

Appendix A-10

WORK PROCESS SCHEDULE

Underground Utility Installer Technician

O*NET-SOC CODE: XX-XXXX RAPIDS CODE: XXXXCB

Description: The Underground Utility Installer Technician (UUIT) is a member of a crew with skills in the construction and maintenance of underground or buried telecom utility systems. The UUIT will use skills such as underground utility location, fiber optic technology, and industry regulations as part of their daily work routine. In addition, the UUIT may be required to operate underground equipment.

The UUIT typically performs their job duties in outdoor environments, in all weather conditions, and includes some travel. The UUIT must have the ability to lift and/or pull 50-75 pounds several times each day and can endure long periods of standing, sitting or walking. The ability to bend, twist, and reach overhead is required along with the continuous use of both hands to operate hand tools and perform other duties.

This schedule is attached to and a part of these Standards for the above identified occupation.

1. TYPE OF OCCUPATION

Time-based Competency-based Hybrid

2. TERM OF APPRENTICESHIP

RAPIDS CODE	OCCUPATION	TERM/HOURS	COMPLETION CERTIFICATE
XXXXCB	Underground Utility Installer Technician	Competency Based	Certificate of Completion

Upon completion of UUIT apprenticeship, the apprentice will receive a Certificate of Completion. His/her Certificate of Completion of Apprenticeship will reflect the completion of the UUIT occupation.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: 1 apprentice(s) to be employed in each scope of work, and/or jobsite employing 1 journeyworker(s).

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which will range from \$12-\$18 an hour, this is regionally dependent.

1st Level hours = \$12(6 months)

2nd Level hours = \$15 (1 year)

Final journeyworker wage = \$18

5. WORK PROCESS SCHEDULE (See attached Work Process Schedule)

The sponsor may modify the work processes to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

6. RELATED INSTRUCTION OUTLINE (See attached Related Instruction Outline)

The sponsor may modify the related instruction outlines to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

WORK PROCESS SCHEDULE
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ON-THE-JOB LEARNING

Description: The Underground Utility Installer Technician (UUIT) is a member of a crew with skills in the construction and maintenance of underground or buried telecom utility systems. The UUIT will use skills such as underground utility location, fiber optic technology, and industry regulations as part of their daily work routine. In addition, the UUIT may be required to operate underground equipment.

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The following outlines the on-the-job training for the occupation of UUIT. The suggested related instruction which supplements the on-the-job training follows the on-the-job training outline.

Directions: Evaluate the apprentice's competency and skill level using the rating scale below. The numerical ratings of 4, 3, 2 and 1 are not intended to represent the traditional school grading system of A, B, C and D. Ratings should reflect job readiness for each of the competencies rather than a grade given in the class.

- Rating Scale:**
- 4 - Skilled can work independently with no supervision
 - 3 - Moderately skilled can perform job completely with limited supervision
 - 2 - Limited Skill- required instruction and close supervision
 - 1 - No Exposure-No Experience or knowledge in this area

This is a competency-based apprenticeship. On the Job learning competencies are identified within the tables below.

<i>On the Job Learning Competencies</i>	Component 1	Component 2	Component 3	<i>Rating Scale</i>				<i>Mentor/Supervisor Approval & Date</i>
<i>Determine by written and/or practical demonstration.</i>	Baseline training	Intermediate training	Completion	4	3	2	1	
INSTALL BURIED UTILITIES								
Review job design sheets								
Gather job materials								
Locate existing underground utilities								
Pothole existing utilities by hand								
Excavate trenches by hand								
Perform soil type testing								
Bed trenches with select fill								
Install conduit / cable								
Pull or blow utility wire / cable through conduit								
Install utility hand hole / pedestals								
Install ground rods								
Backfill trenches								
Perform site restoration								

<i>On the Job Learning Competencies</i>	Component 1	Component 2	Component 3	<i>Rating Scale</i>				<i>Mentor/Supervisor Approval & Date</i>
<i>Determine by written and/or practical demonstration.</i>	Baseline training	Intermediate training	Completion	4	3	2	1	
MAINTAIN BURIED UTILITIES								
Perform manhole / hand hole rehabilitation								

