I. SCOPE OF WORK

The Department of Environmental Protection, Bureau of Abandoned Mine Reclamation requires a Contractor to conduct a subsurface core drilling investigation at R4747 Lost Hill Road, Punxsutawney, PA 15767. The purpose of the investigation is to sample and evaluate the overburden and bedrock overlying the St. Marys Sewer Pipe deep mine, sample and evaluate the coal refuse material, and sample and evaluate the refuse dam breast. The Contractor shall furnish all labor, technical assistance, equipment, tools and material necessary to perform the Contract tasks.

The work to be performed consists of split-spoon sampling of the overburden to competent soil/bedrock interface, NQ2 core drilling, CME Continuous Sample Tube System (CME Sampler) sampling and restoration of the site. To assist with moving equipment and supplies and site restoration, a skid steerer or similar equipment can be utilized.

Due to the nature of the work, it might be necessary to slightly modify the tasks while the work is being conducted. Such modifications could include: (1) relocation of boreholes; (2) deletion of some boreholes; (3) addition of boreholes in the vicinity of the work site; and (4) variation of the depth of the boreholes proposed for the work site.

The site has existing access roads and the majority of the site is an unvegetated coal refuse area. The borings planned to explore the St. Marys Sewer Pipe deep mine are located within a brushy wooded area.

The Contractor agrees to furnish all necessary labor, material, and equipment and to perform all the work and labor required herein in an expeditious, substantial and workman-like manner.

Any questions regarding the technical specifications should be directed to Scott Poborsky at 814-421-7053. Any questions concerning the contracting or bidding process should be directed to Carol Layo at 814-472-1800.

1. CONTRACT REQUIREMENTS

The contractor shall be required to attend a mandatory pre-bid meeting scheduled for Thursday, April 8, 2021, at 11:00 a.m..

The Contractor agrees to comply with Attachment A, Federal Requirements, and Attachment B, Steel Products Procurement Act and Trade Practices Act, as attached.

“Buy American Act” applies.
2. **EQUIPMENT**

The Contractor hereby covenants, contracts, and agrees to furnish all necessary labor, tools and equipment, and to perform all the work and labor required herein in an expeditious, substantial, and workmanlike manner in accordance with the bid proposal and all pertinent documents found in the agreement.

Repairs and replacements shall be made by the Contractor at his expense and shall be made with a minimum of time lost.

Time lost due to breakdown or replacement of parts shall not be considered as basis for payment.

The Department reserves the right to reject any item of equipment when, in the opinion of the Department’s Representative, the item is not in satisfactory operating condition.

3. **INSURANCE REQUIREMENTS**

The Contractor shall purchase and maintain at its expense the following types of insurance, issued by companies acceptable to the Commonwealth:

A. Workmen’s Compensation Insurance sufficient to cover all of the employees of the Contractor working to fulfill this Contract.

B. Comprehensive General Liability Insurance, including bodily injury and property damage insurance, to protect the Commonwealth and the Contractor from claims arising out of the performance of the Contract. The amount of bodily injury insurance shall not be less than $500,000 for injury or death of persons per occurrence. The amount of property damage insurance shall not be less than $500,000 per occurrence.

C. Automotive Liability Insurance, including bodily injury and property damage insurance, to protect the Commonwealth and the Contractor from claims arising out of the performance of the Contract. The amount of bodily injury insurance shall not be less than $500,000 for injury or death of persons per occurrence. The amount of property damage insurance shall not be less than $500,000 per occurrence.

Such policy shall name the property owner(s) listed below and the Commonwealth as an additional insured. Prior to the commencement of work under this Contract, the Contractor must provide the Commonwealth with current Certificates of Insurance. These Certificates shall contain a provision that coverage afforded under the policy shall not be cancelled or changed until at least thirty (30) days written notice has been given to the Commonwealth.
4. **PROPERTY OWNER(S)**

The project is located on property owned or controlled by Dora Holdings, Inc.

5. **CONTRACT TERM**

The Contractor shall have ninety (90) days to complete this work. The Contractor shall coordinate with the Department to begin work within thirty (30) days of Contract award.

6. **CONTRACT QUANTITIES**

The quantities herein are estimated only and may increase or decrease depending upon the needs of the Department. Contractor shall be reimbursed at the unit price bid for actual work performed.

7. **BID AWARD**

Contract will be awarded to the lowest responsive and responsible bidder meeting all requirements.

DEP is not responsible for the maintenance of the eMarketplace website.

