FACILITIES & OPERATIONS
UTILITIES
UNIVERSITY OF MICHIGAN

Tunnel Division

Tunnel Access/Use Protocols and Work Rules

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Section 1 – Introduction

The University of Michigan utility tunnel system is more than six miles long and has more than 200 access points. The security of the tunnel system is paramount due to its connection to numerous campus buildings. Most of the tunnel system is not considered a confined space; however certain sections of the tunnel are considered confined spaces due to excessive heat, possible entrapment conditions and lack of ventilation. Areas of the tunnel not considered confined spaces may still have hazards including heat, restrictive access, poor lighting and ENCAPSULATED asbestos containing pipe insulation in specific areas throughout.

Regarding Tunnel Security – ALL DRAWINGS AND MAPS RELATED TO THE UTILITY TUNNEL SYSTEM ARE CONSIDERED PROPRIETARY AND CONFIDENTIAL, AND ARE NOT TO BE DUPLICATED OR SHARED WITH ANYONE NOT INVOLVED WITH THE PROJECT. PRINTED AND ELECTRONIC COPIES ARE TO BE PROTECTED VIA LOCKED DRAWERS AND PASSWORD PROTECTED ELECTRONIC STORAGE, THROUGHOUT THE PROJECT; AND PROPERLY SHREDDED OR DELETED UPON PROJECT COMPLETION. E-MAIL IS CONSIDERED UN-SECURE AND SHOULD NEVER BE USED TO TRANSMIT TUNNEL DOCUMENTS.

Section 2 – Background

The Tunnel Safety Program is based on the original F&O example, provided by Keith Trombley of OSEH. The goal is to define a program that is not only safe, but also feasible and practical.

To summarize the benchmark requirements, “working” alone in the tunnels is not allowed. “Working” means actually doing work (e.g., using tools, repairing or replacing something, etc.). There is an exception for being in the tunnel alone, if you aren’t going to “work”. Examples of this would be inspecting something, going to find somebody else already in the tunnel, checking the progress of a project, etc. The goal is to not have people working alone, but not being unreasonable by requiring two people for very low risk activities

NOTE AEC Health & Safety Plan policy DOES require use of the “buddy system”, staff and support consultants are directed not to enter tunnels alone.

Other requirements of the program include tracking and accounting for workers in the tunnels. Supervisors are required to know who is in the tunnel, where they are, how to get a hold of them when necessary, and ensure they come out when they are supposed to (e.g. at the end of their shift).

Implementation of this policy helps ensure tunnels remain secure, and as a result, increases the security of the buildings connected to the tunnel system. Various means of monitoring activities in the tunnels will be used to prevent unauthorized access.

Section 3 – Tunnel Access Requirements

All persons working in the tunnels (contractor or University Personnel) must wear a University ID badge at all times. Proximity badges may also be required as part of upgrade tunnel security. Check with UPE to determine if proximity badges are needed in the areas you may be working.

1. Proper Personal Protection Equipment such as but not limited to:

    - Safety Glasses with safety shields
    - Work type boots
    - Long sleeve shirts (natural fiber or fire resistant fabric)
    - Long pants (natural fiber or fire resistant fabric)
    - Gloves-preferably of composition that would resist abrasion and heat transfer
    - Ear plugs (in high volume areas)
    - Dust mask (in high dust areas)

2. Flash light

3. Provide the location of the area you will gather at in the case of an emergency prior to entering the Tunnel System or commencement of a project. This location will be provided to the Utilities Supervisor or his representative. IF AN ESCORT HAS BEEN PROVIDED BY THE DEPARTMENT OF UTILITIES THEN THE ABOVE MENTIONED NOTE 3 WILL NOT BE REQUIRED. THE ESCORTS WILL BE RESPONSIBLE FOR THAT NOTICE.

4. Contractors will provide the following information (via email) for all projects.

- Names of employees on site (daily) to Utilities Supervisor by email.
- Names of employees who leave site before end of work shift.
- Locations of employees.
- Emergency response plan for work site.

    Note: ALL EMPLOYEES SHOULD HAVE PROPER SAFETY TRAINING AND CPR, FIRST AID TRAINING PER UNIVERSITY SAFETY REQUIREMENTS AND OSHA REQUIREMENTS. THE CONTRACTOR'S PROJECT-SPECIFIC SAFETY PLAN WILL REFLECT THESE REQUIREMENTS AS A PART OF THE SPECIFICATIONS FOR THE PROJECT. YOU MAY CONTACT THE UTILITIES SUPERVISOR VIA EMAIL, TO ATTAIN SAID DOCUMENTS IF SUCH HAS NOT BEEN PROVIDED.

Section 4 – Policy on Tunnel Access

The following regulations will be strictly enforced:

- For safety considerations, valves of any size shall not be opened or closed for any reason by anyone except authorized FO-Utilities personnel. Contact DPS 1A in the event of an emergency. Contact the Tunnel Shop – Mike Rhodes (734-320-5310) or Mike Swanson (734-323-9338) or at the FO-Utilities Office – Debbie Olejniczak (734-647-2521) for questions pertaining to utility services.