<i>On the Job Learning Competencies</i>	Component 1	Component 2	Component 3	Rating Scale				Mentor/Supervisor
<i>Determine by written and/or practical demonstration.</i>	Baseline training	Intermediate training	Completion	4	3	2	1	Approval & Date
MANAGE JOB SITE								
Notify public/landowner of pending work								
Conduct safety meeting								
Verify permitting documents								
Assess job site hazards								
Set up safe work zone								
Conduct job briefing								
Perform vehicle & equipment inspections (walk around)								
Ability to communicate professionally with co-workers, property owners, and customers								
One call knowledge & responsibility								

<i>On the Job Learning Competencies</i>	Component 1	Component 2	Component 3	Rating Scale				Mentor/Supervisor
<i>Determine by written and/or practical demonstration.</i>	Baseline training	Intermediate training	Completion	4	3	2	1	Approval & Date
ADMINISTRATIVE TASKS								
Finalize as-built documents								
Complete daily timesheets and detailed recording of work activity								
Maintain equipment documentation								
Maintain job-site report								
Manage jobsite or truck inventory								
Complete accident/incident/outage reports								

On the Job Learning Competencies									
<i>Determine by written and/or practical demonstration.</i>	Component 1	Component 2	Component 3	Rating Scale				Mentor/Supervisor Approval & Date	
	Baseline training	Intermediate training	Completion	4	3	2	1		
PROFESSIONAL DEVELOPMENT ACTIVITIES									
OSHA 10									
Traffic Flagger									
CPR/First Aid									
Maintain certifications and endorsements as required by employer such as:									
<ul style="list-style-type: none"> • CDL • Operator DOT qualifications • OSHA (10, 30) • Confined Space • Shoring/Trenching • HAZCOM • Traffic Flagger 									

On the Job Learning Competencies									
<i>Determine by written and/or practical demonstration.</i>	Component 1	Component 2	Component 3	Rating Scale				Mentor/Supervisor Approval & Date	
	Baseline training	Intermediate training	Completion	4	3	2	1		
OFFICE TOOLS									
Effective use of office PC software when applicable. Products such as MS Word, Excel, PowerPoint.									
Manages email.									
Demonstrates proper use and maintenance/care for Laptop, Tablet, or cell phone.									

<i>On the Job Learning Competencies</i> <i>Determine by written and/or practical demonstration.</i>	Component 1 Baseline training	Component 2 Intermediate training	Component 3 Completion	<i>Rating Scale</i> 4 3 2 1				<i>Mentor/Supervisor Approval & Date</i>
USE OF HAND TOOLS & HEAVY EQUIPMENT								
Demonstrates proper use of common hand tools such as: <ul style="list-style-type: none"> • Air Compressor • Air & Hydraulic Tools • Block & Tackle • Dynamometer (tension) • Fall Restraint Equipment • Fusion Machines • Gas / Manhole Monitors • Hand tools • Hot Line Electrical Tools • Lasers/Transits • Multi-Meter • OTDR (Optical Time Domain Reflectometer) • Pipe Threading Equipment • Power Tools • Pumps • Root Saws • Slings/Harnesses • Tape Measure • Traffic Control Tools • Underground Utility Locator • Voltage Indicator 								
Demonstrates proper use of common heavy equipment such as: <ul style="list-style-type: none"> • Backhoe or Mini Excavator • Directional Boring Machine • Dozer • Dump Truck • Hydrovac/Flusher Truck • Plow – MainLine and drop • Tractor and Trailer • Winch 								

RELATED INSTRUCTION OUTLINE
Underground Utility Installer Technician
O*NET-SOC CODE: XX-XXXX RAPIDS CODE: XXXXCB

Description: Related instructional courses provide technical ability and a basic understanding of the telecommunication industry as well as the overall site development. Apprentices receive related instruction or classroom style training that complements the on-the-job learning. This instruction helps refine the technical and academic skills that apply to the job. Related instruction may be provided by a community college, technical school or college, an apprenticeship training school, or by the business itself. This instruction can be provided at the school, online, or at the work site.

