EXCAVATION SAFETY PROGRAM

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1.0 PURPOSE

Excavation construction operations can expose employees to hazardous conditions. For example, cave-ins pose a risk to employees working inside of an excavation and are likely to result in worker fatalities. Other potential hazards include falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment.

The information in this written program includes responsibilities, training requirements, operational procedures, and safe work practices related to work in excavations.

The objective of this program is to enable employees to identify hazards and to establish procedures to prevent injury.

2.0 SCOPE

This program applies to anyone who conducts excavation construction operations at Casitas Municipal Water District (CMWD). The requirements in this program reference and conform to the California Code of Regulations Title 8, Section 1539-1541.1. Government Code Section 4216-4216.9 is referenced throughout the California Code of Regulations Title 8, Section 1539-1541.1. Although basic information regarding requirements for protective systems is contained in this written program, references are made in this document to the California Code of Regulations Title 8, Section 1541.1 Appendices A-F which contains detailed requirements for protective systems.

3.0 DEFINITIONS

3.1 **Accepted engineering practices**: Those requirements which are compatible with standards of practice required by a registered professional engineer.

3.2 **Aluminum hydraulic shoring**: A pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

3.3 **Bell-bottom pier hole:** A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

3.4 **Benching (Benching system):** A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

3.5 **Cave-in:** The separation of a mass of soil or rock material from the side of

an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

3.6 **Competent Person**: A person who is identified at an excavation site as the responsible person capable of identifying existing, predictable, and potential working conditions which are hazardous, dangerous, or unsanitary to employees and has the authority to stop work or take prompt corrective actions to eliminate or control the hazardous conditions. They must demonstrate: knowledge of the provisions pertaining to excavations, trenches and earthwork; knowledge of soil analysis as required in the provisions pertaining to excavations, trenches and earthwork; knowledge of the use of protective systems; and have the ability to recognize and test for hazardous atmospheres.

3.7 **Crossbraces**: The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

3.8 **Excavation:** Any man-made cut, cavity, trench, or depression in the earth's surface, formed by earth removal.

3.9 **Faces or sides:** The vertical or inclined earth surfaces formed as a result of excavation work.

3.10 **Failure:** The breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

3.11 **Hazardous atmosphere:** An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

3.12 **Kickout:** The accidental release or failure of a cross brace.

3.13 **Protective system:** A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

3.14 **Ramp:** An inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

3.15 **Registered professional engineer:** A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

3.16 **Sheeting:** The members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system. For example, uprights placed so that individual members are closely spaced, in contact with or interconnected to each other

3.17 **Shield (Shield system):** A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in accordance with California Code of Regulations Title 8, Section 1541.1(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

3.18 **Shielding:** Protects workers by using trench boxes or other types of supports to prevent soil movement and cave-ins.

3.19 **Shoring**: A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent soil movement and cave-ins.

3.20 **Sloping:** A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

3.21 **Stable rock:** Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

3.22 **Structural ramp:** A ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

3.23 **Support system:** A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

3.24 **Tabulated data:** Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

3.25 **Trench:** A narrow underground excavation (in relation to its length) made below the surface of the ground. The depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.5 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, (measured at the bottom of the excavation), the excavation is also considered to be a trench.

3.26 **Uprights:** The vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

3.27 **Wales:** Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

4.0 RESPONSIBILITIES

4.1 The Safety Officer is responsible to:

4.1.1 Maintain and update the written Excavation Safety Program at CMWD

4.1.2 Assist in coordination of basic awareness training for employees who perform work activities in excavations

4.1.3 Ensure the applicable information contained in this written program is communicated and understood through documented training.

4.2 Managers and Supervisors/Forepersons of employees who perform excavation construction operations are responsible to:

4.2.1 As applicable, ensure jobs are reviewed by the designated competent person before excavation construction operations begin.

4.2.2 Assist with updating the written Excavation Safety Program.

4.2.3 When requested, provide a copy of the Cal/OSHA Construction Activity Permit obtained from contractors working on site and their written program to the Safety Officer

4.3 Competent Person is responsible to:

4.3.1 Complete an Excavation Permit for every CMWD excavation that is equal to or greater than 5 feet in depth at any point.

