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Excavation Work Notification

To: Megan Kuczka and Jaspal S. Walia, P.E.– NYSDEC DER Region 9
From: Thomas H. Forbes, P.E. and Christopher Boron, P.G.
Date: Revised March 23, 2022
Cc: Bryon Deluke and Casey Kahler (Montante Construction)
Re: 3 Gates Circle, BCP Site No C915272
**630 Linwood Avenue and 1285 Delaware Avenue Geotechnical Boring
Excavation Work Notification**

Hello Megan and Jaspal,

On behalf of Montante/Morgan Gates Circle LLC (Montante), Benchmark Civil/Environmental Engineering & Geology, PLLC (Benchmark) has prepared this Excavation Work Notification (EWN) for the 3 Gates Circle Site as required by the Site Management Plan¹. This EWN has been prepared to satisfy SMP requirements outlined in Section D-1 of the Excavation Work Plan (EWP): Notifications and Section 3.3: Engineering Controls.

Montante has engaged Professional Service Industries Engineering, PLLC, (PSI) to perform soil borings in conjunction with their geotechnical evaluation for two (2) project areas at the 3 Gates Circle BCP Site, 630 Linwood Avenue and 1285 Delaware Avenue. See attached Figure 1 – Site Plan for parcel addresses.

The 630 Linwood Avenue parcel project (also known as Lancaster Square at Gates Circle Project) will involve expansion of the Homeopathic Buildings as part of the development. Two (2) geotechnical borings are proposed for this parcel and shown on the attached Figure 2 as boring locations 10 and 11. The 1285 Delaware Avenue parcel project which is still in preliminary design will involve the construction of multiple buildings across the parcel. Nine (9) geotechnical borings are proposed for this parcel and shown on the attached Figure 2 as boring locations 1 through 9. Boring 12, in the southeast corner of the drawing is proposed at an off-site location.

¹ “3 Gates Circle Site, Erie County, Buffalo, New York, Site Management Plan, NYSDEC Number C915272”. Prepared for Gates Circle holdings, LLC. Prepared by Benchmark Environmental Engineering & Science, PLLC. Dated November 2015. Revision No. 1 dated January 15, 2021.

Borings will be drilled to auger refusal, estimated at 40 feet below ground surface (fbgs) due to the presence of bedrock. At one (1) location on the 630 Linwood Avenue parcel and at two (2) locations on the 1285 Delaware Avenue parcel, the upper 5 feet of bedrock will be cored.

Section D-1 requires that NYSDEC be notified 15-days prior to the start of any activities that may encounter remaining contamination at the Site. NYSDEC was notified via email on March 8th and details of the work were also discussed with NYSDEC at a Site meeting on March 10th. The work is scheduled to start the week of March 28th. Section D-1 also requires that the following information be provided to the NYSDEC, prior to the start of any activities that may encounter remaining contamination at the Site.

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this Excavation Work Plan;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix E of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

Detailed Description of the Work

The work will involve the completion of eleven (11) geotechnical borings on the BCP Site, as shown on attached Figure 2, to auger refusal, estimated at 40 fbgs. At three (3) of the locations, 5 feet of bedrock will also be cored.

Borings 1, 2, 3, 4, and 6 will be completed in areas of the Site where the cover system consists of asphalt hardscape (Cover System Detail B on Figure 2). Borings 7 and 8 will be completed in areas that contain residual crushed concrete from the former stockpile that was present at the surface overlying a 2-foot crushed stone cover system that was installed prior to placing the crushed concrete pile in this area (Cover System G on Figure 2). Soil boring 9 will be completed in an area that consists of 6-inches of crushed stone overlying an additional 18-inches of existing soil that was sampled in place for use as cover (Cover System Detail E on Figure 2). Soil borings 5, 10, and 11 will be completed in areas slated for redevelopment where the final cover has not been established, shown in blue on Figure 2. The location of boring 5 has been temporarily covered with 3 to 6-inches of topsoil and seeded but is underlain by geofabric and crushed concrete.

The cover system present at soil borings 1, 2, 3, 4, and 6, asphalt cover system, will be restored with asphalt patch after the five (5) soil borings are complete. The cover system at soil boring 9, crushed stone over acceptable existing Site soil, will be restored using the existing stone and soil present at the boring locations after the boring is complete. At soil borings 7 and 8, crushed concrete is present overlying the 2-foot crushed stone cover system in this area. Attempts will be made to return native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material (processed concrete and brick from former site buildings) spoils and cover material to the borehole to their subsurface depth. Fill material that does not fall into those three categories will not be returned to the borehole and will be staged and sampled to determine if it can be reused under the cover system at a later date. Fill material will be tested for NYSDEC DER-10 requirements for on-site reuse. Soil borings 5, 10, and 11 are at locations where the final cover has not been established. If topsoil is present, it will be replaced otherwise the crushed concrete present will remain at the surface as currently exists.

During the soil boring, Benchmark will implement the community air monitoring program (CAMP) at a downwind location from the soil borings. CAMP data will be transmitted to NYSDEC/NYSDOH on a daily basis. NYSDEC and NYSDOH will be notified of any CAMP exceedances and corrective measures taken within one business day of occurrence.

Spoils generated from advancement of the augers will be field screened with a photoionization detector (PID) in addition to visual and olfactory observation made of the spoils generated. Fill material spoils will be staged for sample analysis to determine if the material can be used under the cover system. Native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material spoils will be temporarily staged adjacent to the soil borings but kept separate from the fill material spoils. Assuming no impacts (visual, olfactory or field measurements) are observed, the native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material spoils will be returned to the ground, from the depths in which they were generated. Excess soil spoils which cannot be returned to the borehole will be staged for reuse under the cover system as part of the redevelopment projects or assessed for off-site disposal.

