

**CITY OF OAK RIDGE, TENNESSEE  
TURTLE PARK PUMP STATION PERMANENT BYPASS  
ADDENDUM TWO (2)**

**Bid Date & Time:** 2:00 PM, local time, on Tuesday, July 18, 2017

**Addendum Date:** June 21, 2017

This Addendum is issued to make certain additions, revisions, clarifications and alterations to the Plans, Specifications, Contract Documents, and requirements for the project. Each Bidder should acknowledge receipt of this Addendum on the Bid form; however, failure to do so does not relieve the Bidder from the requirements contained herein.

**I. SPECIFICATIONS**

**A. Section 33 0513.16 Precast Concrete Structures**

1. ADD the attached Section.

**B. Appendix B Health and Safety Plan**

1. ADD the attached Appendix.

**II. DRAWINGS**

**A. Sheet C1.0.** ADD "(typ. 2)" to note detailing location of 12" bypass connection pads. See attached Sketch AD2.1.

**B. Sheet C3.0.** "Typical Combination Air/Vacuum Valve Assembly (ARV)," ADD the following note: "MANHOLE EL. 808.00 (STA. 1+18 ONLY)." See attached Sketch AD2.2. ADD "Valve Assembly Detail." See attached Sketch AD2.3.

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## **SECTION 33 0513.16**

### **PRECAST CONCRETE STRUCTURES**

#### **1. GENERAL**

##### **1.1 SCOPE**

- A. Furnish all labor, materials, equipment, and incidentals required to install rectangular, monolithic, or sectional precast water and wastewater structures, pipe connectors, and accessories as specified herein.

##### **1.2 RELATED SECTIONS**

- A. Section 31 2000 - Earthwork

##### **1.3 REFERENCES**

- A. Prestressed Concrete Institute. Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.
- B. National Precast Concrete Association. Quality Control Manual for Precast Concrete Plants.
- C. American Society for Testing and Materials (ASTM)
  - 1. ASTM C 478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
  - 2. ASTM C 890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
  - 3. ASTM C 891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.
  - 4. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipe and Laterals.
  - 5. ASTM C 913 - Standard Specifications for Precast Concrete Water and Wastewater Structures.
- D. American Association of State Highway and Transportation Officials Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets (AASHTO M198).
- E. American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318).

- F. Occupational Safety and Health Administration Standard 1926.704 - Requirements for Precast Concrete.

**1.4 SUBMITTALS SHALL BE AS FOLLOWS**

- A. Copy of certificate or report showing that the precast concrete manufacturer conforms to Article 1.5 - Qualifications.
- B. Schedule of precast concrete structure sections to be provided on the project, charting the following items, when applicable:
  - 1. Sheet number where the precast structure plan and profile is shown on the plans.
  - 2. Line number (when there is more than one line on the project).
  - 3. Precast structure station number.
  - 4. Invert elevation of the influent and effluent line as indicated on the plans.
  - 5. Top elevation of the precast structure frame as indicated on the plans.
  - 6. Top elevation of precast structure base slab as calculated.
  - 7. Total height of precast structure required from top of base slab to top of frame.
  - 8. Total height of assembled base, risers, and cone or top provided from top of base to top of top.
  - 9. Manufacturer's part number or catalog number and number required of each base, riser, and top provided for the precast structure.
  - 10. Each pipe size and type and its connector's part number, distance from top of base slab, and horizontal distances from inner wall corners of precast structure.
- C. Detail of each precast concrete structure section to be provided showing or charting the following:
  - 1. Manufacturer's part number or catalog number.
  - 2. Inside dimensions.
  - 3. Lay length excluding base slab.
  - 4. Wall thickness and base or top thickness where applicable.
  - 5. Handling weight.
  - 6. Wire size, spacing, and area provided per vertical foot.
  - 7. Reinforcing bar size and spacing.
  - 8. Design loads.

9. Concrete mix number and design strength.
  10. Height, width, slope, and annular space of the tongue and groove.
- D. Pipe connector details and material specifications.
- E. Joint material detail, material specifications and calculations showing that the joint material cross section is greater than the joint's annular space times its height.
- F. Lifting device and hole detail.
- G. Submit the following at the request of the Engineer or Owner:
1. Structural analysis and design calculations for precast components, performed in accordance with applicable codes and standards, showing that allowable stresses will not be exceeded. A registered professional engineer must seal all calculations.
  2. Calculations or test results verifying that the lifting device components and holes are designed in accordance with OSHA Standard 1926.704.
  3. Concrete 28-day compression strength results for every day production of precast components for the project was performed showing the required strength according to the guidelines established in ACI 318.
  4. Reinforcing and cement mill reports for materials used in the manufacture of precast components for this project.
  5. The above test reports for similar precast components recently produced, submitted prior to production of precast components for this project.

## **1.5 QUALIFICATIONS**

- A. The precast manufacturer shall comply with one of the following requirements:
1. Manufacture precast components for the project in a plant certified in the Prestressed Concrete Institute's (PCI) Plant Certification Program.
  2. Manufacture precast components for the project in a plant certified in the National Precast Concrete Association's (NPCA) Plant Certification Program.
  3. Retain an independent testing or consulting engineering firm approved by the Engineer for precast plant inspection. The basis for plant inspection shall be the National Precast Concrete Association Quality Control Manual or the Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products. The

above firm shall inspect the precast plant 2 weeks prior to and at 1 week intervals during production of materials for this project and issue a report, certified by a registered engineer that materials, methods, products, and quality control meet the requirements of the above quality control manuals.

- B. The precast manufacturer shall have a recognized quality improvement process installed at the manufacturing facility.
- C. The precast manufacturer shall provide engineering certification as to the structural adequacy of any precast component, if requested.
- D. All concrete compressive strength testing shall be performed in a laboratory inspected by the CCRL of the National Bureau of Standards.

## **1.6 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain materials and surrounding air temperature to minimum 50°F prior to, during, and 48 hours after completion of masonry, grouting or concreting work.