- All tunnel access is limited to those persons on specific University business that require access to the tunnels.

- All personnel must have authorization from a University representative before entering the tunnels and assumes all responsibility for the safety and wellbeing of its people.

- All access to the tunnels by personnel should be scheduled 24 hours in advance; with the Tunnel Access Orientation Acknowledgement Form (see Section 8) signed and submitted prior to entry.

- The Department of Public Safety (DPS) must be notified (734-763-1131) by all contractors before ANY entry into the tunnels. Identity, work location, and expected duration of work must be provided every day that access is needed. University personnel must notify DPS whenever access is required outside normal business hours (Mon – Fri 6:00 am -4:30 pm). Once DPS is notified:

    - University personnel with tunnel access authorization may proceed to their work.

    - Others without tunnel authorization should contact the Tunnel Shop – Mike Rhodes (734-320-5310) or Mike Swanson (734-323-9338) or the FO-Utilities Office – Debbie Olejniczak (734-647-2521).

- Tunnel hatch access points must be safely barricaded to prevent accidents and unauthorized access. Safety barricades and temporary access provisions shall comply with OSHA and MiOSHA requirements.

- When workers leave the tunnel work site for any length of time and once work is completed, building doors, tunnel hatches, or other means of access must be secured.

- All persons working in the tunnels, University Personnel or Contractor's must wear a University ID badge at all times. They will at times also be required to wear proximity card badges to be in compliance with the new tunnel security system.

- Contractors must notify DPS when leaving the tunnel site for the day.

- In addition, all persons accessing the tunnels from the power plant must sign in at the control room and state their business, how long they will be there, and if they plan to exit back into the powerhouse or somewhere else in the system. All Central Power Plant protocols shall be adhered to in full.

Section 5 – Confined Space Protocol

Signs identifying permit required confined space MAY OR MAY NOT be in place.

Be aware of tunnel sections that may contain confined spaces. Do not enter any “Permit Required Confined Space” unless authorized to do so by a University representative.

ANY PRE EXISTING CONFINED SPACE AREAS WILL BE IDENTIFIED BY SIGNAGE OR DESIGNATED PRIOR TO PROJECT COMMENCEMENT. ALL SAFETY REQUIREMENTS FOR CONFINED SPACE ACCESS SHALL BE FOLLOWED. ALL CONFINED SPACE REGULATIONS AND PROTOCOLS WILL BE ADHERED TO FOR SAID AREAS

IDENTIFIED, DESIGNATED CONFINED SPACE AREAS WHERE WORK WILL BE CONDUCTED SHALL BE INDICATED PRIOR TO PROJECT COMMENCEMENT. ALL CONFINED SPACE REGUATIONS AND PROTOCOLS WILL BE ADHERED TO FOR SAID AREAS.

Comprehensive training and proper use of equipment are necessary before any person can enter permit required confined spaces. Persons shall always follow their company policies regarding Confined Spaces. Refer to the UM Confined Space Guidelines for further information. Contact EHS to review project specifics as needed.

Section 6 – Emergency Response Protocol

Procedure to Address Emergency Notifications

In the event of an emergency in the Tunnel System, the following protocol will be initiated.

INJURED PERSONNEL:

University Personnel or Contractors may have to initiate First-Aid or CPR then establish communication to request assistance.

In the event of injury or Cardiac Arrest in the Tunnel System University Personnel or Contractor Personnel will exercise the following protocol:

A. If able to establish Radio Communication, the University Personnel will notify Department of Public Safety (1A University Radio) and request assistance. Alert DPS to the fact that a person has suffered Personal injury or Cardiac Arrest. Begin CPR or Rescue Breathing as warranted or as directed by DPS Dispatcher. Administer First Aid as warranted or as directed by DPS Dispatcher.

B. If contact is established by phone (911) the university or Contractor Personnel will notify 911 Dispatcher and request assistance. Alert 911 Dispatcher to the fact that a person has suffered Personal injury or Cardiac Arrest. Then begin CPR or Rescue Breathing as warranted or as directed by 911 Dispatcher. Administer First Aid as warranted or directed by 911 Dispatcher.

C. If unable to establish Radio or Phone Communication, the University Personnel or Contractor Personnel will administer CPR, Rescue Breathing or First Aid as warranted then relocate to an area where communication can be established. After Emergency Personnel have been notified of the emergency, the Crew Member should return to the Incapacitated Personnel and resume CPR, Rescue Breathing, or First Aid As warranted.

NOTE:

CONTACT DPS (1A) FOR ALL INJURY AND/OR UTILITY BREACHES.

UTILITIES SUPERVISOR RESPONSIBILITES:

If the emergency involves the potentially life-threatening situation (fire, smoke, chemical release, explosion, etc.) the Utilities Supervisor will notify University Personnel, and/ or Contractors, Project Managers that an emergency exist and evacuation is to begin to a safe, Predetermined Area.