If impacts are observed, the spoils will be staged (drummed or placed on polyethylene sheeting) and kept separate from the spoils to be returned to the borehole. NYSDEC will be made aware of the impacted soil/fill encountered and the material will be characterized, as needed, for off-site disposal.

As part of the geotechnical evaluation, soil/fill samples will be collected from the soil borings for geotechnical parameter analysis (moisture content, grain size analysis, consolidation testing, etc.). Fill material encountered and staged will be sampled and tested for NYSDEC DER-10 requirements for on-site reuse. No sampling will be completed on native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material spoils, prior to reuse.

Summary of Environmental Conditions

Based on previous analytical data collected as part of the Remedial Investigation, completed remedial actions, low-level semi-volatile organic compounds (SVOCs) and metal analytes may be encountered in the fill materials present. The native clay soils present below the fill material do not contain contaminants above their respective Unrestricted Use Soil Cleanup Objectives (USCOs). Native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material generated as part of the geotechnical borings will be staged adjacent to their respective soil boring for return to the borehole, as discussed in the previous

section. If these spoils cannot be returned to the borehole and are not deemed impacted, they will be staged for reuse under the cover system as part of the redevelopment projects or assessed for off-site disposal. Fill materials will be staged and sampled for NYSDEC DER-10 requirements prior to reuse under the cover system.

Schedule

The geotechnical soil borings are schedule to being the week of March 28, 2022.

Applicable Components of the Excavation Work Plan

Section D-1 through D-9 of the Excavation Work Plan (EWP) are applicable to this project.

Compliance with the EWP and 29 CFR 1910.120

Benchmark Civil/Environmental Engineering & Geology, PLLC (Benchmark) will perform CAMP monitoring during the soil borings and provide oversight, as needed, to verify compliance with the SMP requirements. Benchmark has prepared a HASP (Appendix E of the SMP) which describes the specific health and safety practices and procedures for its employees. Benchmark will comply with the HASP.

Contractor's Health and Safety Plan

A copy of the contractor's HASP has been included as Attachment 1.

Disposal Facilities for Potential Waste Streams

Based on previous investigations and remedial actions completed at the Site, any impacted materials to be encountered is presumed to be non-hazardous, similar to waste streams previously disposed of. As discussed earlier, native soil, NYSDEC-approved backfill and NYSDEC-approved BUD material spoils will be returned to the boreholes from their depth of origin. Fill material will be staged and sampled for NYSDEC DER-10 requirements prior to reuse under the cover system. If spoils cannot be returned to the borehole and are not deemed impacted, they will be staged for reuse under the cover system as part of the redevelopment projects or assessed for off-site disposal.

If impacts are observed, the spoils will be staged (drummed or placed on polyethylene sheeting) and kept separate from the spoils to be returned to the ground. NYSDEC will be made aware of the impacted soil/fill encountered and the material will be characterized as needed for off-site disposal.

Sources of any Anticipated Backfill

No backfill is anticipated for the geotechnical soil boring work.

Section 3.3 of SMP requires that information be provide to NYSDEC as part of temporary and/or permanent cover system changes. This work does not constitute temporary and/or permanent cover system changes and is not applicable.

If you have any questions regarding the information presented herein, please feel free to contact us.