## **2. PRODUCTS**

### **2.1 MATERIALS**

- A. Concrete shall conform to ASTM C 478 and as follows:
  - 1. Compressive Strength: 5,000 psi minimum at 28 days.
  - 2. Air Content: 4 percent minimum.
  - 3. Alkalinity: Adequate to provide a life factor,  $A_z = \text{Calcium carbonate equivalent times cover over reinforcement}$ , no less than 0.35 for bases, risers and tops.
  - 4. Cementitious Materials: Minimum of 564 pounds per cubic yard.
  - 5. Coarse Aggregates: ASTM C 33. Sound, crushed, angular stone only. Smooth or rounded stone shall not be used.
  - 6. Fine Aggregates: ASTM C 33. Free from organic impurities.
  - 7. Chemical Admixtures: ASTM C 494. Calcium chloride or admixtures containing calcium chloride shall not be used.
  - 8. Air Entraining Admixtures: ASTM C 260.
- B. Reinforcing steel shall be ASTM A 615 Grade 60 deformed bar, ASTM A82 wire or ASTM A 185 welded wire fabric.

- C. Lifting loops shall be ASTM A 416 steel strand. Lifting loops made from deformed bars shall not be allowed.
- D. Butyl rubber sealant shall conform to Federal Specification SS-S-210A, AASHTO M-198, Type B - Butyl Rubber and as follows: maximum of 1% volatile matter and suitable for application temperatures between 10 and 100°F.
- E. Butyl rubber with bentonite sealant shall conform to Federal Specification SS-S-210A, ASTM D 297, and containing no asphaltics as follows: maintaining 99% solids with a maximum of 1% volatile matter and suitable for application temperatures between 5 and 125°F.
- F. Epoxy gels used for interior patching of wall penetrations shall be a 2-component, solvent-free, moisture-insensitive, high modulus, high-strength, structural epoxy paste adhesive meeting ASTM C 881, Type I and II, Grade 3, Class B and C, Epoxy Resin Adhesive.

## 2.2 COMPONENTS

- A. Precast component fabrication and manufacture shall be as described in this paragraph and as described in the paragraphs for the specific components.
  - 1. Precast structures shall be manufactured in conformance with ASTM C 913. Wall and inside slab finishes resulting from casting against forms standard for the industry shall be acceptable, except form ties through the wall of the product are not allowed. Exterior slab surfaces shall have a float finish. Small surface holes, normal color variations, normal form joint marks, minor depressions, chips and spalls will be tolerated. Dimensional tolerances shall be those set forth in the appropriate references and specified below.
  - 2. Joint surfaces for joints between precast structure components shall be keyways or tongue and grooves manufactured to the joint surface design and tolerance requirements of ASTM C 913.
  - 3. Lift holes and inserts used for handling precast structures shall be sized for a precision fit with the lift devices, shall not penetrate through the precast structure wall, and shall comply with OSHA Standard 1926.704.
- B. Precast base sections shall have the base slab cast monolithically with the walls.
- C. Precast riser sections. The minimum lay length of precast riser sections shall be 36 inches.
- D. Precast cone sections shall have an inside diameter at the top of 24 inches. The width of the top ledge shall be no less than the wall thickness required

for the cone section. Concentric cones shall be used only for shallow manholes.

- E. Precast top sections. Flat slab top sections shall be designed for HS-20 traffic loadings as defined in ASTM C 890. Transition top sections shall provide for transition to other diameter risers, cones, and flat slab top sections with a joint equal to that of a riser section. Venting of top sections shall be as shown on the details.
- F. Pipe to manhole connectors shall conform to ASTM C 923. On large diameter flexible pipes, provisions for control of the pipe outside diameter to within the tolerances of the connector shall be made.
- G. Joints shall be sealed internally between the tongue and the groove and additionally around the external perimeter of the joint as follows:
  - 1. External seals shall consist of a polyethylene backed flat butyl rubber sheet no less than 1/16-inch thick and 6 inches wide applied to the outside perimeter of the joint.
  - 2. Joints with a perimeter greater than or equal to 18 feet shall be internally sealed with butyl rubber/bentonite sealant.
  - 3. Joints with a perimeter less than 18 feet shall be internally sealed with butyl rubber sealant.
- H. Manhole rings, covers, hatches and doors, frames and grate to be provided as equal to those shown on the precast structure details. Materials shall be cast iron, steel, or aluminum as conforming to details per application. For dimensions of castings see precast top details.
- I. The precast manufacturer shall provide lifting devices complying with OSHA Standard 1926.704 for handling the precast components. The design of lifting devices shall comply with ASTM C 913, Paragraph 5.8 standards.

### **2.3 CONFIGURATION**

- A. Precast concrete structures are to be constructed as specified and as shown on the detail drawings.
- B. The number of joints shall be minimized. Use no more than two sections up to 8 feet of depth and no more than one additional section for each 4 feet of depth.
- C. Provide inverts conforming to the details shown on the Drawings when rectangular sewer manholes are required.
- D. Round transition assemblies shall conform to ASTM C 478.

### **3. EXECUTION**

#### **3.1 EXAMINATION**

- A. Inspect precast components prior to unloading from the delivery truck.

#### **3.2 DELIVERY, STORAGE, AND HANDLING**

- A. Coordinate delivery with the manufacturer. Handle and store the precast components in accordance with ASTM C 891 and the manufacturer's recommendations using methods that will prevent damage to the components and their joint surfaces.

#### **3.3 PLACING PRECAST CONCRETE SECTIONS**

- A. Excavate the required depth and remove materials that are unstable or unsuitable for a good foundation. Prepare a level, compacted foundation extending 6 inches beyond the precast base and follow ASTM C 891 excavation standards.
- B. Set base plumb and level, aligning pipe opening with pipe invert.
- C. Thoroughly clean bells and spigots to remove dirt and other foreign materials that may prevent sealing. Unroll the butyl sealant rope directly against base of spigot. Leave protective wrapper attached until sealant is entirely unrolled against spigot. Do not stretch. Overlap from side to side, not top to bottom.
- D. Set risers and tops, aligning internal wall surfaces, so that proper alignment is achieved taking particular care to clean, prepare, and seal joints.
- E. Fill the void between horizontal joint surfaces with a sand cement grout around the outside perimeter, when recommended by the manufacturer.
- F. After joining manhole sections, apply the butyl sealant sheet around the outside perimeter of the joint.
- G. Lift holes leaving less than 2 inches of wall thickness shall be plugged from the outside using a sand cement mortar. Lift holes penetrating the wall shall be additionally sealed with an interior application of an epoxy gel \_ inch thick extending 2 inches beyond the penetration.
- H. Vacuum test the assembled precast structure after completing pipe connections and sealing but before backfilling or placing frame and cover as follows:
  - 1. Plug pipes with suitably sized and rated pneumatic or mechanical pipeline plugs. Place plugs a minimum of 6 inches beyond the



precast wall and brace to prevent displacement of the plugs or pipes during testing.