The following are courses to be completed during the term of apprentice and under direct supervision of a Journeyworker.

Core Skills:		Approximate Hours
1.0	Inspection, Care & Use of Personal Protection Equipment	1 hour
2.0	OSHA 10	10 hours
3.0	First Aid/CPR/Blood Borne Pathogens	4 hours
4.0	Hazard Assessment & Communication	10 hours
5.0	RF Awareness & Safety	1 hour
6.0	Underground Utility Locate Process (One Call)	2 hours
7.0	CDL & Safe Driving Practices including successful operate of tractor and trailer	20 hours
8.0	DOT – Securement of Equipment or Load	2 hours
9.0	Reading Blueprint/Construction Drawings	8 hours
10.0	Job Site Management	8 hours
11.0	Excavation & Restoration	16 hours
12.0	Horizontal Directional Drilling (HDD) and Other Equipment Operation Best Practices	10 hours
13.0	Conduit/Duct Bank Installation	12 hours
14.0	Manhole/Hand Hole Installation	12 hours
15.0	Cable Handling, Installation, and Splicing	20 hours
16.0	Backfill, Compaction, Finish Grading	10 hours
17.0	Electrical Safety & Stray Voltage Detection	5 hours
18.0	Lock Out/Tag Out	2 hours
19.0	Material Handling & Storage	2 hours
20.0	Apprenticeship Program Overview	1 hour
	TOTAL:	156 hours

Related Instruction Descriptions – Underground Utility Installer Technician

1.0 Inspection, Care & Use of Personal Protection Equipment (PPE): Each apprentice must be trained in the inspection, care and use of PPE for the particular scope of work (SOW) and hazards addressed through their use. While the apprentice is being trained in PPE inspection, care and use, they are to be under direct supervision of a journey worker at all times, enabling them to draw on the competencies of the journey worker as they grow in experience in the inspection care, and proper use of PPE. Examples of PPE used by an apprentice include hard hat, proper footwear, eye/face protection, hearing protection, and fall protection equipment. This list is not exclusive or exhaustive as the SOW may require the supervisory, journey worker to engage other types of engineering controls or safety measures. (This topic is part of OSHA 30 course content.)

2.0 OSHA 10 Hour: This is a version of the OSHA 10-hour course that is provided by a trainer that has been authorized to perform instruction from OSHA. Topics covered can include hazard identification, exit routes, electrical safety, personal protective equipment, hazard communication, ergonomics, recordkeeping, and reporting, etc. This course does not include confined space training.

3.0 First Aid/CPR/Bloodborne Pathogens: Must be properly trained and able to render First Aid, Cardiopulmonary Resuscitation and protect against infection from Blood Borne Pathogens. These courses follow the agendas established by Red Cross, American Heart Association, National Safety Council, or other like organizations. (This topic is part of OSHA 30 course content.)

4.0 Hazard Assessment & Communication: An introduction to the various environments and/or structures that work will be performed on. Based upon the SOW and the type of structure it is being applied to the hazards may change and this requires the ability to understand that there is a hazard and it must be communicated to the rest of the team. (This topic is part of OSHA 30 course content.)

5.0 RF Awareness & Safety: UITs could be exposed to radiofrequency radiation every day and not be aware of it. It is important for there to be an understanding of the hazard associated with RF and the ability to work as part of a team to communicate the hazard and means of abatement or use of PPE for protection.

6.0 Underground Utility Locate Process & One Call Requirement: This course will prepare the apprentice to assist the UUIT to ensure all utilities are located and marked prior to digging/excavation per 29 CFR 1926.651(b) (2).