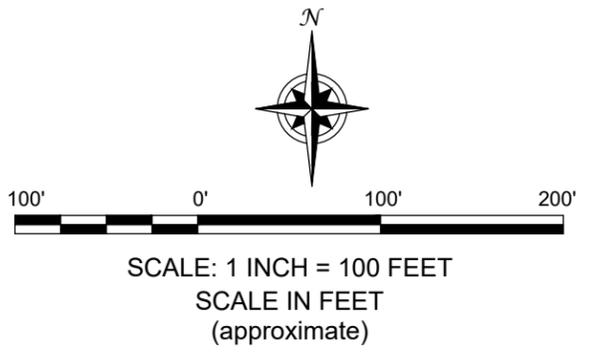
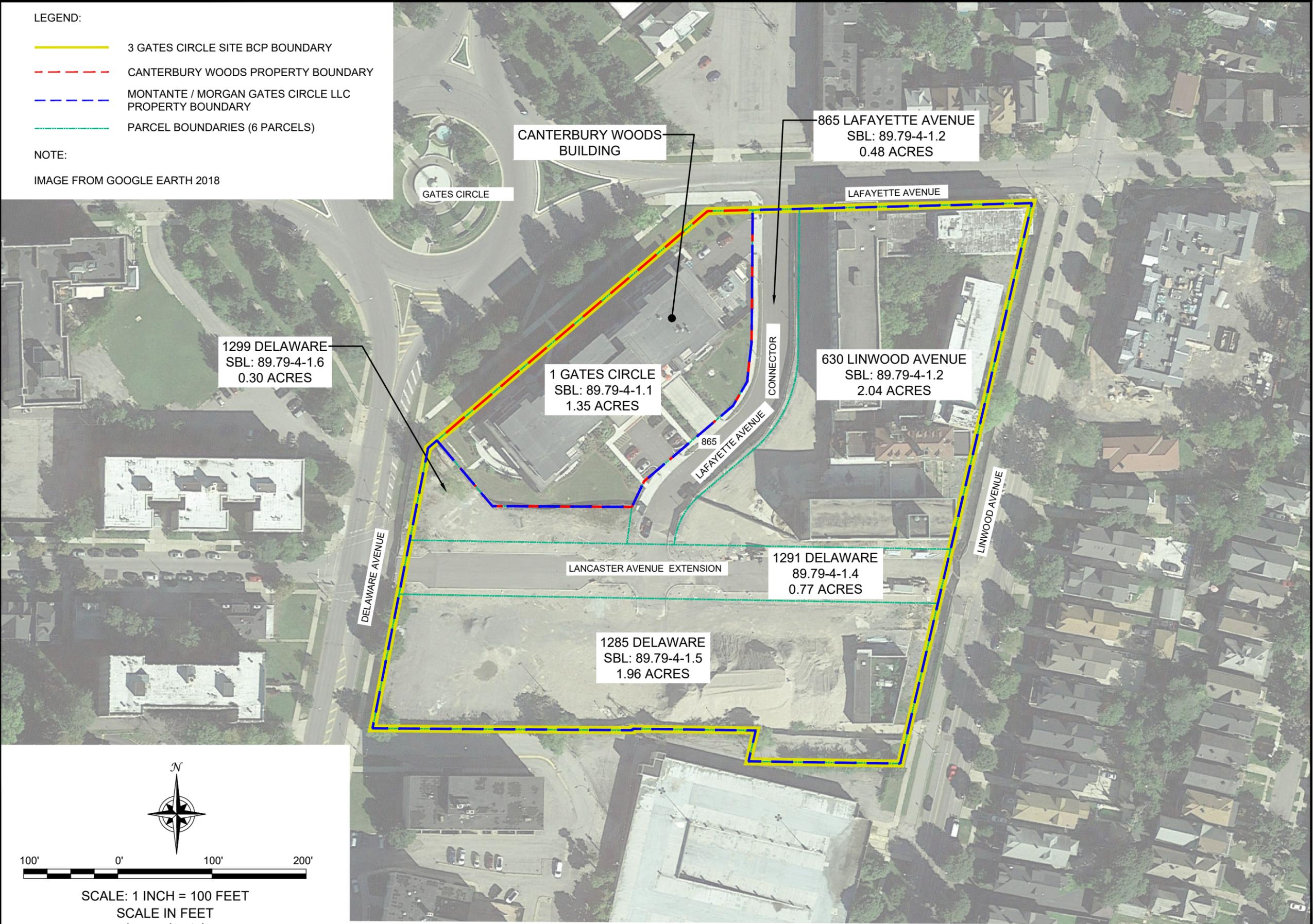
Attachments: Figure 1 – Site Plan
 Figure 2 – Site Cover System with Geotechnical Boring Locations
 Attachment 1 – PSI HASP

LEGEND:

- 3 GATES CIRCLE SITE BCP BOUNDARY
- - - CANTERBURY WOODS PROPERTY BOUNDARY
- - - MONTANTE / MORGAN GATES CIRCLE LLC PROPERTY BOUNDARY
- - - PARCEL BOUNDARIES (6 PARCELS)

NOTE:

IMAGE FROM GOOGLE EARTH 2018



SITE PLAN

3 GATES CIRCLE SITE
BCP SITE NO. C915272
BUFFALO, NEW YORK
PREPARED FOR

MONTANTE / MORGAN GATES CIRCLE LLC AND EPISCOPAL CHURCH HOME AND AFFILIATES LIFE CARE COMMUNITY, INC.

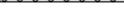
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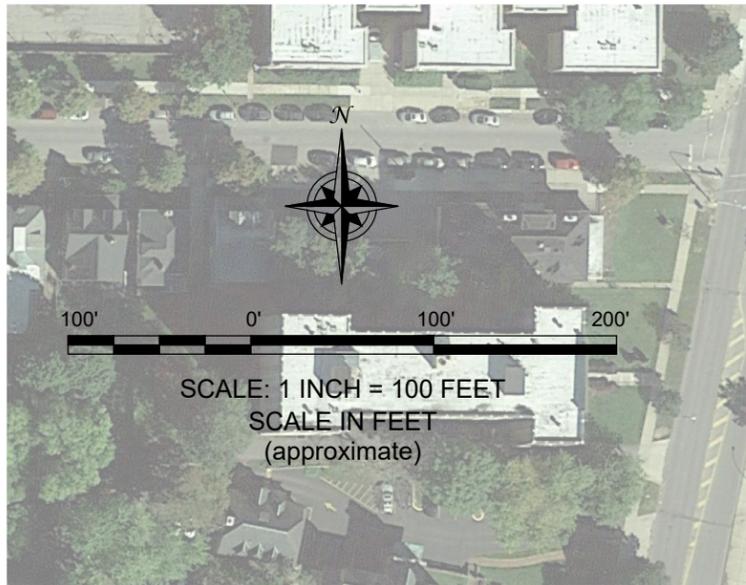
FIGURE 1

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LEGEND:

-  PROPERTY BOUNDARY
-  COVER SYSTEM A
-  COVER SYSTEM B
-  COVER SYSTEM C
-  COVER SYSTEM D
-  COVER SYSTEM E
-  COVER SYSTEM F
-  COVER SYSTEM G
-  COVER SYSTEM H
-  COVER SYSTEM I
-  PORTION OF SITE UNDERGOING REDEVELOPMENT FINAL COVER NOT ESTABLISHED

 Proposed Geotechnical Boring Locations



SITE COVER SYSTEM

3 GATES CIRCLE SITE
BUFFALO, NEW YORK
PREPARED FOR

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

JOB NO.: 0309-014-001

MONTANTE/MORGAN GATES CIRCLE LLC AND EPISCOPAL CHURCH HOME & AFFILIATES LIFE CARE COMMUNITY, INC.