2. Position the vacuum tester head assembly to seal against the interior surface of the top of the top section and inflate according to the manufacturer's recommendations.
3. Draw a vacuum of 10 inches of mercury, close the valve on the vacuum line, and shut off the vacuum pump.
4. Measure the time for the vacuum to drop to 9 inches of mercury. The precast structure shall pass when the time to drop to 9 inches of mercury meets or exceeds the following:

Structure Area in Plain View (square feet)	10	20	30	40	50	80
Seconds	60	75	90	105	120	150

5. If the precast structure fails the test, remove the head assembly and coat the interior with a soap and water solution and repeat the vacuum test for approximately 30 seconds. Leaking areas will have soapy bubbles. After the necessary repairs are made, repeat the test until the precast structure passes.
- I. Perform the final finishing to the manhole interior by filling all chips or fractures greater than 1/2 inch in length, width or depth and depressions more than 1/2 inch deep in inverts with a sand cement mortar. Grout joints according to manufacturer's specifications. Clean the interior of the precast structure, removing all dirt, spills, or other foreign matter.

**END OF SECTION**

# SITE SPECIFIC HEALTH AND SAFETY PLAN SUPPLEMENT

## CITY OF OAK RIDGE TURTLE PARK BYPASS FORCE MAIN PROJECT

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JUNE 2017

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PREPARED BY:

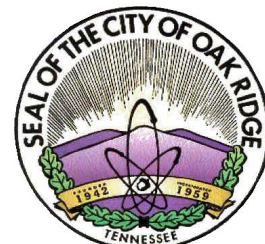
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## Figures

- 1 – Site Location Map
- 2 – Site Work Zone and Decontamination Procedure

## Forms

- 1 – Amendments to the Site Specific HASP
- 2 - HASP Acknowledgment Sheet
- 3 – Sign-In Sheet
- 4 - Pre-Construction Safety Meeting Checklist

## **1 General**

Trestles, LLC on behalf of the City of Oak Ridge, Tennessee has prepared this site specific Health and Safety Plan (HASP) for construction activities within the Turtle Park Bypass Force Main Project area, known as the Site (Figure 1). The site has been previously identified as having mercury contaminated soils. The Site refers to the work area and the decontamination zones for the construction activities. The construction activities include the underground installation of approximately 400 linear feet of 18-inch diameter sewer force main. The purpose of this HASP is to provide supplemental direction and information to ensure that any contact with potentially hazardous material is minimized, and that worker protection from construction related operations is maintained. The HASP identifies procedures for protecting workers during these activities.

This HASP is designed to ensure the following:

1. Workers are aware of hazardous substances that may adversely affect workers' health and the responses and steps required to minimize the physical and chemical hazards present on- site.
2. On-site operations and procedures will meet the requirements of OSHA Federal Regulations, in particular 29 CFR 1926 Hazardous Waste Operations and Emergency Response.

This HASP and its appendices will be kept at a designated location for the duration of this project.

Site operations conducted by personnel will be conducted in accordance with the provisions of the HASP. Amendments to this plan will be documented (Form 1). Onsite personnel are required to sign the HASP Acknowledgement Sheet (Form 2), and visitors are required to sign the Sign-In Sheet (Form 3).

## **2 Site Characterization**

Oak Ridge National Laboratory published a report, "Mercury Content of Sediments in East Fork Poplar Creek: Current Assessment and Past Trends", in January 2017. The report, which is available for public review, identified that the Y-12 National Security Complex released large amounts of mercury to the local environment and the headwaters of East Poplar Creek in the 1950s and early 1960s. Subsequent studies and remedial projects have improved water quality and identified lower measured values in the lower portions of East Poplar Creek. However, the mercury contaminant is still present and potentially in the soils of the Turtle Park Bypass Pump project area.

Based on available information, Site activities may potentially expose personnel to mercury, a hazardous substance, in the vicinity of the force main installation. Health effects, exposure limits, and guidelines for mercury as well as its physical and chemical properties are described below:

**Chemical:** Mercury (all forms except alkyl) (skin)

**IDLH** (Immediate Danger to Life & Health) **Value** (ppm): 10 mg/m<sup>3</sup> as Hg

**TLV** (Threshold Limit Value) (ppm): 0.025 mg/m<sup>3</sup> inorganic forms including metallic mercury; 0.10 mg/m<sup>3</sup> as Hg-aryl; NA (inorganic and aryl forms), as Hg; 01 mg/m<sup>3</sup> ((organo) alkyl)

**Short Term Exposure Limit** (ppm): NA

**Acute Effects:** Inhalation of high concentrations of mercury vapor can cause bronchitis and chest pains; ingestion may result in abdominal pain, diarrhea, shock, and liver and kidney damage.

**Chronic Effects:** Chronic inhalation or ingestion exposure to both inorganic and organic mercury compounds may result in nervous system disorders; psychic and emotional disturbances, kidney damage and digestive disturbances. Exposure to organic mercury

**Flammability:** NA

**Carcinogenicity Class:** OSHA: No US EPA: D ACGIH: No

**Other Information:** VP: 0.0012 mm Hg; BP: 674F; Solubility: Insoluble; Odor: Odorless

### **Medical Emergency Procedure**

If a worker is seriously injured or is experiencing some type of medical crisis, call 911. For less serious medical care a decision may be made to directly transport a person to their medical provider for urgent care. The Methodist Medical Center, located at 990 Oak Ridge Turnpike, Oak Ridge, TN 37830, is a full service medical facility that offers Occupational Health services as well as Urgent Care/After Hours.

### **Decontamination Procedures**

All workers coming into contact with soils during excavation, backfilling, grading, or general activities are required to wear the appropriate personal protection equipment. All workers will be required to wear hardhat, safety glasses, disposable shoe covers, a disposable Tyvek™ coverall, washable kneepads, and disposable nitrile gloves under work gloves. These workers will be required to have a second set of clothing on site. Workers performing these activities shall wear clothing that can be disposed of if it becomes

contaminated or shall wear shorts and work boots under the disposable coveralls.

Prior to leaving the work site, all workers will need to dispose of the Tyvek™ coveralls, nitrile gloves, and shoe covers. Remaining PPE will be decontaminated using industrial wet wipes. The disposal PPE and any clothing that becomes contaminated with mercury shall remain on site and be managed as mercury impacted waste.

### **Site Specific Access Control**

Only authorized City personnel and the contractor's workers should be allowed at the project location. All personnel that will be onsite must sign in at the beginning of each day and sign out at the end of each day.

