to the Yield Testing Contractor, who checks clear depth and access, installs the pump and signs the handover record. The Yield Testing Contractor removes and refits the sanitary cap and chamber lid, makes good any damage it causes, and leaves the borehole capped and locked.

C3.10 Water quality testing and disinfection (Lot T).

- On-site measurements (pH, electrical conductivity, temperature, iron and nitrate test strips) at the start and end of the step test and at the end of the CRT, compared with the Annex E1 limits.
- Laboratory samples are taken at the end of the CRT in the presence of the local EHT, in sterile bottles, preserved and delivered to an accredited laboratory within the holding time, for all parameters in Annex E1, including bacteriological analysis and the report-only parameters (total dissolved solids, total coliforms, sodium, SAR and bicarbonate). A mobile incubator kit may give indicative faecal coliform results on site, but laboratory results govern. Laboratory results are not a condition for the headworks (C3.7); they decide how the borehole is used (C5).
- Disinfect each successful borehole after testing; the contractor decides the dose from borehole volume and bacteriological results and records residual chlorine at handover (target 0.2 to 0.5 mg/L).

C3.11 Verticality and alignment. After development and before the test pump is installed, run a 12 m plumb (dummy) whose outside diameter is not more than 15 mm below the casing internal diameter. It must pass freely to the full depth, and deviation must not exceed two-thirds of the smallest internal diameter per 30 m of depth (**H4**). Failure is corrected by the contractor; if not correctable, AAZ may reject the borehole without payment.

C3.12 Records and completion report. Submit per borehole: site inspection forms; strata, penetration and construction logs; daily drilling reports; interim yield records; development record; test data with graphs; water quality results; chlorination record; photos before, during and after; GPS position; Pump Design Data Sheet (Annex E6: static level, tested yield, recommended pumping rate and setting depth, pumping water level, casing internal diameter, sump depth, water quality notes) for use in designing the solar pumping system; and a Completion Certificate (Annex E6) for signature at **H6**. The Drilling Contractor submits the drilling and construction records; the Yield Testing Contractor submits test and water quality records.

C4 Method statement

Step	Activity	Control
1	Pre-start: submit work plan, equipment list, HSE plan, material certificates (including solvent cement), supervisor CV and the gravel-placement method statement. AAZ inspects casing, screens, solvent cement, bentonite and gravel before use.	Approved materials (W1)
2	Site set-up after H1: verify marker and coordinates, improve access, level the rig, dig and line mud pit, place spill containment, fence the work area, post safety signs.	Photos
3	Drill the surface section to 15 m with a bit of at least 12 in (305 mm), log cuttings, maintain mud.	Log
4	Install the 250 mm OD surface casing to 15 m with a stick-up of not more than 1.0 m, kept central; pressure-grout the outside; leave plumb. No fixed waiting period applies before drilling resumes; the Contractor remains responsible for the seal.	Casing tally, photos
5	Drill the main hole from 15 m with a bit of at least 8 in (203 mm) to the design depth plus 1 m, sampling every metre, timing penetration, recording strikes and interim airlift yields.	Strata and penetration logs
6	AAZ Engineer reviews logs and approves the casing and screen schedule.	H2
7	Assemble and lower the 140 mm casing string: clean and solvent-cement the joints and let them cure, fit centralisers at 6 m, glued bottom plug, tally lengths, keep the string suspended, leave a stick-up of at least 1.0 m and cap the top.	Casing tally
8	Gravel pack in increments of no more than 3 m with tape checks to 3 m above the screens; withdraw temporary casing in step.	W2
9	Place the bentonite seal, backfill to 15 m, grout between the production and surface casings to ground level; measure volumes.	W2
10	Develop by jetting and airlifting; remove sump fill; test turbidity and sand.	H3
11	Verticality test with the plumb; estimate yield from airlift and certify successful or lost (notify AAZ immediately if lost); fit temporary lockable cap; hand the borehole over to AAZ's custody to await testing.	H4
12	Headworks, after H4 and without waiting for testing or laboratory results: cut casing to the stick-up, fit sanitary cap, build apron and chamber, fix identification plate.	Site Inspection Form
13	AAZ releases the borehole to the Yield Testing Contractor, who installs the test pump; step-test rates agreed.	H5
14	Run step test, recovery, 8-hour CRT and recovery, taking on-site water quality measurements and collecting laboratory samples.	Test sheets
15	Yield Testing Contractor disinfects the borehole, refits the cap and withdraws equipment.	Chlorination record
16	Backfill pits, remove waste and equipment, restore the site.	Photos
17	Submit completion report, test report and Pump Design Data Sheet; joint inspection and signature of the Completion Certificate.	H6

C5 Acceptance criteria, lost holes and abandonment

A borehole is accepted (H6) for drinking-water supply only if all of the following are met. A borehole that fails only on water quality is dealt with under "Water quality failure" below.