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COVER SYSTEM DETAILS:

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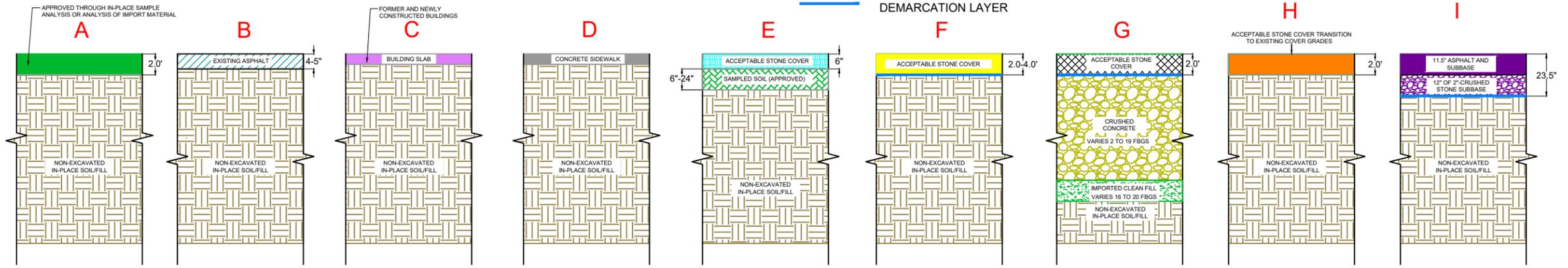


FIGURE 2

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| DRILLING SAFETY PROGRAM | | | |

1.0 Purpose

The purpose of this procedure is to provide guidelines and procedures that must be used to ensure the safety of employees assigned to perform duties involving use of drill rigs. This procedure also provides guidelines for situations where the drill rig is operated by a subcontractor, while PSI staff are present. While no policy can address every potential hazard associated with drilling and drilling operations, these guidelines and procedures are provided in an effort to increase employee safety, as well as the safety of other persons who may be working in the area.

2.0 Policy

It is the policy of PSI to provide a safe and healthy workplace for our employees. Employees of PSI, as a condition of employment, are required to work in the safest manner possible and to follow all established guidelines and policies.

3.0 Drilling Manager/Supervisor Responsibilities

- 3.1 Drilling Managers and Supervisors are responsible for ensuring that the requirements of this policy are implemented and in use at all times.
- 3.2 Managers and Supervisors of drilling operations shall ensure that all drillers and driller’s helpers have the experience and understanding of the specific drilling equipment to which they are assigned.
 - 3.2.1 Managers or Supervisors shall evaluate the skill level of each driller and driller’s helper upon hire. All newly-hired drilling employees shall be required to demonstrate their knowledge level for the particular drilling equipment to which they are assigned.
 - 3.2.2 The skill and knowledge level shall be determined by actually setting up the drill rig and having the employee demonstrate his skill level for the duties for which he/she is assigned.
 - 3.2.3 Employees who demonstrate poor operational or safety skills during the evaluation process shall be required to undergo documented training before assignment to the field.
- 3.3 Drilling Managers and Supervisors shall ensure that all manufacturer warning decals are in place at all times. Replacement decal kits are readily available from the drill rig manufacturer and must be replaced anytime the decals become unreadable.



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- 3.4 Drilling Managers and Supervisors shall ensure that all drill rig maintenance is performed in accordance with the manufacturer’s recommendations as well as any repairs required to ensure proper and safe operation of the equipment.
- 3.5 Drilling Managers and Supervisors are responsible for ensuring that all utility locate services have completed their work prior to dispatching drill crews to the site for drilling operations.

4.0 Branch Manager/Department Manager Responsibilities

Branch and Department Managers are responsible for implementation of the procedures detailed in this program and shall ensure the following:

- 4.1 Compliance with work procedures and safety polices required by this procedure.
- 4.2 Notification to the Safety Department in the event of a near miss or employee work-related injury.
- 4.3 Employees involved in drilling operations have met all training requirements prior to commencement of work.
- 4.4 All required inspections and maintenance have been performed and documented, following schedules determined by the manufacturer and PSI requirements.
- 4.5 Drilling employees have received first aid training as required.
- 4.6 Drivers of PSI vehicles have the proper class license to operate commercial vehicles and meet the applicable DOT requirements.
- 4.7 In the absence of a Drilling Manager/Supervisor, the responsibilities of that position are also assigned to the Branch/Department Manager.

5.0 Driller Responsibilities

Drillers shall be responsible for implementation of these procedures and supervision of the driller’s helper while on the job site. The following provisions shall be met prior to start of work and during the course of daily drilling operations:

- 5.1 All manufacturer safety decals must be in place and must be legible.



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- 5.2 All daily safety checks and inspections shall be performed and documented. Identified safety issues shall be resolved prior to start of drilling.
- 5.3 The Driller shall ensure that all required scheduled inspections have been performed and that all maintenance issues and discrepancies have been corrected prior to start of daily drilling operations.
- 5.4 The Driller is responsible for ensuring that proper two-man lifts are conducted for heavier objects.
- 5.5 The Driller is responsible for ensuring that site utilities have been located and marked prior to initiating drilling operations, in accordance with section 7 of this procedure.
- 5.6 The Driller shall stop work if a situation arises where the safety of the drill crew or other personnel in proximity to the drill rig is jeopardized. This stop- work responsibility also extends to situations that could negatively impact the drill equipment or the surrounding site where the work is being performed.