## **3 Regulatory Basis**

The OSHA Federal Regulations, including 29 CFR 1910.120 and 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response provide the basis for this Health and Safety Plan. Some of the hazardous materials have specific OSHA regulations. The safety and health of on-site personnel will take precedence over cost and schedule considerations for all project work.

## **4 Health & Safety Team Leader**

Each day, the Contractor will appoint an on-site individual to be designated as the Health and Safety Team Leader (HSTL). The HSTL will supervise the implementation of the HASP for onsite personnel and will make all decisions regarding operations and work stoppages due to health and safety concerns. The responsibilities of the HSTL are as follows:

- Be responsible for implementation of the HASP at the initiation of site work.
- Conduct the pre-entry safety briefing for all on-site personnel and other safety requirements to be observed during Site work.
- Be responsible to hold daily safety meetings for site personnel to discuss health and safety issues.
- Review and modify the HASP as more information becomes available concerning the hazardous materials involved.
- Suspend work activity if unsafe working conditions develop and ensure corrective action is/has been taken prior to re-commencing work.

- Assure that safety equipment is provided, maintained and accessible to site personnel.
- Assure that site personnel are performing and documenting daily equipment operational checks.
- Assure that site personnel comply with the “buddy system” while working in Exclusion Zones and DECON Zones.
- Investigate all injuries, illnesses, spills, fires, property damage incidents, and near misses affecting site personnel. Injuries and illnesses must be reported on Contractor’s standard Injury Investigation Report forms. Spills, fires, property damage incidents, and near misses affecting site personnel should also be reported on Contractor’s appropriate forms.
- Assure that the project field office is equipped with a copy of this HASP, site maps delineating work zones, Material Safety Data Sheets (MSDS) for all hazardous substances brought to the site, appropriate OSHA postings, first-aid kit, eyewash station, and potable water.

## **5 Medical Surveillance**

In accordance with requirements detailed in OSHA Federal Regulations 29 CFR 1910.120 and 29 CFR 1296.65, all site personnel who may be exposed to potentially contaminated materials over the published exposure level for more than 30 days will have received medical surveillance by a licensed physician or physician’s group.

## **6 Training and Project Site Meetings**

All Contractor personnel that will be working in direct contact with the contaminated soils shall have received the appropriate training prior to mobilization. Training should at a minimum be in accordance with 29 CFR 1926 Hazardous Waste Operations. Training and applicable refresher courses shall be the responsibility of the Contractor.

Prior to commencing activities, a pre-entry safety briefing will be conducted with site personnel. Topics covered during the pre-entry safety briefing will include:

- Project Site-specific health and safety hazards;
- Personal Hygiene Practices
- Level of PPE required;
- Safe use of equipment;

- Decontamination procedures; and
- Emergency response procedures.

All personnel who attend this briefing will sign the HASP Acknowledgement Sheet presented as Form 2, documented by the HSTL, and kept on file.

Site personnel shall attend regular safety (“toolbox”) meetings. These meetings will be conducted by the HSTL, and will cover specific health and safety issues, work area activities, changes in work area conditions, and a review of topics covered in the Project Site-specific pre-entry briefing. Topics discussed in the safety toolbox meetings will be documented along with a list of personnel who attend. Completed daily Pre-Construction Safety Meeting Checklist records (Form 4) will be kept on file or the meetings will be documented in the field book.

## **7 Site Control and Work Zones**

Specific work zones, as defined below, will be delineated by temporary fencing, a flagged line, poly-sheeting enclosures, cones as appropriate to specific site location needs, or will be noted in field notebook if physical marking is not practical.

1. Exclusion Zone – This zone will include all areas where potentially contaminated soils or materials are to be handled and all areas where contaminated equipment or personnel travel.
2. Decontamination Zone – This zone will occur at the interface of the Exclusion Zone and Support Zone and will provide access for the transfer of construction materials and site equipment to the Exclusion Zone, the decontamination of vehicles prior to leaving the Exclusion Zone, the decontamination of personnel and clothing prior to entering the Support Zone, and for the physical segregation of the Support Zone and Exclusion Zone.
3. Support Zone – This area is the portion of the site defined as the area outside the zone of significant soil contamination. The Support Zone will be clearly delineated and procedures implemented to prevent active or passive migration of contamination from the work Project Site.

The project field office will be the central location for potable water supply and first-aid kit, communications, safety records, and lunch/break areas.

The general work areas and controlled access points will be delineated on the project Site Map (Figure 2). When changes occur in the delineation of these work zones or when work areas change, these changes will be documented and kept on file in the project field office. It is understood that the Exclusion Zone concept when working with mobile equipment will



change when the location of the equipment moves to a new location.

The use of the “buddy system” is required for all site personnel covered by this HASP when working at the Site. All site personnel are to be observed by or in regular contact with at least one other worker while working at the Site. Names of “buddies” will be documented daily on the Pre-Construction Safety Meeting Checklist, in the field notebook.

## 8 Personal Protective Equipment

For the purpose of this HASP, all site activities within the Exclusion Zone will require Modified Level D personal protection. Similar activities conducted outside the established Exclusion Zones will require Basic Level D personal protection. Any deviations from these levels of protection will be documented in the Pre-Construction Safety Meeting Checklist (Form 4). The Contractor shall provide all required safety equipment and protective clothing for Contractor employees, and employees shall keep equipment clean, well maintained, and intact. Safety equipment will be replaced if damaged or consumed. The use of required PPE by personnel will be mandatory. Supervisory personnel will be responsible to enforce and make mandatory the use of applicable PPE for the employees under their supervision for the work being undertaken.

### Basic Level D PPE

Type	Properties	Item
Foot Protection	Steel-toe	Boots
Head Protection	Meets ANSI Z89.1 standard	Hard hat (during construction activities and when overhead hazards exist)
Hand Protection	Abrasion resistant	Leather/cotton gloves (optional)
Eye Protection	Meets ANSI Z87.1 standard	Glasses with side shields

## Modified Level D PPE

Type	Properties	Item
Foot Protection	Steel-toe	Boots with covers
Body Protection	Tyvek or chemical resistant – based on type of work	Coveralls
Head Protection	Meets ANSI Z89.1 standard	Hard hat (during construction activities and/or when overhead hazards exist)
Hand Protection	Chemical resistant	Inner gloves (nitrile).
Eye Protection	Meets ANSI Z-87.1 standard	Glasses with side shields

Additional protective equipment guidelines to be implemented include:

- Prescription eyeglasses in use on the site will be safety glasses with side shields.
- Protective gloves may be worn over nitrile gloves by site personnel involved in any activities, where the nitrile gloves may be damaged during project task work.
- All PPE worn on-site will be decontaminated or discarded at the end of each workday.
- No watches or other jewelry will be permitted during operation of hand held powered equipment.
- Work clothing that may become contaminated may require an outer disposable body clothing (e.g., Kleengard™ or Tyvek™). Each worker shall have a clean set of clothes to change into if their clothes become contaminated and cannot be worn outside of the Site.
- Heat/cold stress work activities conducted during warm and cold months may require modification of these PPE levels.
- Hearing protection is required when personnel may be exposed to high noise levels (for example, when a worker cannot hear normal conversation).
- High visibility vests are required when working near moving equipment or vehicles.