4.3.1.1 Required if excavation is less than 5 feet in depth but has additional hazards beyond a normal excavation

4.3.2 Perform safety inspections of the excavation, adjacent areas, and protective systems daily before the start of work and as needed throughout the shift. Inspections shall also be made after every rain storm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

4.3.2.1 All inspections will be recorded Site Docs on the Permits: Excavation form.

4.3.3 Remove all employees from a hazardous area until the necessary precautions have been taken to ensure their safety.

4.3.4 Informing their supervisor/foreperson about unsafe or hazardous conditions.

4.3.5 Using their authority to take prompt corrective measures to immediately eliminate or control any identified hazards or conditions through implementation of engineering and administrative controls and personal protective equipment.

4.3.6 Allow only CMWD employees who have completed a minimum of excavation awareness level training within the last three years to enter the excavation

4.3.7 Allow only CMWD approved vendors that have provided excavation training within the last three years

4.4 Employees are responsible to:

4.4.1 Not enter an unprotected excavation
4.4.2 Understand and follow the requirements of the CMWD Excavation Safety Program
4.4.3 Follow instructions of the designated competent person.
4.4.4 Ask questions when concerned about a hazardous situation.
4.4.5 Report all unsafe conditions, practices, or equipment to the Supervisor/Foreperson and/or Safety Officer.
4.4.6 Participate in the required training program.

4.5 Contractors are responsible to:

4.5.1 Comply with all Cal-OSHA policies and procedures pertaining to excavation safety.
4.5.2 Take responsibility for their employees who perform trenching and shoring on district projects.
4.5.3 Train their employees in the required procedures.
4.5.4 Obtain a Cal/OSHA Construction Activity Permit for construction of trenches or excavations which are 5 feet or deeper into which a person is required to descend. The permit must be made available upon request by CMWD.

5.0 OPERATIONAL PROCEDURES

5.1 Permits/Notification

5.1.1 A minimum of 2 working days before starting an excavation or any digging underground pipes and utilities must be identified and utility owners must be notified. All Regional Notification Centers in the area involved and all known owners of subsurface facilities in the area who are not members of a Notification Center shall be advised of the proposed work. EXCEPTION: Repair work to subsurface facilities done in response to an emergency.
5.1.2 When necessary, plans of as-builts shall be obtained in order to locate underground pipes or utilities.
5.1.3 A excavation permit shall be completed by the competent person prior to beginning work.
5.1.4 All other permits – State Caltrans, County, OSHA CAP will need to be in place before construction
5.1.5 All permits will be readily accessible for a minimum of three (3) years

5.2 Inspections

5.2.1 Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.

5.2.2 Inspections shall identify any existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees.

5.2.3 An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift.

5.2.4 Since hard packed soil can become unstable after a rain and excavations that are sloped or shored in dry weather can become unstable when it rains, inspections shall also be made after every rain storm or other hazard increasing occurrence.

5.2.5 These inspections are only required when employee exposure can be reasonably anticipated.

5.2.6 Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

5.2.7 A excavation permit shall be completed by the competent person prior to beginning work.

5.3 Structures/Installations

5.3.1 Dig Alert can be directed or coordinated with the Districts dig alert representative (presently engineering)

5.3.1.1 Experience working in an area can supersede calling Dig Alert if the competent person has excavated the area previously

5.3.2 All surface installations, i.e. utilities that are located so as to create a hazard to employees shall be removed, supported, or protected from damage as necessary, to safeguard employees.

5.3.3 The approximate location of subsurface installations, such as sewer, telephone, fuel, electric, water lines, or any other subsurface installations that reasonably may be expected to be encountered during excavation work, shall be determined by the operator prior to opening an excavation.

5.3.4 Excavation shall not commence until:

5.3.4.1 The excavation area has been marked by the utilities or operator; and

5.3.4.2 The operator has received a response from all known owner/operators of subsurface installations within the boundaries of the proposed project confirming their assets locations

5.3.4.3 When the excavation is proposed within 10 feet of a high priority subsurface installation, an onsite meeting will occur upon the request of the facility owner/operator.

5.3.4.3.1 High priority subsurface installations are high pressure natural gas pipelines with normal operating pressures greater than 415 kPA gauge (60 p.s.i.g.), petroleum pipelines, pressurized sewage pipelines, fiber optic lines, conductors or cables that have a potential to ground of 60,000 volts or more, or hazardous materials pipelines that are potentially hazardous to employees, or the public, if damaged.