Criterion	Requirement
Sustainable yield	At least 1.0 L/s (3,600 L/h), stable through the 8-hour CRT
Pumping water level	Stabilised above the top of the uppermost screen and not deeper than 45 m below ground at the test rate

Criterion	Requirement
Water clarity	Turbidity not above 5 NTU; sand content not above 5 mg/L
Water quality	The Annex E1 acceptance parameters are met. Report-only parameters do not affect acceptance. Iron: variance only on technical treatment assessment and written AAZ decision.
Verticality	Passed (H4)
Construction	As approved design, sanitary seal and wellhead complete, depth tape-checked clear of fill
Documents	All signed forms, logs, test data, laboratory results, completion report and Pump Design Data Sheet

Failure is allocated as follows (see D3):

- **Contractor failure** (collapse through poor mud control, lost tools, non-plumb casing, uncertified or non-compliant materials, defective sanitary seal, inadequate development, unsuitable method): the hole is **not paid**. The contractor backfills and seals the hole, restores the site and drills a replacement at an alternative position approved at H1, at its own cost.
- **Verified hydrogeological failure** (dry hole or insufficient yield despite works that comply with this specification and the siting report): the hole is **paid** at BOQ rates for work done and materials installed under written AAZ instruction, after an independent assessment (D3). AAZ then instructs abandonment, conversion or a replacement at a position approved at H1, paid at BOQ rates.
- **Water quality failure:** a borehole that meets the yield criterion but fails the Annex E1 acceptance parameters is not a contractor failure unless it was caused by the Contractor's workmanship or materials, and the drilling and construction work is paid. AAZ makes no further investment in the borehole for drinking water. AAZ decides whether the borehole is used for other purposes (for example irrigation or livestock, using the report-only parameters), corrected by treatment with district approval, or abandoned.
- After two failed attempts in the same community, the contractor requests AAZ's decision on relocation.
- **Test failure by the Yield Testing Contractor** (void test, equipment fault): the test is repeated at the Yield Testing Contractor's cost.
- AAZ may order abandonment at any time. In that case AAZ pays for work done and materials used to the date of instruction, and the contractor removes the rig, salvages materials as directed and backfills the hole.

C6 Measurement and payment

- Drilling is paid per metre drilled to the accepted depth in the diameter specified (surface and main hole separately); casing, screens and pipes per installed metre; items marked per borehole, per hour or per test are paid at the BOQ unit. Rates include mud, additives, temporary casing, water, transport, fuel, sieving and all incidentals.
- Quantities are certified jointly by the AAZ Representative, witnessed by DWSSC. A bidder or contractor who disputes a measurement must give written notice within 7 days; the undisputed amount is paid and the balance is referred under D13.
- **Section 4 (capacity testing and water quality) is rate-only.** It is paid at the quoted rate per hour or per borehole to whichever contractor performs Lot T, on acceptance of the test report, and is not included in the Lot 1 to 3 contract sums. Recovery monitoring is included in the test rates.

- Provisional items (extra depth, extra development hours, abandonment and backfill) are paid only on written Site Instruction and measured quantities.

Part D: Draft Contract Conditions

These conditions form part of the tender and will be incorporated in the contract without negotiation of the fundamental terms. Items in yellow are to be confirmed by AAZ Finance and Procurement before issue.

D1 Award, signing and conditions precedent

- AAZ notifies the successful bidder in writing. The contract is signed within 7 days. Conditions precedent to the Notice to Commence: signed code of conduct for all staff, performance security (D5), insurance certificates (D5), approved HSE plan, key personnel confirmed and the approved gravel-placement method statement.
- The **commencement date** is the date stated in AAZ's written Notice to Commence. Completion for a drilling lot is H4 of the last borehole in the lot, with headworks and H6 following the programme in A7.

D2 Terms of payment and retention

Payments are made in USD on measured BOQ quantities, against an invoice that follows the BOQ item structure, is supported by the signed Site Inspection Forms for the stage claimed, and is approved by the Client's Representative. AAZ pays an approved invoice within 14 calendar days of receipt. Mobilisation (BOQ 1.1) is invoiced 40 percent on rig arrival at the ward with W1 and H1 signed, and 60 percent when H4 is signed for the last borehole in that ward for the lot. Provisional items (BOQ Section 5) are paid only on written Site Instruction and measured quantity. Amounts later shown to result from contractor failure under D3 may be recovered from retention or later payments. Drilling and construction items (BOQ 1.2 to 3.8) are invoiced per borehole once H3 and H4 are signed; headworks (BOQ 3.9) once built and signed off; and Lot T items on AAZ's acceptance of the test report and laboratory results.

