Job Hazard Analysis (JHA)

Task: Conduit Proofing in the Telecom Industry

Risk Assessment Code (RAC) Legend

- **Red (High Risk):** Unacceptable—stop work and implement controls before proceeding.
- **Yellow (Moderate Risk):** Proceed with caution—implement and verify controls.
- **Green (Low Risk):** Acceptable—maintain controls and continuous monitoring.

Overall Initial RAC for Conduit Proofing Task: Moderate Risk

Job Steps, Hazards, and Controls

Step No.	Task Description	Potential Hazards	Controls / Safe Work Practices	Initial RAC
1	Pre-job planning & scope review	Incomplete scope; unverified permits; overlooked utilities	Conduct tailboard/JSA meeting; review work order and as-builts; confirm 811/One-Call ticket; coordinate with utility owners; assign stop-work authority.	
2	Material staging (mandrels, brushes, pull ropes, mule tape, vac/blower equipment)	Struck-by rolling reels or tools; tripping hazards; manual lifting strain	Stage materials away from travel paths; chock reels; mechanical assist for heavy equipment; maintain good housekeeping.	
3	Traffic control setup (if vaults/handholes are in roadway or sidewalk)	Vehicle strikes; poor visibility; inadequate signage	Deploy MUTCD-compliant traffic control; cones, barricades, and warning signs; certified flaggers; ANSI/ISEA 107 Class 2/3 garments; lighting for night work.	
4	Vault/handhole access	Struck-by falling covers; confined space entry; slips/trips/falls	Use proper cover lifting tools; barricade open vaults; test atmosphere; ventilate if necessary; retrieval system if entry required.	
5	Initial conduit inspection	Contact with debris, sharp edges, rodents, or contaminated water	Use flashlight/camera to inspect; wear cut-resistant gloves; remove debris with vacuum or safe hand tools; PPE for contaminated environments.	

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6	Feeding pull line, rope, or mule tape through conduit	Entanglement; hand injuries; pinch points	Do not wrap line around body; keep fingers clear of pull equipment; wear cut-resistant gloves; maintain steady communication with crew.	
7	Pulling mandrel/brush through conduit (proofing step)	Snap-back if line breaks; excessive tension; lodged mandrel	Use dynamometer to monitor tension; exclusion zone along pull path; stop immediately if resistance is felt; never exceed rated pull strength.	
8	Using blower or vacuum to propel line	Noise exposure; airborne dust/debris; struck-by whipping hose	Inspect hoses and secure connections; wear hearing protection; use dust collection or masks; maintain exclusion zone near discharge.	
9	Removing mandrel/brush and inspecting	Cuts from sharp edges; pinch points; dropped tools	Wear gloves; secure tools when aloft; maintain 3-point contact when climbing in/out of vault.	
10	Identifying conduit obstructions	Line-of-fire from released pressure; potential hidden utilities	Approach slowly; release built-up pressure carefully; stop work and consult engineer/owner if obstruction suspected; never force tools.	
11	Clearing conduit obstructions (if approved)	Hand injury from rods; dust exposure; unexpected utility contact	Use only non-conductive fiberglass rods; wear gloves and safety glasses; ventilate and wet methods for dust control; stop work if utilities are encountered.	
12	Final conduit verification	Missed defects; non-compliance	Verify mandrel passage; document proofing results; photograph conduit ID tags; note depth and alignment.	
13	Backfilling or site restoration (if conduit exposed)	Cave-in; struck-by compaction equipment; settlement voids	Compact in lifts; use approved backfill; warning tape above conduit; spotter required near equipment; restore surface per permit.	
14	Documentation & turnover	Missing records; regulatory non-compliance	Record conduit condition and proofing results; update as-builts; submit to utility/owner; archive QC data.	
15	Traffic control removal & demobilization	Vehicle strikes during removal	Remove devices in reverse order; flaggers remain until last cone removed; final site inspection performed.	

PPE Requirements

- **Head/Face/Eye:** Hard hat (ANSI Z89.1); safety glasses (ANSI Z87.1); face shield when blowing or vacuuming conduit.

- **Hearing:** Hearing protection when exposed to >85 dBA (blowers, vacuums, compaction equipment).
- **Hands:** Cut-resistant gloves for rope/mandrel handling; insulated gloves if near energized utilities (qualified personnel only).
- **Feet:** Safety-toe boots with slip-resistant soles.
- **High-Visibility Apparel:** ANSI/ISEA 107 Type R, Class 2 (day) or Class 3 (night/high-speed).
- **Fall Protection:** Harness/retrieval system required if vault entry >6 ft or classified as confined space.
- **Respiratory:** Dust mask or respirator when using blowers/vacuums in dusty environments.
- **Weather-Specific:** Rain gear, thermal PPE, UV protection as needed.

Regulatory & Industry Practice Alignment (summary)

- **OSHA:** 29 CFR 1926 Subpart P (Excavations), Subpart E (PPE), Subpart M (Fall Protection), Subpart O (Motor Vehicles/Equipment), Subpart V (Power Transmission/Distribution if near energized facilities).
- **NIOSH:** Best practices for confined space safety, ergonomics, and noise/dust control.
- **ANSI/ISEA:** ANSI/ISEA 107 (high-visibility apparel), ANSI Z359 (fall protection), ANSI Z87.1 (eye protection).
- **NESC:** Conduit separation and clearance requirements when installed near energized conductors.
- **MUTCD:** Traffic control for work zones near vaults, handholes, and trenches.