5.3.5 When excavation or boring operations approach the approximate location of subsurface installations, the exact location of the installations shall be determined by safe and acceptable means, such as hand digging, that will prevent damage to the subsurface installation.

5.3.6 An operator discovering or causing damages to a subsurface installation shall notify their supervisor/foreperson immediately.

5.3.6.1 All breaks, leaks, nicks, dents, gouges, grooves, or other damages to an installation's lines, conduits, coatings or cathodic protection shall be reported to the subsurface installation owner.

5.3.6.2 If damage to a high priority subsurface installation results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health or property, the operator responsible shall immediately follow CMWD emergency procedures for dialing 911. The facility owner shall also be contacted.

5.4 Fall Protection

5.4.1 Where employees or equipment are required or permitted to cross over excavations over 6-feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

5.4.2 Adequate barrier physical protection shall be provided at all remotely located excavations.

5.4.2.1 All wells, pits, shafts, etc., shall be barricaded or covered.

5.4.2.2 Upon completion of exploration and other similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

5.4.3 In publically accessible areas, the excavation perimeter shall be delineated with caution tape and protective barriers

5.5 Soil Characterization

5.5.1 Due to the characteristics of the soil and the fact that all areas that are reasonably expected to be excavated have previously been disturbed, all soil within CMWD will be classified as Type C.

5.6 Protective Systems

5.6.1 Employees shall be protected from cave-ins by an adequate protective system designed in accordance with CCR Title 8 Section 1541.1 (b) or (c) except when excavations are made entirely in stable rock or excavations are less than 5 feet in depth and examination of the ground by a competent person provides no indications of a potential cave in.

5.6.2 If there is the possibility of soil movement or trench collapse as a result of unstable soil based on soil classification, even shallower trenches must be shored.

5.6.3 Protective System Options

5.6.3.1 Requirements for the design of sloping and benching systems are included in CCR Title 8 Section 1541.1 (b).

5.6.3.2 Requirements for the design of support systems, shield systems, and other protective systems are included in CCR Title 8 Section 1541.1 (c).

5.6.4 Shield Systems

5.6.4.1 Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

5.6.4.2 Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

5.6.4.3 Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by the shields.

5.6.4.4 Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.

5.6.4.5 In trench excavations the sides of the shield shall extend a minimum of 18 inches above the vertical walls of compound excavations. This requirement is described in CCR Title 8 Section 1541.1 Appendix B, Figures B-1, B-1.2, and B-1.3.

5.6.4.6 On vertically cut trenches the shield shall extend to at least the catch point of the trench.

5.6.5 Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

5.6.6 Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and approved by a registered professional engineer.

5.6.7 Factors for designing a protective system include soil classification, depth of cut, water content of soil, changes due to weather, surcharge load (weight of materials to be used in the trench, spoils pile), and other operations (roadway, vibration) in the area.

5.6.8 If there is any evidence of potential failure of any excavations device or equipment the supervisor/foreperson or manager shall remove the device or equipment from service until corrective actions are implemented.

5.6.9 Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

5.6.10 Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendation of the manufacturer and in a manner that will prevent employee exposure to hazards.

5.6.11 When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.

5.6.12 Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

5.6.13 Installation and Removal of Supports

5.6.13.1 Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

5.6.13.2 Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

5.6.13.3 Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

5.6.13.4 Uprights shall extend to the top of the trench with the lower end of the upright not more than 2 feet from the bottom of the trench.

5.6.13.5 Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural

members to carry the loads imposed on the support system.

5.6.13.6 Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

5.6.13.7 Backfilling shall progress together with the removal of support systems from excavations.

5.7 Access and Egress

5.7.1 Safe access and egress to all excavations must be provided including but not limited to ladders, steps, and ramps for employees to safely exit while working in trench excavations 4 feet or deeper.

5.7.2 A safe means of egress shall be located so as to require no more than 25 feet of lateral travel for employees.

5.7.3 Structural ramps that are used by employees or equipment as a means of access/egress from excavations shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

5.7.4 Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

5.7.5 Structural members used for ramps and runways shall be of uniform thickness.

5.7.6 Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

5.7.7 Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments to the top surface to prevent slipping.

5.7.8 Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

5.8 Emergency Rescue

5.8.1 The standard District procedures to follow in the event of a life threatening emergency apply.

5.8.1.1 A job site employee shall contact their supervisor/foreperson who shall contact 911 to initiate a rescue response.