University Personnel and/or Contractors will evacuate to a safe area, account for crews and notify the Utilities Supervisor of the Crew's Accountability. The names and last known location of any personnel that are unaccounted for shall be reported to the Utilities Supervisor. The University Radio Channel 8B can be utilized to contact the Utilities Supervisor. Please keep notices brief as there will be most likely be excessive radio communication required. The Utilities Supervisor can also be contacted by phone (734-320-5310). Do not consider a voice mail notice left as adequate communication. Please call until you speak to the Supervisor directly.

PROJECT MANAGERS:

If the emergency involves a potential life-threatening situation (fire, smoke, chemical release, explosion, etc.) the Project Managers will notify their personnel to evacuate to a safe Predetermined Area. The Personnel will be accounted for and will be reported to the University of Michigan Utilities Supervisor or Lead Person.

TUNNEL CREW:

The Tunnel Crew will secure a perimeter around the zone where the emergency exists and will assist Emergency Personnel with access and ventilation of areas if requested to do so. The Tunnel Crew will bring additional barricades and fans to the scene as soon as possible and will utilize them to further secure and ventilate the area if requested to do so. The Tunnel Crew will alter the Tunnel Ventilation only upon request of Emergency Personnel.

NOTICE:

No Personnel will enter the tunnel if a potentially Life Threatening Condition exists, unless requested to do so by Emergency Personnel. Personnel will not attempt a rescue in a Life-Threatening Environment, and will allow Emergency Personnel to initiate this action.

The University will provide the Ann Arbor Fire Department with names and phone numbers for Utilities Supervisor and update the lists as required. The University will also provide the Ann Arbor Fire Department with PDF files of the Tunnel Maps with hatches, PORs, streets, and buildings, and update the files as required.

The Utilities Supervisor or Lead Person will establish contact with DPS Personnel and/or Ann Arbor Emergency Personnel upon their arrival. The Utilities Supervisor will report to the On-Scene Command Post to allow interaction between Emergency Personnel, University Supervision, and The Tunnel Crew. The Utilities Supervisor will also provide Emergency Personnel with radios capable of communicating with University Personnel.

Section 7 – Specific Hazard Work Rules

HOT WORK PROTOCOL:

THE UTILITIES SUPERVISOR WILL APPROVE THAT THE CONTRACTOR IS ALLOWED TO PERFORM HOT WORK IN SPECIFIC WORK AREA(S). THE UTILITIES SUPERVISOR WILL APPROVE WORK AREAS FOR ONE WEEK MAXIMUM. THE LOCATION(S) REQUIRED FOR WORK WILL BE PRESENTED AT THE START OF EACH WORK WEEK TO THE UTILITIES SUPERVISOR FOR APPROVAL (VIA EMAIL). THIS EMAIL MAY BE SENT AT THE END OF EACH WORK WEEK BEFORE END OF THE BUSINESS DAY (3:15 PM) SO AS TO ALLOW SMOOTH TRANSITION (VIA EMAIL) BEFORE START OF WORK THE NEXT BUSINESS DAY. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COMPLETION OF THEIR DAILY HOT WORK PERMITS. THIS IS A STANDARD REQUIREMENT UNDER NFPA, FACTORY MUTUAL, AND INSURANCE COMPANIES. COPIES OF THE HOT WORK PERMITS WILL BE FORWARDED (VIA EMAIL) TO THE UTILITIES SUPERVISOR. THE UTILITIES SUPERVISOR RESERVES THE RIGHT TO STOP ALL WORK THAT IS NOT COMPLIANT WITH SAFETY REGULATIONS. THE RESULTING LOST HOURS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SAID CONTRACTOR WILL NOT BE REIMBURSED FOR “LOST HOURS” DUE TO NON COMPLIANCE OF SAFETY REGULATIONS.

VIOLATION OF SAFETY PROTOCOLS CAN RESULT IN REMOVAL OF VIOLATOR FROM SITE.

NOTE:

THE UTILITIES TUNNELS ENVIRONMENT TENDS TO BE HIGH HEAT HAZARD IN CERTAIN AREAS. THE AMBIENT TEMPERATURES OF AN ACTIVE TUNNEL AREA CAN BE AS HIGH AS 125+- DEGREES FAHRENHEIT. PROPER HYDRATION IS SUGGESTED. THE FOREMAN FOR THE CONTRACTOR SHOULD MONITOR HIS PERSONNEL CLOSELY FOR INDICATIONS OF HEAT STRESS RELATED DISORDERS.

Section 8 – Tunnel Access Orientation Acknowledgment Form

University of Michigan - Department of Utilities

Orientation Acknowledgement Document

The undersigned acknowledges that he/she has read the Tunnel Access/Use Protocols and Work Rules concerning:

Tunnel System Access Requirements

Policy on Tunnel Access

Confined Space Protocol

Emergency Response Protocol

Specific Hazard Work Rules

The undersigned acknowledges that he/she understands the documents as composed and will abide by the parameters set forth.

Name Printed:_____

Name Signed:_____

Contractor/Shop:_____

Project:_____

Date Signed:_____

(Submit signed form to Tunnel Supervisor, PRIOR to entering tunnels.)