The Department of General Services Supplier Service Center is available to assist vendors with registration, bidding and account management. For questions regarding registration help, send an email to RA-PSC_Supplier_Requests@pa.gov or call (877) 435-7363, choose Option 1. For questions regarding bidding help, send an email to srmhelp@pa.gov or call (877) 435-7363, choose Option 2.

DEP is not responsible for the support or functionality of any DGS website.

**All bids shall be submitted electronically ONLY before closing date and time.**

Bid closing date and time: 2:00 p.m., Thursday, April 22, 2021.

8. **PAYMENT TERMS**

Payment shall be made on a reimbursement basis. Contractor shall submit invoice within thirty (30) days.

II. **CONTRACT TASKS**

1. **MOBILIZATION AND DEMOBILIZATION-DRILL**

1.1 **SCOPE**

The work covered by this section consists of the delivery to the work site of all
equipment, material and supplies, removal from the site of all equipment after the completion of work, delivery of records, clean-up of the site and final inspection by the Department’s Representative.

1.2 PROCEDURE

Mobilization shall consist of the delivery to the work site of all equipment, material and supplies to be furnished by the Contractor. The complete assembly should be in satisfactory working order of all such equipment on the job and the satisfactory storage at the site of all such material and supplies. Moving between boreholes and setups at borehole locations included under the Contract shall be incidental to the other appropriate Contract Items and no separate payment will be made.

Demobilization shall consist of the removal of all equipment from the project site, the cleanup and the restoration of any damaged areas to as good or better condition than that which existed prior to the commencement of work. This work will include reseeding of areas designated by the Department’s Representative.

All equipment and methods to be used by the Contractor shall be subject to approval by the Department’s Representative. However, approval of the equipment shall not be construed as approval of the performance thereof. The Contractor shall furnish any additional or “special” equipment necessary for them to obtain the desired end results.

The Contractor, at their expense, shall obtain all permits, of whatever nature, necessary for the completion of this work, and the Contractor shall comply with all existing laws, ordinances, rules and regulations. Easements from property owners will be obtained by the Department or its designated representative.

Every effort shall be made to minimize damage incidental to site access and the drilling operations.

The Contractor shall be liable to the property owners for any damage to vegetation and/or property, irrespective of whether the damage was caused by their negligence or was an unavoidable consequence of drilling operations. The Contractor shall be liable for any and all damage, including damages for necessary access.

1.3 DELIVERY OF RECORDS

The Contractor shall be responsible for furnishing the following records within the following time constraints:

A. Two (2) typed copies of each borehole log, not later than seven (7) days after completion of all of the boreholes. Each log shall provide pertinent
information such as, but not limited to:

1. Borehole number.
2. Borehole completion date.
3. Elevation of surface.
4. Beginning and end of each core run and percent recovery.
5. Overburden/spoil types, casing depth, reaming depth, rock types, void depths and thicknesses.

B. Copies of any other records kept by the Contractor, which in the opinion of the Department’s Representative will aid in the interpretation of the core borings at any time requested during the course of the Contract.

No additional payment will be made for delivery of records, since delivery is included in Contract Item, “Work Site Mobilization and Demobilization.”

1.4 MEASUREMENT AND PAYMENT

Measurement, when accepted and approved, will be made on the basis of a complete unit but only to the extent directed by the Department’s Representative.

Payment will be made at the Contract unit price bid for Contract item, “Mobilization and Demobilization-Drill,” which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete these items of work.

Mobilization will be paid in the amount of forty percent (40%) of the unit price bid following complete mobilization to the work site.

Demobilization will be paid in the amount of sixty percent (60%) of the unit price bid following complete demobilization from the work site.

2. MOBILIZATION AND DEMOBILIZATION-SKID STEERER

2.1 SCOPE

To assist with the movement of the drill, movement of equipment and supplies and site restoration a skid steerer or similar equipment can be utilized. The work covered by this section consists of the delivery to the work site of all equipment, material and supplies, removal from the site of all equipment after the completion of work, clean-up of the site and final inspection by the Department’s Representative.
2.2 PROCEDURE

Mobilization shall consist of the delivery to the work site of all equipment, material and supplies to be furnished by the Contractor to operate the skid steerer. The complete assembly should be in satisfactory working order of all such equipment on the job and the satisfactory storage at the site of all such material and supplies.

Demobilization shall consist of the removal of all equipment from the project site, the cleanup and the restoration of any damaged areas to as good or better condition than that which existed prior to the commencement of work. This work will include reseeding of areas designated by the Department’s Representative.