5.8.1.1.1 If attempts to reach the supervisor/foreperson are unsuccessful, job site employees can contact 911

5.8.1.2 When communicating the emergency, very specific details shall be provided by the person reporting the incident.

5.8.2 CMWD employees are not authorized or trained to perform emergency rescue

5.8.2.1 Contact 911 immediately

5.9 Hazardous Atmospheres

5.9.1 In addition to the requirements set forth in the Construction Safety Orders and the General Industry Safety Orders to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

5.9.1.1 Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, the atmosphere in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.

5.9.1.2 Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres.

5.9.1.3 Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

5.9.1.4 When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

5.9.1.5 CMWD employees shall not enter excavations where hazardous atmospheric conditions exist or may reasonably be expected to develop during work.

5.10 Protection from Hazards Associated with Water Accumulation

5.10.1 Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

5.10.2 If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

5.10.3 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation.

5.11 Soil Hazards

5.11.1 Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

5.11.2 Employees shall be protected from excavated materials that could pose a hazard by falling into excavations. Protection shall be provided by placing and keeping such materials at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials from falling into excavations, or by a combination of both if necessary.

5.12 Adjacent Structures

5.12.1 Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

5.12.2 Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

5.12.2.1 A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

5.12.2.2 The excavation is in stable rock; or

5.12.2.3 A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

5.12.3 Sidewalks, pavements and appurtenant structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

5.13 Materials and Equipment

5.13.1 Employees shall not be permitted underneath raised loads handled by lifting or digging equipment.
5.13.2 Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.
5.13.3 Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with a cab shield and/or canopy to provide adequate protection for the operator from shifting or falling materials during loading and unloading operations.
5.13.4 When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
5.13.5 Employees exposed to public vehicular traffic shall be provided with, and shall wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 All employees working at an excavation site shall wear the following PPE
6.1.1 ANSI Approved Type II, Class G Hard Hat – Type II
6.1.2 ANSI Z87.1 Safety Glasses
6.1.3 Work Gloves
6.1.4 Steel Toed Boots

6.2 When working in areas exposed to traffic, employees shall wear at all times:
6.2.1 During daylight hours, ANSI/ISEA 107-2010 Class 2 Safety Vests
6.2.1.1 If above 50 mph – ANSI/ISEA 107-2010 Class 3 Safety Vests
6.2.2 During dusk, dawn and at night, ANSI/ISEA 107-2010 Class 3 Safety Vests

6.3 Employees will wear PPE for additional work within the excavation that fall under other safety programs (i.e. confined space, hot work, etc.) in accordance with the designated program

7.0 TRAINING

7.1 Employees who are involved in the excavation operation and exposed to excavation operation hazards shall be trained in the excavator notification and excavation practices.

7.2 Employees who perform work tasks in excavation sites shall receive general hazard awareness training.

7.3 Competent Persons shall receive specialized training and demonstrate:
- 7.3.1 Knowledge of the provisions pertaining to excavations, trenches, and earthwork
- 7.3.2 Knowledge of soil analysis as required in the provisions pertaining to excavations, trenches, and earthwork
- 7.3.3 Knowledge of the use of protective systems
- 7.3.4 Authority to take prompt corrective action on the job as conditions warrant
- 7.3.5 Ability to recognize and test for hazardous atmospheres

8.0 PROGRAM REVIEW AND RECORDKEEPING

8.1 The Safety Officer shall work with affected supervisor/forepersons and employee to review and update written procedures in this program every three (3) years.

8.2 Manufacturer's specifications, recommendations, and limitations for designs of shoring equipment will be stored in Google Shared Drive/ District Wide/SAFETY/Excavation.

8.3 The following requirements apply to maintenance of trenching and shoring program records.
- 8.3.1 Excavation Permits shall be maintained and stored in SiteDocs
- 8.3.2 Employee excavation training records shall be maintained for no less than five (5) years in Target Solutions.
- 8.3.3 Training on excavation safety shall occur every three (3) years
- 8.3.4 This written program shall be available for all employees to review.

8.4 The location of documents will be:
- 8.4.1 Training Records – Target Solutions
- 8.4.2 Excavation Permits – SiteDocs

9.0 SOURCE MATERIAL

9.1 Title 8, California Code of Regulations, Sections 1539-1543: http://www.dir.ca.gov/Title8/sb4a6.html