A borehole that is lost, uncompleted or rejected is paid only as set out in C5 and D3. There is no payment for partially completed work except as stated there. **Retention applies to drilling only:** 10 percent of each approved payment under Lots 1 to 3, including mobilisation, is retained and released at the end of the 12-month DLP from H6 (A8). There is no retention on Lot T; AAZ may withhold disputed amounts.

D3 Risk allocation: workmanship failure and hydrogeological failure

- **Contractor risk:** collapse, lost tools and fluids, poor mud control, non-plumb or misaligned casing, defective seals, non-compliant or uncertified materials, inadequate development or any other failure caused by method or workmanship. Remedy: zero payment for the hole; the contractor seals it and drills a replacement at its own cost.
- **Client risk:** a borehole drilled strictly in compliance with the specification, the siting report and AAZ instructions that is dry or yields less than 1.0 L/s. Remedy: payment for metres drilled and materials installed at BOQ rates under written AAZ instruction. A borehole that yields enough but whose water fails the Annex E1 acceptance parameters is dealt with under C5 (Water quality failure).
- **Independent assessment.** Where the cause is disputed, AAZ appoints an independent hydrogeologist or joint panel to review logs, samples, development and test data, and report

within [10] working days. The report decides the allocation of risk for that hole. The cost is borne by the party found at fault.

D4 Variations and change control

No variation, extra-depth drilling or change of scope shall be started without a written Site Instruction and Variation Order signed by the AAZ Client's Representative before the work. Verbal instructions and unauthorised over-drilling are not honoured or paid. Variations are valued at BOQ rates, or agreed rates where none apply. Time and cost consequences are agreed in the Order

D5 Subcontracting

No subcontracting of drilling, testing or key tasks without prior written approval by AAZ. The Contractor remains fully liable. Approved subcontractors sign the safeguarding code of conduct and the anti-fraud declaration.

D6 Termination

- **For default:** by written notice after 14 days' failure to remedy a material breach, including persistent poor workmanship, abandonment of works, unapproved subcontracting, safeguarding violation or corrupt practice. AAZ then pays for accepted work only.
- **For convenience:** on 30 days' written notice, AAZ pays for work accepted and reasonable demobilisation.
- Termination must follow documented reasons and the procedure in this Part.

D7 Force majeure

Events beyond the reasonable control of a party that could not have been avoided (for example flooding that closes access, epidemic restrictions, government action) suspend affected obligations. Seasonal rain and sandy tracks that bidders were told to price are not force majeure.

D8 Conflict of interest, fraud and prohibited practices

Bidders and contractors declare any conflict of interest and shall not engage in corruption, bribery, fraud, collusion or coercion. AAZ and the donor may reject a bid, terminate and report breaches, and inspect and audit all records.

D9 Confidentiality and data ownership

All drilling samples, logs, test data and reports belong to AAZ and the Government of Zimbabwe, and must be handed over. The Contractor keeps project information confidential and does not publish it without written consent.

D10 Safeguarding enforcement

Breach of the code of conduct or PSEAH policy leads to immediate removal of the individual and, for serious or repeated breach, termination for default (D8). The Contractor cooperates with investigations and does not retaliate.

D11 Disputes and governing law

This contract is governed by the laws of Zimbabwe. A dispute is first referred to amicable discussion between senior management of AAZ and the Contractor. If not settled within 14 days, it is referred to arbitration under the Arbitration Act of Zimbabwe. Work continues during a dispute.

D12 Taxes

Rates are quoted exclusive of VAT. The Contractor bears all other taxes, duties and levies.

Part E: Annexes

Annex E1 Water quality parameters

Acceptance parameters are those of Standards Association of Zimbabwe (SAZS 388:2000) and the WHO guidelines; the more stringent applies. Parameters marked "Report only" are measured and reported but are not acceptance criteria. Iron is the only parameter for which a variance may be approved (A4).