All equipment and methods to be used by the Contractor shall be subject to approval by the Department’s Representative. However, approval of the equipment shall not be construed as approval of the performance thereof. The Contractor shall furnish any additional or “special” equipment necessary for them to obtain the desired end results.

The Contractor, at their expense, shall obtain all permits, of whatever nature, necessary for the completion of this work, and the Contractor shall comply with all existing laws, ordinances, rules and regulations. Easements from property owners will be obtained by the Department or its designated representative.

Every effort shall be made to minimize damage incidental to site access and the drilling operations.

The Contractor shall be liable to the property owners for any damage to vegetation and/or property, irrespective of whether the damage was caused by their negligence or was an unavoidable consequence of drilling operations. The Contractor shall be liable for any and all damage, including damages for necessary access.

2.3 MEASUREMENT AND PAYMENT

Measurement, when accepted and approved, will be made on the basis of a complete unit but only to the extent directed by the Department’s Representative.

Payment will be made at the Contract unit price bid for Contract item, “Mobilization and Demobilization-Skid Steerer,” which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete these items of work.

Mobilization will be paid in the amount of forty percent (40%) of the unit price bid following complete mobilization to the work site.
Demobilization will be paid in the amount of sixty percent (60%) of the unit price bid following complete demobilization from the work site.

3. **OPERATION OF SKID STEERER**

   3.1 **SCOPE**

   The work covered by this section consists of the operation of the skid steerer to assist in the movement of equipment, material and supplies, assist in site restoration and other necessary functions.

   3.2 **PROCEDURE**

   The operation of the skid steerer shall consist of utilizing the machine for assisting in the movement of equipment, materials and supplies, assisting in site restoration and other necessary functions. Maintenance of the machine and extended idle time will not be included in the hourly rate.

   3.3 **MEASUREMENT AND PAYMENT**

   Measurement, when accepted and approved, will be made on the basis of a complete unit but only to the extent directed by the Department’s Representative.

   This item, “Operation of Skid Steerer,” will be paid for at the Contract unit price bid per hour, which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete these items of work.

   Payment shall be made on a per hour basis for time the skid steerer was in operation.

4. **CME SAMPLER DRILLING**

   4.1 **SCOPE**

   The work covered by this section consists of furnishing all labor, material, equipment, supplies and all necessary incidentals required to drill CME Sampler borings through the coal refuse into natural ground. This work shall be conducted for the evaluation of the coal refuse material borings.

   4.2 **TEST BORING LOCATIONS**

   All test boring sites will be exactly located in the field by the Department’s
Representative, and the Commonwealth will furnish the surface elevations of each borehole. It is the Contractor's responsibility to ascertain exact locations of utilities from the appropriate utility company and to verify all measurements in order to ensure that all borings are made at locations which will not interfere with, or harm existing surface or subsurface utilities. The Contractor shall notify the Department’s Representative when a conflict occurs. The Contractor shall bear sole responsibility for any damage to existing utilities resulting from their operations.

4.3 **PROCEDURE**

The Contractor shall make borings into coal refuse and material other than rock for the purpose of penetrating to natural ground and/or for ascertaining the depth and thickness of overburden material. Sampling of the refuse material shall be done continuously in five foot (5’) intervals to completion of the boring at the direction of the Department Representative.

4.4 **MEASUREMENT AND PAYMENT**

The item, “CME Sampler Drilling,” when accepted and approved, will be measured on the basis of the linear feet (L.F.) of borehole actually drilled in overburden, but only to the extent directed by the Department’s Representative.

This item, “CME Sampler Drilling,” will be paid for at the Contract unit price bid per linear foot (L.F.), which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete this item of work.

No separate payment will be made for coring or other methods of advancing overburden drilling through boulders or other obstructions unless said obstructions are cored and greater than five feet (5’) in thickness, in which case payment will be made as NQ Drilling.

5. **SPLIT SPOON SAMPLING**

5.1 **SCOPE**

The work covered by this section consists of furnishing all labor, material, equipment, supplies and all necessary incidentals required to conduct split spoon sampling through mine refuse and other non-rock materials to the top of competent bedrock. This work shall be conducted on borings for the dam breast geotechnical evaluation and the St Marys Sewer Pipe deep mine evaluation.
5.2 **EQUIPMENT AND SUPPLIES**

Equipment for split spoon sampling shall include industry standard geotechnical exploration of a type or types approved by the Department’s Representative.

Supplies for core drilling shall include all augers or casing, drill rods, tools, power, all boxes and containers required for core samples and all other items not included herein but required for satisfactory performance of required work.