7.0 Commercial Driver's License (CDL) & Safe Driving Practices: Travel from one site to another is one of the greatest risks that face workers in this industry. This course will take the apprentice through the DOT rules and regulations for the industry. Specific emphasis is placed upon proper rest, vehicle inspection, trailer inspection and backing, merging in and out of traffic, and what to do in the event of an emergency.

8.0 DOT Required Securement Of Equipment or Load: Introduction to performance requirements concerning cargo deceleration in the forward direction, and acceleration in the rearward and lateral directions, that cargo securement systems must withstand per Federal Motor Carrier Safety Administration (FMCSA) requirements.

9.0 Reading Blueprint/Construction Drawings: In this course, the apprentice will learn to understand, navigate, and use blueprints/construction drawings to support pre-construction project planning, job site hazard assessment, scope of work assignment and job site management activities.

10.0 Job Site Management: This course will address best practices of job site management including coordination of multiple parties on site, monitoring project performance, managing quality and safety, and addressing issues that “go wrong”.

11.0 Excavation & Restoration: This course is designed to provide apprentices with a basic understanding of and the ability to identify existing and predictable hazards in the surroundings of the excavation process, the resulting open trench and restoration of the site as part of construction completion.

12.0 Horizontal Directional Drilling (HDD) Best Practices: The course provides an in-depth overview of Horizontal Directional Drilling (HDD) and covers six topics: (1) operation and application; (2) equipment and materials; (3) planning, including surface and geological investigations, utility surveys, bore planning, and regulations and permitting; (4) jobsite safety; (5) risk reduction, trouble shooting and mitigation; and (6) design.

13.0 Conduit/Duct Bank Installation: The general purpose of this course is to provide instruction on the basic construction methods used to build a duct or conduit for the installation of cable materials. Training to also include Confined Space Training for Permit and No-Permit space and the safety related equipment for Confined Space work.

14.0 Manhole/Hand Hole Installation: The general purpose of this course is to provide instruction on the basic construction methods used to install a manhole or hand hole for future access to cable materials.

15.0 Cable Handling, Installation and Splicing: This course will provide instruction in fiber optic technology including theory, safety, installation, splicing and testing techniques. Upon successful completion, the student may receive Fiber Optic Technician Certification from the Fiber Optic Association. Training needs to include cable pulling with puller or capstan, air blown fiber cable technics, and direct bury cable. Special attention placed on safety precautions when working with Fiber Optic Cable, such as proper eye protection from lasers, proper disposal of sharps (fiber glass shards).

16.0 Backfill, Compaction, and Finish Grading: This course will provide instruction in safe and efficient backfill, compaction, and finish grading requirements post excavation.

17.0 Electrical Safety & Stray Voltage Detection: Must be trained in the identification and abatement of electrical hazards that may be encountered as a part of the SOW. Training as per OSHA 29CFR1910.268 Telecommunications standard. Including OSHA Minimum Approach Distance (MAD) clearance, Foreign Voltage and Foreign Voltage Detector equipment, Underground electrical cables and construction standard overview, grounding/bonding of telecommunications cables as per NESC and basic electrical safety as per NEC (should be covered in OSHA 10). Use of High Voltage gloves and proper pole setting methods as a telecommunications worker is only required if setting new telecom poles.

18.0 Lock Out/Tag Out: Must be trained in the identification and abatement of electrical hazards that may be encountered as a part of the SOW. Such training will address the proper use of monitors, lock out tag out, system turn down and client communication IAW 29 CFR 1926.4, sub part K. (This topic is part of OSHA 30 course content.)

19.0 Material Handling & Storage: This course provides basic information that employees should know before moving, handling, and storing materials; introduction of potential hazards for workers; discussion of precautions should workers take when moving materials manually or mechanically; precautions workers must take to avoid storage and stacking hazards. (This topic is part of OSHA 30 course content.)

20.0 Apprenticeship Program Overview: This course will provide the apprentice with an overview of the apprenticeship program including information on the National Sponsor, employer's expectation, discussion of the Standards of Apprenticeship, etc.