Group	Parameter	Limit
Physical	Turbidity	5 NTU or less
Physical	pH	6.5 to 8.5
Physical	Electrical conductivity	2,500 µS/cm or less
Physical	Colour	15 TCU or less
Physical	Odour and taste	Not objectionable
Physical	Total dissolved solids	Report only (conductivity limit governs)
Microbiological	Faecal (thermotolerant) coliforms / E. coli	0 per 100 mL
Microbiological	Total coliforms	Report only (faecal coliforms / E. coli govern)
Chemical	Chloride	250 mg/L
Chemical	Fluoride	1.5 mg/L
Chemical	Nitrate (as NO3)	50 mg/L
Chemical	Sulphate	500 mg/L
Chemical	Total hardness (as CaCO3)	500 mg/L
Chemical	Total iron	0.3 mg/L (variance only on technical treatment assessment and written AAZ decision)
Chemical	Manganese	0.4 mg/L
Chemical	Copper	2.0 mg/L
Chemical	Zinc	3.0 mg/L
Chemical	Arsenic	0.01 mg/L
Chemical	Lead	0.01 mg/L
Chemical	Cadmium	0.003 mg/L
Chemical	Mercury	0.006 mg/L
Irrigation (report only)	Sodium (Na)	Report only (reference value 200 mg/L)
Irrigation (report only)	Sodium adsorption ratio (SAR)	Report only (reference value 6)
Irrigation (report only)	Bicarbonate (HCO3)	Report only (reference value 500 mg/L)

Annex E2 Bill of Quantities (summary of quantities)

Rates are entered in the Excel BOQ (provided as a separate document), which is the pricing form. Quantities per lot are shown here for reference. Section 4 is rate-only and is not included in Lot 1 to 3 totals; Section 5 is provisional.

Item	Description	Unit	Lot 1	Lot 2	Lot 3	Total
1	**MOBILISATION AND SITE ESTABLISHMENT**					

Item	Description	Unit	Lot 1	Lot 2	Lot 3	Total
1.1	Mobilisation and demobilisation of drilling rig, crew and equipment to the ward. Distances: Cross Dete to Ward 13 centre 67 km; Cross Dete to Ward 19 centre 70 km	Item	1	1	2	4
1.2	Site establishment per borehole: access improvement, clearing, levelling, lined mud pit, fencing, signage and spill containment (5 km radius)	Borehole	6	6	6	18
2	**DRILLING, SAMPLING AND LOGGING**					
2.1	Drilling surface section, bit not less than 12 in (305 mm), 0 to 15 m, including temporary casing, sampling and logging	M	90	90	90	270
2.2	Drilling main hole, 15 m to design depth (budget 100 m), bit not less than 8 in (203 mm) passing freely through the 250 mm surface casing, including sampling, logging and yield measurement (the extra metre below design depth is not paid)	M	510	510	510	1530
3	**CASING, SCREENS, GRAVEL PACK, SANITARY SEAL, DEVELOPMENT AND HEADWORKS**					
3.1	Supply and install 250 mm OD uPVC Class 10 (PN10) surface casing, 0 to 15 m plus a stick-up of not more than 1.0 m, grouted in place	m	96	96	96	288
3.2	Supply and install 140 mm OD uPVC Class 10 (PN10) plain casing, solvent-cement jointed, including sump and a stick-up of not more than 1.0 m	m	462	462	462	1386
3.3	Supply and install 140 mm OD uPVC Class 10 (PN10) slotted screen, solvent-cement jointed, slots 0.8 to 1.0 mm	m	144	144	144	432
3.4	Supply and install dedicated glued uPVC bottom plug	No.	6	6	6	18
3.5	Supply and install centralisers at 6 m intervals on casing and screens	No.	102	102	102	306
3.6	Supply, sieve and place clean quartz gravel pack to 3 m above top screen	m3	4.8	4.8	4.8	14.4
3.7	Bentonite seal, backfill and cement grouting to form the sanitary seal	Borehole	6	6	6	18
3.8	Development by jetting and airlift surging, minimum 1 hour per borehole and until clear and 5 NTU or less (hours worked)	Hour	6	6	6	18
3.9	Headworks: reinforced concrete apron, lockable chamber, sanitary cap and identification plate (built after H4)	Borehole	6	6	6	18
4	**CAPACITY TESTING AND WATER QUALITY (RATE ONLY - may be awarded as stand-alone Lot T; quantities indicative for 18 boreholes; not included in Lot 1-3 totals)**					
4.1	Mobilisation and demobilisation of test-pumping unit to the ward (per ward visit)	Item	1	1	2	4
4.2	Step-drawdown test, 4 steps of 60 minutes, including test pump, generator, measuring equipment and recovery monitoring (not paid separately)	Hour	24	24	24	72
4.3	Constant-rate test, 8 hours at design rate of at least 1.0 L/s (or rate approved by AAZ), including recovery monitoring (not paid separately)	Hour	48	48	48	144
4.4	Water sample collection and accredited laboratory analysis of all Annex E1 parameters	Borehole	6	6	6	18
4.5	Disinfection of borehole and record of residual chlorine	Borehole	6	6	6	18
5	**PROVISIONAL ITEMS (rate only; paid only on written Site Instruction and measured quantity; quantities are for price comparison)**					
5.1	Additional depth beyond 100 m: drilling and 140 mm casing complete, per metre	m	60	60	60	180
5.2	Additional development hours beyond the 1-hour minimum	Hour	12	12	12	36
5.3	Decommissioning, sealing and backfilling of a failed borehole	Borehole	1	1	1	3