6.0 Driller’s Helper Responsibilities

Driller Helpers are required to follow the provisions set forth by this policy as follows:

- 6.1 Driller Helpers shall follow the direction of the Driller at all times during drilling operations. Driller Helpers have stop work authority for PSI drilling works been instructed to perform an unsafe act or if a situation arises where the safety of the Driller Helper, Driller, or other personnel in proximity to the drill rig is jeopardized. This stop-work authority also extends to situations that could negatively impact the drill equipment or the surrounding site where the work is being performed. In these cases, the Driller Helper should immediately inform the Driller.
- 6.2 Driller Helpers shall not unnecessarily enter the “immediate danger zone” (see section 10) or spend unnecessary time in this area; it is a dangerous area. When it is necessary for the Driller Helper to work in the immediate danger zone, the Driller Helper(s) will notify the Driller of their presence and ensure that the Driller acknowledges their presence.
- 6.3 If working in the immediate danger zone, Driller Helpers shall show their hands to the Driller prior to engagement of the drilling equipment. If the Driller cannot see the Driller Helper, then the Driller must locate the Driller Helper, ensure



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they are clear of any hazards, and inform them of their intention to engage and/or initiate movement of the equipment.

- 6.4 The Driller Helper is responsible for ensuring that site utilities have been located and marked prior to initiating drilling operations, in accordance with section 7 of this procedure.
- 6.5 The Driller Helper is responsible for ensuring that all trip hazards are eliminated on the work site. The Driller Helper shall also maintain housekeeping to ensure trash is removed from the job site.
- 6.6 The Driller Helper is responsible for asking for assistance for heavier lifts.

7.0 Underground and Above-Ground Utility Hazards

- 7.1 Potential contact with utilities is one of the risks inherent to drilling services. To mitigate this risk to employees, each office with drilling services is to establish a procedure for site utility clearance and all personnel working on drilling sites are to be trained in these procedures. See Safety Bulletin #3 in the Safety Department area on PSI’s intranet (The HUB) for further information.
- 7.2 Before beginning drilling operations, a utility locate service must clear the entire drilling location. The site must be clearly marked and the drilling crew must be in possession of the valid clearance document at the drilling location. On many sites, there may also be “private” utilities that would not be marked by the “public” utility locate services. The possible presence of these private utilities must be part of the project utility clearance procedures and may necessitate the hiring of a separate utility locating subcontractor.
- 7.3 In the event the markings do not match the permit, the area(s) for which drilling operations are to be conducted are not clearly marked, there is evidence of possible unmarked utilities, or the dates on the permit are no longer valid, work shall not be initiated. The PSI project manager shall be contacted and a second request for utility clearance shall be submitted.
- 7.4 Once the boring locations have been marked and approved, drilling crews must contact their supervisor in the event a boring location must be relocated. The supervisor is responsible for ensuring that the new boring location falls within the utility clearance area and that no new hazards are present for the new location.



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- 7.5 The driller shall walk completely around the drill rig before raising the mast to verify there are no conflicting overhead utilities and determine the location of the nearest overhead utility lines. If the horizontal distance between the rig and the utility lines is less than 100 feet, refer to OSHA Regulation 29 CFR 1910.333 or contact the local utility company before raising the mast and starting drilling operations.
- 7.6 A check for visual indicators such as manholes, phone equipment or electrical boxes, and warning markers shall be conducted before starting drilling operations.
- 7.7 Remember – utility locating services are not perfect and may mismark or overlook lines. If there is any doubt as to the accuracy or completeness of the utility clearance, the crew shall not proceed (or shall stop work) and shall immediately contact the PSI drilling supervisor or project manager.

8.0 Accidental Contact with Utilities

- 8.1 In the event that there is contact with overhead or underground electrical lines, if fully seated or standing on the rig, remain calm and do not touch any part of the drill rig, particularly any metal parts of the drill rig.
- 8.2 If it is determined that the drill rig should be vacated, all personnel must jump clear of the drill rig. DO NOT step down off the rig. Jump as far as possible and move as far as possible away from the drill rig. DO NOT have any contact with the drill rig when jumping clear.
- 8.3 In the event of contact with an underground natural gas line, evacuate the area of the drill rig immediately. DO NOT engage the emergency shut off switch as the switch could provide a spark or ignition source. Move upwind of the breach and ONCE AT A SAFE DISTANCE, contact 911 for emergency assistance.
- 8.4 Notify any persons in the immediate area of the need to evacuate the immediate area and await emergency personnel for assistance.

9.0 Site Safety Considerations

- 9.1 A second person is always required during drilling operations. A driller should never operate the rig alone; a second trained person must be present when drilling.



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- 9.2 When working in areas potentially affected by vehicular traffic, ensure proper traffic control is in place.
- 9.3 A spotter must be used anytime the drill rig or support truck is backing.
- 9.4 Ensure leveling jacks are lowered onto appropriate blocking to stabilize and level the rig before raising the mast. Move all non-essential persons away from the drill rig when raising and lowering the mast.
- 9.5 Always check for overhead utilities and other hazards when raising and lowering the mast.
- 9.6 Always install the locking bolt(s) or pin(s) to secure the mast before drilling.
- 9.7 NEVER move the drill rig with the mast in the raised position.
- 9.8 Controls should be located to prevent the need of working above shoulder height.
- 9.9 Communication is essential in drilling operations. Communication may be visual and/or verbal. Ensuring that the driller and driller helper acknowledge each other is extremely important. Do not rely upon anticipating the other's next move.
- 9.10 Ensure there is an adequate supply of drinking water available.
- 9.11 Employ hot and cold weather safety procedures when appropriate for the weather conditions.
- 9.12 Ensure that the work areas around the boring locations have been appropriately cleared of obstructions (brush, tree limbs, etc.) that could cause hazards during the work.
- 9.13 Certain projects, such as electrical substations, petrochemical plants, and airports, often have special safety requirements. These must be fully understood prior to the beginning work on the project, and all staff members must comply with the requirements.