## 9 Personal Hygiene

All personnel performing or supervising work within the Exclusion Zone shall adhere to the personal hygiene-related provisions of this section.

The following equipment/facilities shall be available for the personal hygiene of all onsite personnel:

1. Disposable coveralls, gloves, and boot covers.
2. Disposal containers for used disposable protective equipment will be located at the Site.
3. Potable water will be located at the Site.
4. First aid kits and eyewash, as appropriate, will also be located at the Site.

The following regulations for personnel actively participating in the construction activities shall be enforced:

1. On-site personnel will wear appropriate PPE when in the Exclusion Zone.
2. Used disposable outerwear will not be reused if deemed to be unsuitable to provide the necessary protection, and when removed, will be placed inside disposal containers provided for that purpose.
3. Smoking, eating and drinking is prohibited within the Exclusion and Decontamination Zone. On-site personnel, upon leaving the Exclusion Zone, will thoroughly cleanse their hands, face, neck area and other exposed areas before smoking, eating or drinking.

## **10 Communications**

### **General**

Dial 911 for emergencies including police, fire and ambulance.

### **Emergency Alarm System**

If evacuation of a work area is necessary, three long blasts are to be sounded with an air horn or vehicle horn and/or verbal warnings will be given. This signal indicates that immediate evacuation of all persons in the work area is necessary as a result of some immediate or impending danger. Operations will be shut down/suspended and all site personnel should evacuate to a safe area, as determined by the HSTL. If the emergency is related to an airborne hazard in an Exclusion Zone, the safe area will be located upwind of the Exclusion Zone. The signal method and possible safe area location(s) may vary depending on the type of emergency, size of site, and number of employees. This signal and location(s) to be used as a safe area will be discussed at the Pre-entry Safety briefing, and any changes should be noted at daily "toolbox" meetings.

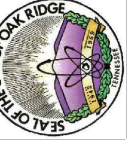
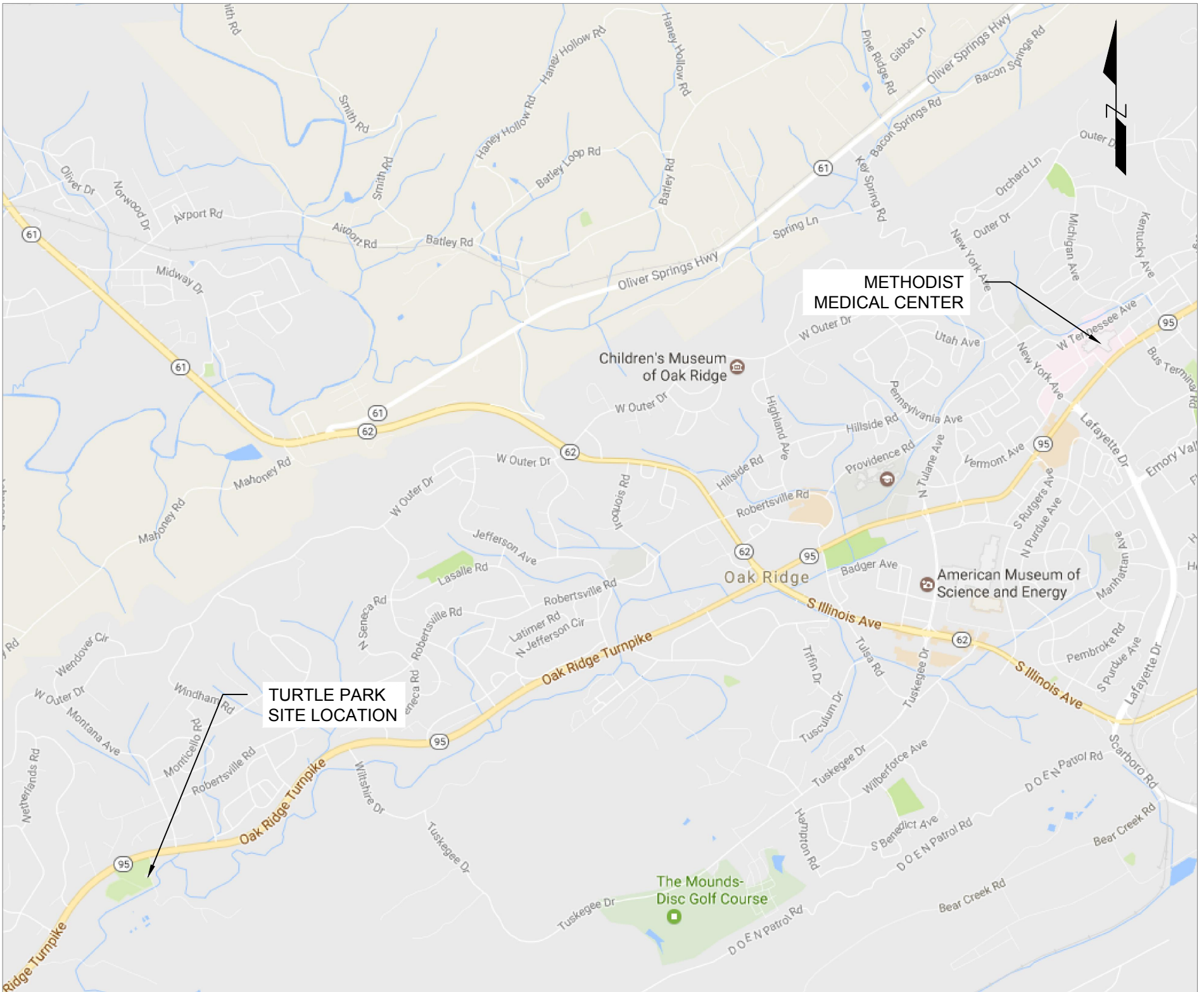
## **11 Equipment and Personnel Decontamination**