All equipment and methods to be used by the Contractor shall be subject to approval by the Department’s Representative. However, approval of the equipment shall not be construed as approval of the performance thereof. The Contractor shall furnish any additional or “special” equipment necessary to obtain the desired end results.

Contractor shall provide a secure, firm and level work platform at each borehole location. Borings shall not be offset from locations shown on the boring layout plan without approval of the Department’s Representative.

5.3 **PROCEDURE**

The Contractor shall be responsible for drilling plumb boreholes. The individual runs in the split spooning operation shall in no case be in excess of one and one-half feet (1.5’), unless otherwise approved by the Department’s Representative.

5.4 **LOGS**

The Contractor shall keep accurate logs and records of all core borings which shall include the following information:

A. Project name and Contract number, borehole number, location of borehole, ground elevation, total depth of borehole, time-date of starting, time-date of completion, driller's name and logger’s name.

B. Size and depth of casing and size and type of drilling tools used to advance the borehole.

C. Depth of top and bottom of each spoon sample.

D. Total length of unconsolidated materials recovered.

E. Visual classification of unconsolidated materials, including material type, color, grain size and other relevant information.

F. Depth of contacts between or changes in the unconsolidated materials.
G. Depth of top of firm or fresh rock and all other contacts between dissimilar materials.

H. Depth of water at completion of borehole and where possible after twenty-four (24) hours.

I. Notes, remarks and information on pertinent incidents occurring during drilling operations.

5.5 CONTAINERS

Representative samples from each split spoon shall be placed into sample jars. Each jar shall be labeled with boring number, split spoon sample number, starting and completing depth or split spoon, date, blow counts, recovery, project name and date. The jars shall be kept in partitioned boxes and each box shall be labeled with project name and boring number.

After drilling is completed, the jar boxes shall be delivered to the Department of Environmental Protection, Bureau of Abandoned Mine Reclamation, BD Garage, 310 Industrial Park Road, Ebensburg, PA 15931-4119.

5.6 ABANDONED BORINGS

Except with the permission of the Department’s Representative, the Contractor shall not abandon nor complete any boring or remove any casing or drilling equipment without first affording the Department’s Representative the opportunity to obtain the position and the depth of the boring to abandonment or completion and to secure samples of material already penetrated and any other information which the Department’s Representative may require.

No payment will be made for any boring which has been abandoned by the Contractor before reaching the depth, elevation or condition specified, unless the Department’s Representative approves and accepts the boring as being completed. Any boring abandoned by the Contractor without the Department’s Representative's approval shall be sealed at the Contractor's expense in accordance with Section 3.7. The Department’s Representative may, at their option, accept a boring which fails to reach the required depth due to an unusual obstruction, which, in their opinion, could not reasonably have been anticipated.

5.7 MEASUREMENT AND PAYMENT

The item, “Split Spoon Sampling,” when accepted and approved, will be measured on the basis of the linear feet (L.F) of boreholes drilled through unconsolidated material, but only to the extent directed by the Department’s Representative.
This item, “Split Spoon Sampling,” will be paid for at the Contract unit price bid per linear foot (L.F.), which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete this item of work.

6. NQ DRILLING

6.1 SCOPE

The work covered by this section consists of furnishing all labor, material, equipment, supplies and all necessary incidentals required to conduct NQ size drilling through rock and mined coal beds. This work shall be conducted on borings for the dam breast geotechnical evaluation and the St Marys Sewer Pipe deep mine evaluation.

6.2 EQUIPMENT AND SUPPLIES

Equipment for core drilling shall include hydraulic feed core drilling machinery of a type or types approved by the Department’s Representative complete with pressure gauge for measuring down pressure, water pressure gauge and relief valve assembly, together with all other accessories for taking complete and continuous NQ rock cores. In no event will a core size less than NQ be acceptable.

Supplies for core drilling shall include all casing, drill rods, core barrels, diamond coring bits, reaming shells, piping, pumps, water, tools, power, all boxes and containers required for core samples and all other items not included herein, but required for satisfactory performance of required work. Bits shall be set with the proper size stones for the kind of rock being cored.

All equipment and methods to be used by the Contractor shall be subject to approval by the Department’s Representative. However, approval of the equipment shall not be construed as approval of the performance thereof. The Contractor shall furnish any additional or “special” equipment necessary to obtain the desired end results.

Contractor shall provide a secure, firm and level work platform at each borehole location. Borings shall not be offset from locations shown on the boring layout plan without approval of the Department’s Representative.