Annex E3 Capacity test reading frequency and log sheet

Test	Period	Reading interval
Step test (each 60-minute step)	0 to 10 min / 10 to 30 min / 30 to 60 min	Every 1 min / every 5 min / every 10 min
Constant-rate test	0 to 30 min / 30 to 120 min / 2 to 8 h	Every 5 min / every 15 min / every 30 min
Recovery (after each test)	0 to 10 min / 10 to 30 min / 30 to 60 min and beyond	Every 1 min / every 5 min / every 10 min

Log sheet fields: borehole number, ward, date, pump type and setting depth, static water level, time, elapsed time, dynamic water level, drawdown, discharge, temperature, EC, weather, remarks and signatures.

Annex E4 Lithological and drill-time log (example)

Annex E5 Site Schedule

Lot	Borehole ID	Ward	Site	Use	Coordinates (WGS84) and VBU name
Lot 1	W13-VBU1-BH1	Ward 13	VBU 1	VBU	
Lot 1	W13-VBU1-BH2	Ward 13	VBU 1	VBU	
Lot 1	W13-VBU2-BH1	Ward 13	VBU 2	VBU	
Lot 1	W13-VBU2-BH2	Ward 13	VBU 2	VBU	
Lot 1	W13-VBU3-BH1	Ward 13	VBU 3	VBU	
Lot 1	W13-VBU3-BH2	Ward 13	VBU 3	VBU	
Lot 2	W19-VBU1-BH1	Ward 19	VBU 1	VBU	
Lot 2	W19-VBU1-BH2	Ward 19	VBU 1	VBU	
Lot 2	W19-VBU2-BH1	Ward 19	VBU 2	VBU	
Lot 2	W19-VBU2-BH2	Ward 19	VBU 2	VBU	
Lot 2	W19-VBU3-BH1	Ward 19	VBU 3	VBU	
Lot 2	W19-VBU3-BH2	Ward 19	VBU 3	VBU	
Lot 3	W13-VBU4-BH1	Ward 13	VBU 4	VBU	
Lot 3	W13-VBU4-BH2	Ward 13	VBU 4	VBU	
Lot 3	W13-PWS-BH1	Ward 13	Piped Water Scheme	Scheme	
Lot 3	W19-VBU4-BH1	Ward 19	VBU 4	VBU	
Lot 3	W19-VBU4-BH2	Ward 19	VBU 4	VBU	
Lot 3	W19-PWS-BH1	Ward 19	Piped Water Scheme	Scheme	

18 boreholes: Ward 13 has 9 (VBUs 1 to 4 × 2, plus the scheme); Ward 19 has 9. AAZ is to insert VBU names and coordinates before issue.

Annex E6 Forms and templates

- **Bid forms:** B-1 Bid submission form; B-2 Bidder information; B-3 Declaration of acceptance, conflict of interest, anti-fraud and safeguarding; B-4 Key personnel CVs; B-5 Equipment schedule; B-6 Work plan and programme.
- **Contract forms:** Site Instruction Form; Site Inspection (hold-point) Form; Variation Order; Capacity-testing log sheet.

Pump Design Data Sheet (one per borehole)

Field	Entry
Borehole ID, ward, site, coordinates	
Total depth and date completed	
Casing: 140 mm OD, internal diameter, screen intervals, sump depth	
Static water level (m below ground)	
Tested yield and recommended pumping rate (L/s)	
Pumping water level at test rate (m)	
Recommended pump setting depth (m)	
Recommended daily pumping hours	
Water quality notes (including any variance)	
Prepared by (hydrogeologist) and date	

Completion Certificate (one per borehole)

Item	Entry
Borehole ID and lot	
H1 to H6 signed and dated (attach forms)	
Acceptance criteria in C5 met: yes / no (attach schedule)	
Defects or outstanding works	
DLP start date (H6) and end date	
Signed: AAZ Client's Representative, DWSSC, EHT, community representative, Contractor	