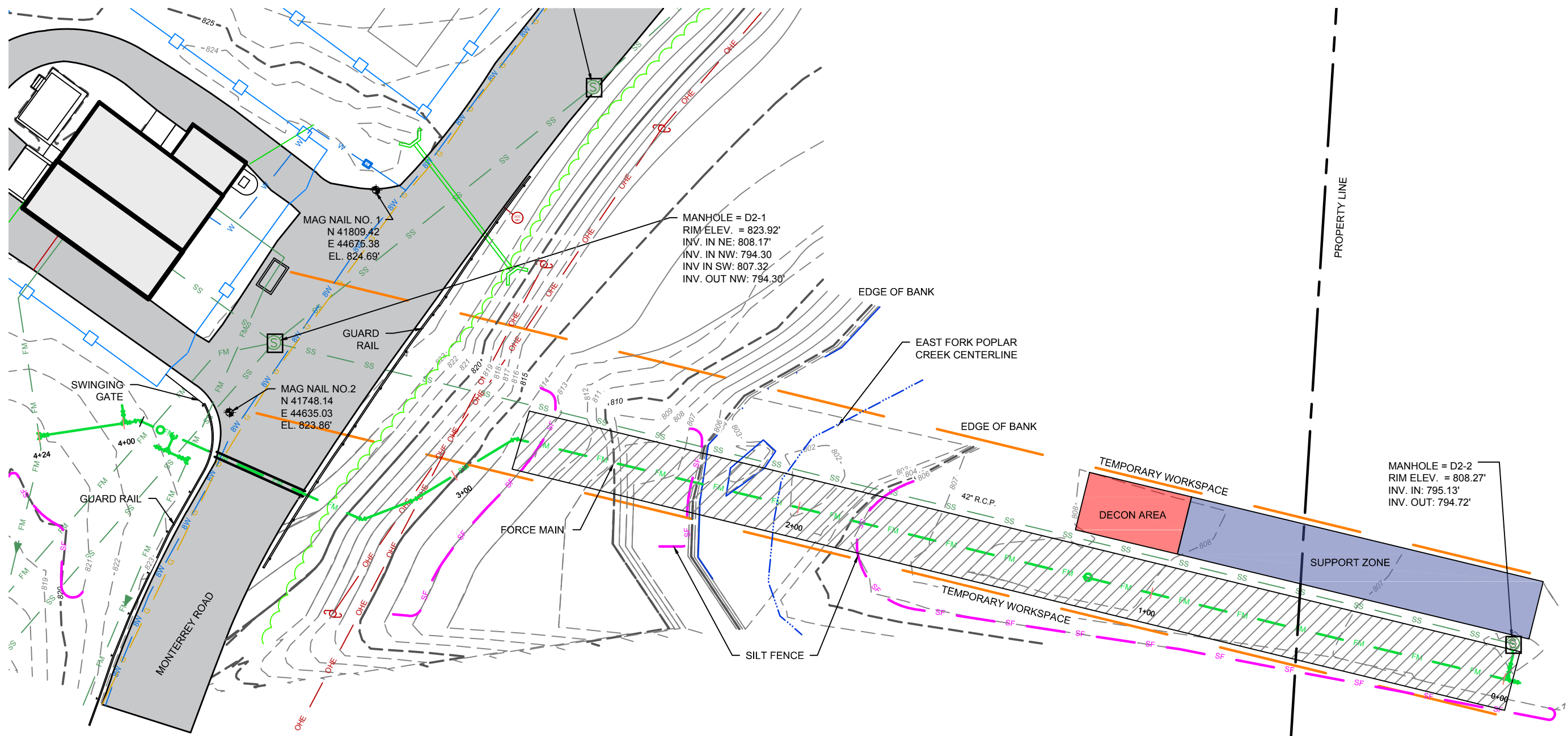
Procedures will be implemented to reduce the amount of contact of both personnel and equipment with potentially contaminated materials. These procedures include the following:

- Proper work practices that will lead to minimal direct contact with potentially contaminated material.
- Use of disposable equipment and clothing as much as practicable.
- All site personnel will remove their protective clothing and wash their hands, face, neck area and other exposed areas with potable water and soap before entering the lunch and break areas to eat, drink or smoke or leaving the site.
- A decontamination station will be set up and will be supplied with potable water, soap, and disposal containers as appropriate to aid in decontamination procedures.

## **12 Contamination Migration Control**

All vehicles and equipment used within the Exclusion Zone by site personnel will be decontaminated on the site as determined necessary prior to leaving the site. Decontamination, when required, will consist of the thorough cleaning of those parts of the equipment, which come in contact with potentially contaminated material. The HSTL will monitor that equipment is clean or has been decontaminated prior to removal from the site. Contractor will be responsible for the proper manifesting and disposal of garbage bags and/or drums containing used PPE and decontamination materials.



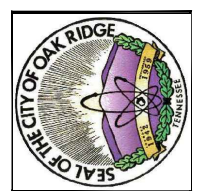
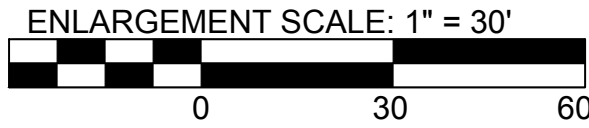
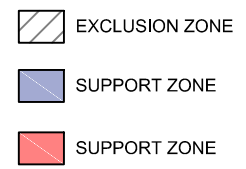


**CONSTRUCTION NOTES:**

1. UPON COMPLETION OF PIPELINE INSTALLATION CONTRACTOR TO GRADE EXCESS SOILS EVENLY OVER INSTALLATION TRENCH.
2. NO SOILS ARE TO BE GRADED BETWEEN CREEK'S EDGE OF BANKS.
3. ALL GRADING ACTIVITIES TO REMAIN WITH IN THE LIMITS OF THE EXCLUSION ZONE.
4. GRADING TO MIMIC EXISTING CONTOURS, ALLOWING DRAINAGE, AND DAYLIGHTED AT GRADING EXTENTS.