10.0 Working in the “Immediate Danger Zone”

The following procedures must be implemented prior to start of work.



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- 10.1 The immediate danger zone (area within 10 feet of the rear of the drill rig) shall be identified as follows:
 - 10.1.1 A 10-foot radius around the rear of the drill rig shall be considered as the immediate danger zone.
 - 10.1.2 White stake flags or marking paint may be used to assist in identifying a 10-foot immediate danger zone around the area containing the rotating and moving equipment (auger, automatic hammer, drill rods), where permitted by site conditions.
 - 10.1.3 In the event an employee other than the driller needs to enter the immediate danger zone, the employee entering must verbally notify the driller of their presence and ensure the driller has acknowledged them.
- 10.2 Anytime that equipment movement is initiated in the immediate danger zone, the driller shall visually check the immediate danger zone for the presence of other employees. Non-essential employees shall be instructed to leave the immediate danger zone. If another employee is required to be present during operation of moving equipment, the driller shall verbally notify other employees of his intentions to initiate movement and the other employee must show the driller his hands before movement may begin. If the driller cannot see the driller helper, then the driller will locate the driller helper, ensure they are clear of any hazards, and inform them of their intention to initiate movement of equipment. This requirement also applies to areas outside of the immediate danger zone, such as when raising or lowering a front levelling jack on the rig. The driller must be aware of the location of all individuals to ensure that they are clear of any moving rig components, anytime movement is initiated.
 - 10.2.1 Safety cones shall be used to create a "work zone" (minimum of four cones) and placed at a distance of 30 feet on all sides of the drill rig. In the event any persons other than the drill crew enter the work zone, work shall cease and the drill crew shall challenge the individual to confirm the necessity for their presence in the work zone. Pedestrian traffic is not allowed within 30 feet of the drill when in operation.
 - 10.2.2 In the event the driller or driller's helper observes any violations of this procedure or observes any behavior on the job site that is unsafe or places employees or others at risk, work shall cease immediately and the department manager shall be immediately



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notified. In the event work is halted for unsafe practices, work may not resume until remedial training is conducted by the department manager and documented. Employees continuing to engage in unsafe work practices are to be immediately removed from the job site.

- 10.2.3 The work area shall be kept free of debris and trip hazards.
- 10.2.4 The driller is responsible for ensuring that all required equipment including first-aid kits and fire extinguishers are present on the drill rig.
- 10.2.5 Due to the remote areas in which drilling crews often operate, all drillers and driller helpers shall be trained in first aid and CPR.
- 10.2.6 The driller is responsible for ensuring that all emergency shut-off switches are operational. In the event any shut-off switch is inoperable, the drill rig shall be taken out of service until the shut-off switches have been properly repaired.
- 10.2.7 All manual lifts for heavier equipment during the course of drilling operations shall be performed as a two-man lift. Mechanical means of lifting equipment (use of winch) shall only be done if safe to do so. At no time shall any employee stand under any piece of equipment being hoisted into the air.
- 10.2.8 The driller will not extend or retract the drill rig leveling jacks without direct sight of the driller helper or other employees present.

11.0 Site Safety During Drilling Operations

- 11.1 Cease work when outside visitors enter the work zone (30 feet around the drill rig). Ask the person their business and all non-essential employees or persons will not remain in the area during drilling operations.
- 11.2 The driller must remain at the controls of the drill rig anytime drilling operations are in progress. If the driller must step away from the rear of the drill rig, the drill rig will be disengaged and the drill rig must be shut down.



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- 11.3 DO NOT clean off rotating augers with hands or any hand tools. Contact with a rotating auger is prohibited.
- 11.4 The use of open slip rings (pulling plates) to hoist or lower drill rods is prohibited. Hoisting swivel plugs or closed slip rings shall be used. Never rotate drill rods or attempt to drill through closed pulling plates.
- 11.5 Ensure that the Kelly coupler is removed from the right-angle drive before lowering the mast.
- 11.6 Do not lower the mast without having all non-essential personnel leave the immediate area.
- 11.7 When drilling in closed areas, steps shall be taken to vent exhaust fumes from the work area.
- 11.8 In the event of lightning, drill operations will be suspended. Work may resume after 30 minutes without thunder or visible lightning.
- 11.9 Prior to departing from a work site, all boring holes shall be filled or closed. If a borehole must be left open for future access, the borehole shall be clearly marked and the top of the boring covered. Final closure of boreholes shall be completed in accordance with local regulations and/or the contract requirements.

12.0 Personal Protective Equipment (PPE)

- 12.1 The following PPE is required for all crew members on site:
 - 12.1.1 Hard hat
 - 12.1.2 Over-the-ankle steel toe boots. Steel toe rubber boots are acceptable in areas where mud and water are present.
 - 12.1.3 Reflective vest or shirt. Shirts should not fit loosely as to present an entanglement hazard for moving or rotating parts.
 - 12.1.4 Approved eye protection
 - 12.1.5 Hearing protection as needed
 - 12.1.6 Appropriate work gloves.

