Subsurface Pipe & Conduit Quality Assessment

FIELD INSPECTION REPORT & TECHNICAL INSTALLATION STANDARD

INSPECTION ID: PIPE-SUB-04

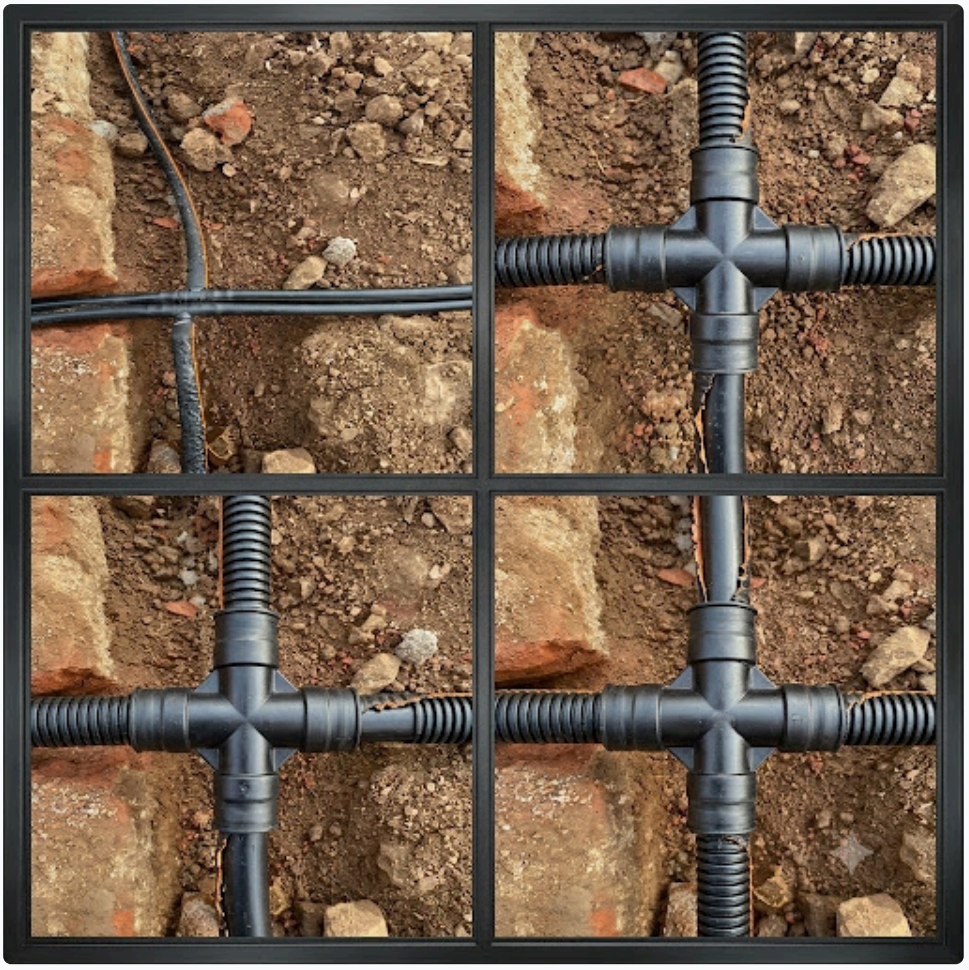


Figure 1.0: Four-view composite technical inspection of underground flexible HDPE conduit piping, cross-junction fittings, and soil backfill interface.

Fitting & Assembly Inspection

Cross-Junction & Coupling Analysis

4-Way Fitting Integrity: Heavy-duty molded PVC/HDPE cross-connectors provide equalized distribution across four branch axes.
Corrugated Sheathing: Outer corrugated sleeve protects inner flexible tubing against soil compaction and aggregate abrasion.

Trench Bedding & Substrate Condition

Backfill Media: Coarse soil mixed with gravel particles observed around the fitting zone without required fine sand padding.
Masonry Proximity: Pipeline laid directly adjacent to brick footing edge, requiring protective sleeve dampening.

Technical Specifications Table

Parameter	Observed Field Value	Required Specification
Conduit Type	Flexible Corrugated HDPE + PE Tubing	ASTM F667 Heavy-Duty Corrugated Polyethylene

Corrective Actions & Installation Standards

Subsurface tubing and electrical/water conduit networks must withstand hydrostatic pressure, soil settlement, and potential mechanical impacts. The observed layout demonstrates functional junction positioning but requires corrective bedding adjustments prior to final trench backfilling and compaction.

Identified Deficiencies

- **Shallow Trenching:** Exposed corrugated tubing risks damage from surface loads and garden tools.
- **Unshielded Sheathing Shearing:** Torn outer sleeve edges near junction collars require heat-shrink sealing.
- **Sharp Aggregate Contact:** Brick remnants in trench soil present long-term puncture hazards.

Remediation Standard

- **Sand Cushioning:** Apply a minimum 50mm clean sand bedding below and above the conduit.
- **Warning Tape:** Install underground utility warning tape 150mm above buried lines.
- **Pressure Testing:** Hydro-test system at 1.5x operating pressure for 30 minutes before cover.

System Material Specifications

Component	Material Grade	Pressure Rating	Joint Mechanism
Main Feed Line	HDPE PN10 / SDR 17	10 Bar (145 PSI)	Barbed / Compression Lock
Cross Connector	Polypropylene (PP)	16 Bar (230 PSI)	O-Ring Sealed Compression
Protection Sleeve	Corrugated PE Duct	Non-pressurized Guard	Friction-fit Collar

Sign-off & Quality Control Checklist

- Inspect all 4-way cross fittings for full insertion and lock ring engagement.
- Clear trench floor of all debris, broken brick fragments, and rocks larger than 10mm.
- Confirm minimum 300mm burial depth along the entire run length.
- Perform flow and pressure leakage test prior to final soil backfilling and compaction.