**DECONTAMINATION NOTES:**

1. DECONTAMINATION EQUIPMENT
  - A. REMOVE MAJORITY OF SOILS WITH SHOVELS AND BROOMS PRIOR TO ENTERING DECON AREA.
  - B. RINSE EQUIPMENT WITH CLEAN WATER.
  - C. CLEAN AFFECTED AREAS WITH SOAPY WATER USING SCRUB BRUSHES.
  - D. RINSE EQUIPMENT WITH CLEAN WATER.
  - E. USED CLEANING WATER AND SOILS ARE TO REMAIN ONSITE.
2. REMOVE BOOT COVERS.
3. REMOVE OUTER GLOVES AND TYVEK OVERALLS.
4. PLACE ALL DISPOSABLE PPE IN GARBAGE BAGS OR DRUM.
5. WASH REMAINING PPE WITH INDUSTRIAL CLEANING WIPES.
6. REMOVE INNER GLOVES AND PLACE IN GARBAGE BAGS OR DRUM.
7. WASH HANDS AND FACE WITH WATER, ALCOHOL WIPES, OR OTHER CLEANING WIPES.
8. PLACE CLEANING WIPES IN GARBAGE BAGS OR DRUM.
9. GARBAGE BAGS AND/OR DRUM(S) TO BE PROPERLY MANIFESTED AND DISPOSED AT AN APPROPRIATE DISPOSAL FACILITY BY THE CONTRACTOR.



NORTH

DRAWN BY  
**MJK**

APPROVED BY  
**GLS**

DATE	ISSUE
06/12/17	APPROVAL

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## **Turtle Park Bypass Force Main Project Health and Safety Plan Amendment**

Amendment No.: \_\_\_\_\_

Date: \_\_\_\_\_

Amendment Section: \_\_\_\_\_

Amendment:

Reason for Amendment:

Amendment discussed with Contractor Project Manager on \_\_\_\_\_ and approved.

Amendment discussed with Health and Safety Team Leader on \_\_\_\_\_ and approved.

Health and Safety Team Leader Signature: \_\_\_\_\_









## Turtle Park Bypass Force Main Project PreConstruction Safety Meeting Checklist

Meeting Conducted By: \_\_\_\_\_

Date: \_\_\_\_\_

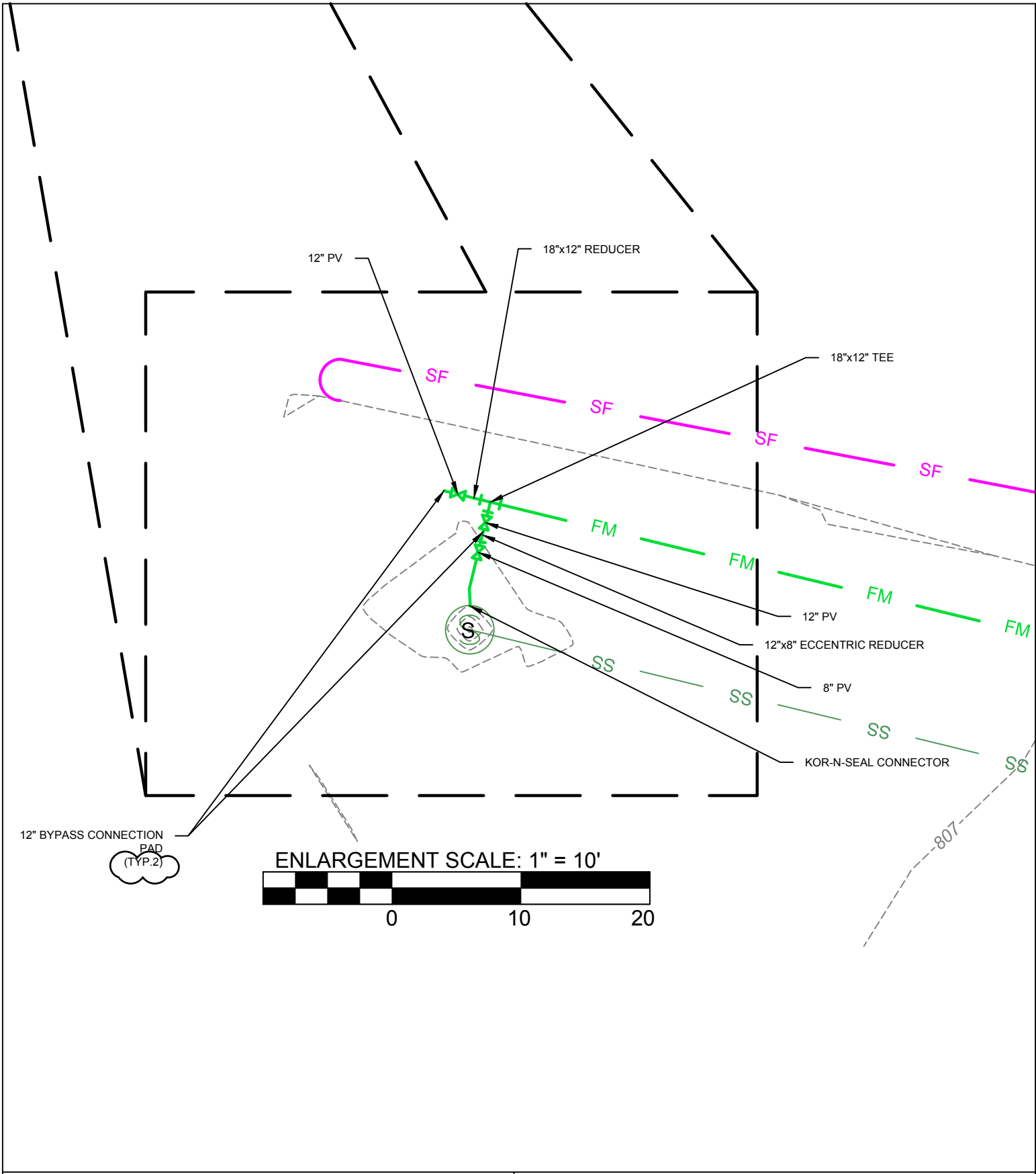
### Attendees

- |          |           |
|----------|-----------|
| 1. _____ | 2. _____  |
| 3. _____ | 4. _____  |
| 5. _____ | 6. _____  |
| 7. _____ | 8. _____  |
| 9. _____ | 10. _____ |

### TOPICS COVERED DURING SAFETY MEETING

ADMINISTRATIVE	PHYSICAL HAZARDS ON SITE
Location of telephone and emergency numbers	Underground/overhead utilities
Fire extinguisher, eyewash, and First Aid kit on site	Excavation entry (permit required)
Potable water, restrooms on site, or location of nearest facilities	Excavation entry
Emergency alarm signals	Water hazards
Emergency evacuation routes and location of posting	Traffic near or on site
Hospital and route to hospital	Noise
Accidents/illnesses/injuries/near misses	Slip/trip hazards