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12.2 Additional PPE may be required depending on the drilling site and conditions. The drill manager/supervisor is responsible for determining if additional PPE is required. Other PPE could include:

- 12.2.1 Mosquito/insect repellent
- 12.2.2 Waterproof boots
- 12.2.3 Reflective clothing
- 12.2.4 Flotation devices (when working above/near water, such as on a barge)
- 12.2.5 Specialized clothing:
 - 12.2.5.1 In areas with special hazards (i.e. environmental sites)
 - 12.2.5.2 In areas where snakes or other wildlife may pose a hazard
 - 12.2.5.3 Fire-rated clothing in areas where fire/flare are a potential concern
- 12.2.6 Any client-mandated requirements

12.3 Hard hats may not be worn with the bill facing backwards. The bill of the hard hat is designed to protect the face from falling objects.

12.4 Proper PPE will be worn when performing maintenance on all equipment and drill rigs. At a minimum, eye protection will be worn at all times. When performing maintenance with the mast raised, a hard hat will also be worn.

13.0 Inspections and Maintenance

Inspection and maintenance must be an ongoing process. Proper maintenance protects both employees and the environment. Proper maintenance also ensures that the drill rig remains productive.

13.1 All DOT vehicle and daily drill rig inspections shall be conducted prior to departing for the job site. All required forms must be completed in order for the drill rig to be considered ready for operation on the roadway and in the Inspections include:



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- 13.1.1 Daily
- 13.1.2 Weekly
- 13.1.3 Monthly
- 13.1.4 Semi-annual
- 13.2 The required truck inspections are outlined in SHM-6, Federal Motor Carrier Safety Regulations (FMCSR) Program. Maintenance forms for the rig are available in the Geotechnical Services area on PSI's intranet (The HUB).
- 13.3 Access to drill rig platforms shall be gained using a step ladder. In the event an employee must access the mast 6 feet or higher, fall protection is required. See SHM-16, Fall Protection Program, for requirements for the use of fall protection.
- 13.4 A 360° walkaround inspection shall be conducted for both the drill rig and the support truck prior to departure to the job site as well as each time the vehicle is driven.
- 13.5 Drillers will review past records for inspections and maintenance to ensure all corrective action has been taken prior to departing for the job site.
- 13.6 The sequence listed on all inspection forms shall be followed in the order in which they appear on the form. Do not skip around the form as this increases the likelihood that an important step may be overlooked.
- 13.7 Inspect all fluid levels for all engines. Inspect all gear boxes for adequate fluid levels and the presence of water or other contaminants. Ensure all hydraulic and mechanical controls are operating properly as designed by the manufacturer. Ensure cooling fluid levels are within required specifications.
- 13.8 Repair fluid leaks on all hoses, valves, hydraulic cylinders, and gear boxes. Hydraulic fluid is combustible when exposed to heat or flame. Additionally, fluid spills from drill rigs threaten the environment and all spills must be cleaned up.
- 13.9 Inspect all gauges to ensure proper operation.
- 13.10 Grease and lubricate drill rig components as required, in accordance with required maintenance schedules.



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- 13.11 All safety shut-down switches must be operational at all times. Switches must be installed to the manufacturer's specifications. **Employees found intentionally disabling safety shut-down switches shall be subject to discipline including up to termination of employment.**
- 13.12 Clutches designed to engage and disengage rotation on the drill should stop when disengaged. Do not operate a drill rig with a malfunctioning clutch. Adjust or replace the clutch when required.
- 13.13 Shut down the drill rig engines before making any repair or performing any maintenance. Chock the tires of the drill rig to prevent movement. When possible, release all pressure on the hydraulic system, drilling fluid systems, and air pressure systems. Reduce the operating system to a "zero" energy state. Use caution when opening drain plugs, radiator caps, and other pressurized systems.
- 13.14 Allow adequate time for engine components to cool before attempting to touch them.
- 13.15 Always follow the manufacturer's recommendations for applying the proper amount of fluids. Do not over fill. Replace all caps, plugs, and covers upon maintenance procedures.
- 13.16 Ensure that all manufacture safety warning decals are legible and in place. Replace all worn, faded, or missing decals.
- 13.17 Never operate a drill rig without all protective guards in place.
- 13.18 Report any discrepancies to the manager immediately. In the event a discrepancy presents an immediate hazard, the drill rig shall be taken out of service until properly repaired.

14.0 Electrical Safety

- 14.1 All extension cords shall be protected with GFCI in accordance with SHM-21, Electrical Safety/GFCI Program. This is accomplished by using a device commonly known as a GFCI Pigtail.
- 14.2 Any extension cord with a damaged plug (including removal of the grounding prong) or breaks in the insulation may not be used.



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15.0 Hand Tool Safety

- 15.1 Only use tools for their intended purpose.
- 15.2 When a tool becomes damaged or worn, replace the tool immediately.
- 15.3 Clean and return tools to their intended storage areas. Make sure to remove dirt and grease from tools. It is especially important to keep pipe wrenches in good repair and clean. Replace the hooked jaw and heel when worn.
- 15.4 Do not use screwdrivers as chisels or pry bars.
- 15.5 When breaking tool joints on the ground or vertically over the hole, be aware of hand placement. Position your hand so that it will not be pinched if the wrench were to slip. Wear gloves to protect your hands in case the tool slips. Jumping or “stomping” on pipe wrenches to break the tool joints is to be avoided.

16.0 Federal Motor Carrier Safety Regulations

Please refer to SHM-6, FMCSR Program for additional guidance for the Federal Motor Carrier Safety Regulations.