	Work/Break schedule		Overhead hazards
	Location of HASP (including APPENDIX)	CHEMICAL HAZARDS	
	Work zones		Hazardous substances on site
	Buddy system		Symptoms of overexposure
	Site control and/or site security		Fire and explosion
	First Aid/CPR qualified persons on site		Reactive/unstable
	Subcontractor's MSDS collection labeling system and precautionary measures		Oxygen deficient atmosphere
PERSONAL PROTECTIVE EQUIPMENT		BIOLOGICAL HAZARDS	
	Levels of Personal Protective Equipment (PPE) (D, modified D)		Poisonous vegetation (poison ivy, poison oak)
	PPE limitations		Pests (snakes, rodents, bees, wasps)
DECONTAMINATION (DECON)			Animals (dogs, bears)
	DECON area and procedures		Biological wastes
	Containers for contaminated materials		
OTHER HAZARDS			
	Heat stress		Availability of fluids
	Availability of shade		



12" BYPASS CONNECTION  
PAD  
(TYP. 2)

ENLARGEMENT SCALE: 1" = 10'

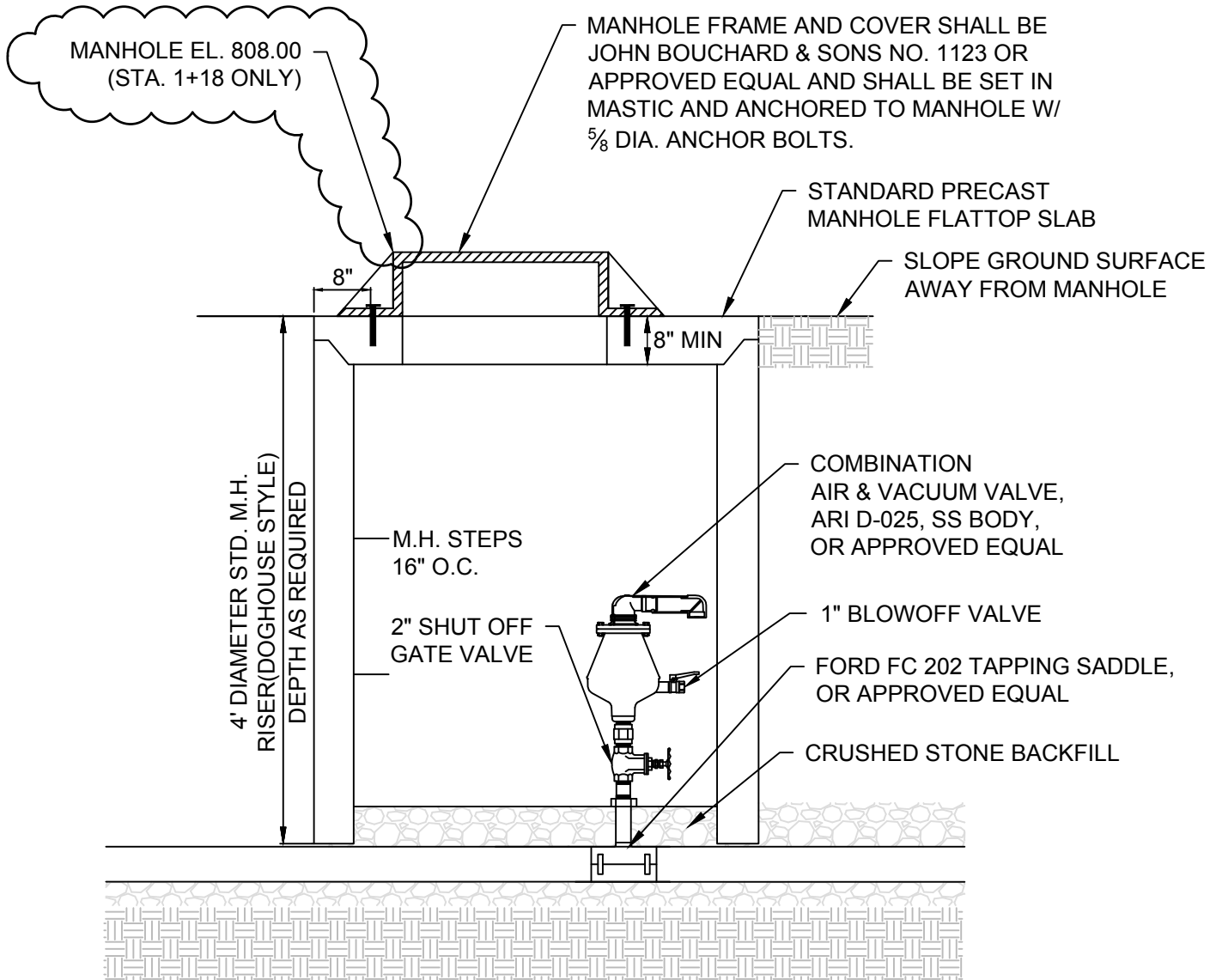


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TURTLE PARK PUMP STATION  
PERMANENT BYPASS  
4000-003-005



REVISION TO SHEET C1.0  
FORCEMAIN PLAN AND PROFILE

AD2.1



## TYPICAL COMBINATION AIR / VACUUM VALVE ASSEMBLY (ARV)

NTS

NOTES:

1. ARV LOCATIONS ARE APPROXIMATE. CONTRACTOR TO FIELD LOCATE WITH OWNER'S REPRESENTATIVE.



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4000-003-005

**TRESTLES** LLC

REVISION TO SHEET C3.0  
FORCEMAIN DETAILS

**AD2.2**

4" THICK BY 2' DIAMETER  
CONCRETE COLLAR

CAST-IRON DROP  
COVER MARKED  
SEWER

TYLER UNION HEAVY DUTY 6850  
SERIES OR EQUAL 2-PIECE CAST  
IRON SCREW TYPE VALVE BOX  
WITH 5 1/4" SHAFT

2" NUT

GATE/PLUG VALVE

MJ, UNO

CONCRETE BEARING  
BLOCK OR BRICK

PVC WITH RESTRAINED  
MECHANICAL JOINTS

## VALVE ASSEMBLY DETAIL

NTS

NOTES:

1. PULL TRACER WIRE INTO VALVE BOX.



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ADDITION TO SHEET C3.0  
FORCEMAIN DETAILS

**AD2.3**