17.0 Transportation of Equipment

- 17.1 All equipment and tools must be secured while in transport. Cargo straps must be used to secure loose items on drill rigs and support trailers. Support trucks are required to be equipped with an approved cargo net that must cover the entire cargo area.
- 17.2 Tools, equipment, and augers may not be transported in the mast area of the drill rig. The safety hammer must be secured in a safe area while the drill rig is in transport.
- 17.3 Drill rods and auger stems must be stored in the racks when in transport. No unsecured equipment or materials are allowed on the drill rig deck when the rig is in transport.
- 17.4 Fuel cans must be secured when in transport. Only approved metal safety fuel cans with self-closing lids may be used. Plastic fuel storage cans are prohibited.



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17.5 All trash and debris will be disposed of prior to leaving the office or job site. Trash may not be located in the cargo area of the support truck or on the drill rig when the vehicle is in transport.

18.0 Reporting of Injuries

Injuries, no matter how minor, shall be reported to Axiom, the Branch/Department Manager, and the PSI Safety Department, in accordance with Safety and Health Manual Policy SHM-2, Reporting and Investigating Employee Injuries.

19.0 Drilling Subcontractor HSE Guidelines

Many PSI operations subcontract drilling services, but PSI employees will be on-site for supervision purposes. As such, their safety is potentially at risk. The purpose of these HSE (Health, Safety, and Environmental) guidelines is not to take responsibility for the safety of our drilling subcontractors, but to help ensure the safety of PSI's employees and to protect PSI's and our clients' interests. It is expected that subcontract drillers should have their own safety programs and should abide by those programs. Each project is different and not all items listed below may apply to each project; however, it is intended that all be applied wherever appropriate. These basic guidelines may be supplemented by local management as appropriate to the project.

19.1 Personal Protective Equipment – Proper PPE is to be used by the drilling crew and those working near the rig.

19.1.1 Hardhats

19.1.2 Safety glasses

19.1.3 Safety boots

19.1.4 Gloves

19.1.5 Hearing protection

19.1.6 Other PPE, as appropriate to conditions:

19.1.6.1 Mosquito/insect repellent

19.1.6.2 Waterproof boots

19.1.6.3 Reflective clothing



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19.1.6.4 Flotation devices (when working above/near water, such as on a barge)

19.1.6.5 Specialized clothing:

19.1.6.5.1 In areas with special hazards (i.e. environmental sites)

19.1.6.5.2 In areas where snakes or other wildlife may pose a hazard

19.1.6.5.3 Fire-rated clothing in areas where fire/flame are a potential concern

19.1.7 Any client-mandated requirements

19.2 Drilling Safety

19.2.1 Safety switches are all to be in operating condition.

19.2.2 The immediate danger zone and a proper, cleared work area is to be established around rig. (During drilling operations, verify that good housekeeping is maintained around the rig to prevent slip, trip and fall hazards.)

19.2.3 Appropriate traffic control is to be employed, when required.

19.2.4 Site utilities cleared per PSI procedures and boring locations do not conflict with any marked or overhead utilities. (NOTE - This can be a complicated issue. Some jurisdictions require that the drilling contractor call for the clearance. In general, however, our clients will expect PSI to be responsible for the utility clearance and PSI will be liable if any utilities are damaged. Therefore, it would be in PSI's best interests to make those notifications to ensure clear communication with the utility locate service. In all circumstances, it is extremely important that the utility clearance be coordinated with the subcontract driller when the project is set up and that specific responsibilities for clearance are assigned. Upon arrival at the site, PSI staff must confirm that all required notifications have been made and the site has indeed been cleared. The drill subcontractor must



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have the documentation associated with utility clearance available on site prior to the initiation of drilling activities.)

- 19.2.5 At least one member of the drilling crew (or the PSI on-site staff) has current certificate of first aid training.
- 19.2.6 A first aid kit is to be available on site.
- 19.2.7 A fire extinguisher is to be available on site.
- 19.2.8 Location of nearest hospital or health care facility has been identified.
- 19.2.9 Ensure that there is an adequate supply of drinking water available on site.
- 19.2.10 The SDS for any chemicals to be used on site are available.
- 19.2.11 If the drilling work includes a hazardous materials investigation, a site-specific safety plan is to be developed and followed.
- 19.3 Environmental/Site
 - 19.3.1 The drill rig and/or vehicles must not leak oil, hydraulic fluid, or other potential contaminants onto the site.
 - 19.3.2 Borings are to be properly closed/protected upon completion in accordance with any regulatory and/or contractual requirements.
 - 19.3.3 Appropriate measures are to be employed to protect/restore the site. (These may include backfilling, patching asphalt, replacing sod, etc.)
 - 19.3.4 Ensure responsibility for disposal of cuttings from the borings.
- 19.4 Stop Work Authority

Ensure that the crew understands that if unsafe behaviors or conditions are observed that would put the subcontractor or PSI staff at risk, PSI staff has the authority to stop work for the subcontractor and PSI staff, until the conditions or behaviors are corrected. Any such issues should immediately be brought to the attention of local PSI management.



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19.5 Miscellaneous

- 19.5.1 Ensure that the driller has any necessary licenses, permits, etc., where required.
- 19.5.2 A PSI purchase order must have been issued to the drilling subcontractor, per SOP AD-4.
- 19.5.3 A current certificate of insurance and a W-9 form must be on file, per SOP AD-4.
- 19.5.4 Any necessary client or regulatory notifications must have been made.