Water for the drilling will be the responsibility of the Contractor. No separate payment will be made for obtaining water.
6.3 **PROCEDURE**

The Contractor shall be responsible for drilling plumb boreholes. At the elevation where the test boring encounters rock, the casing shall be seated tightly in the rock. In coring rock (including shale and indurated clays), the Contractor shall operate their drills at such speeds, feeds and water pressure as will ensure maximum core recovery. During the initial run and where soft or broken zones in rock are anticipated, the Contractor shall limit the length of “runs” to five feet (5’) or less in order to reduce core loss and keep core disturbance to a minimum. The individual drill runs in the coring operation shall in no case be in excess of ten feet (10’), unless otherwise approved by the Department’s Representative. The Contractor shall frequently check the condition of the core lifter, reaming shell and rotation of the inner barrel to avoid any grinding of the core. Whenever blockage of the core barrel occurs, the “run” shall be terminated immediately and the core barrel shall then be removed from the borehole and the recovered core placed in the core box. Prior to placing the core into core boxes, the Contractor shall lay the core out on a bench or other suitable place for inspection by the Department’s Representative.

The Contractor shall ensure a minimum core recovery of ninety-five percent (95%) since high recovery is considered necessary for any proper interpretation of the subsurface conditions. When a “run” is made which results in complete core loss, the tools shall be checked for damage or malfunction and a second attempt made to recover the material by coring an additional few inches. If there is still no recovery or very poor recovery because the material has the characteristics of soil, overburden or decomposed rock, the borehole shall be advanced by driving a split spoon sampler.

Failure to comply with the foregoing procedure, when ample warning of unusual subsurface conditions have been received in advance, shall constitute justification for the Department to require redrilling, at the Contractor’s expense, of any boring from which the core recovery is unsatisfactory. Since the function of core boring includes determination of the width, orientation, extent and spacing of rock fractures, the Contractor shall exercise particular care in recording water losses, rod jerks and other unusual coring experiences, which supplementing the core record will yield information pertaining to the nature and extent of the fracturing.

6.4 **LOGS**

The Contractor shall keep accurate logs and records of all core borings which shall include the following information:

A. Project name and Contract number, borehole number, location of borehole, ground elevation, total depth of borehole, time-date of starting, time-date of completion, driller’s name and logger’s name.
B. Size and depth of casing and size and type of drilling tools used to advance the borehole.

C. Depth of top and bottom of each run.

D. Total length of core recovered plus the Rock Quality Designation (RQD) for each run.

E. Color changes in drill-water returned.

F. Depths at which sudden losses or gains of drill-water return occur and estimated quantities involved.

G. Visual classification of rock, including color, grain size and inclination of beds or layers as measured from the horizontal.

H. Nature and extent of fracturing of the rock cored, as determined by a field description of recorded core and the “feel” of the drill during the coring.

I. Depth of top of firm or fresh rock and all other contacts between dissimilar materials.

J. Location of soft zones, voids or “break-through,” as indicated by rod chatter or change in the rate of penetration.

K. Depth of water at completion of borehole and where possible after twenty-four (24) hours.

L. Notes, remarks and information on pertinent incidents occurring during drilling operations.

6.5 CONTAINERS

Longitudinally partitioned wooden core boxes shall be used for all rock cores. As many boxes as may be required shall be used in submitting each rock core or group of cores. Core boxes, including partitions, shall be substantially constructed of dressed lumber or other approved material. Core boxes shall be completely equipped with all necessary partitions, covers, hinges, spacer blocks, hooks and eyes for holding down the cover, complete identification and other accessories.

All cores shall be arranged neatly in the partitioned boxes, in a sequence consistent with that in which they were drilled. Facing the open box, the cores shall be arranged in descending sequence, beginning with the left end of the partition nearest the hinges and continuing into other partitions, from left to right. Wood spacers shall be inserted at beginning and end of each run, and depths shall
be shown on the blocks. If voids are encountered, a spacer block shall be inserted, on which is clearly noted that a void occurred and the depth to the top and bottom of the void. In cases where split tube drive samples are taken of gob or other refuse contained in a mined coal bed, the sample jars containing the sample shall be placed into the core box at the depth that the mined coal bed occurred. Spacer blocks will be placed above and below the interval. The same procedure shall apply when split tube drive samples are taken at intervals other than coal beds, at the direction of the Department’s Representative.

During the course of the drilling, the Contractor shall have the responsibility for storing the cores/core boxes and shall take adequate precautions to protect the cores from mechanical damage as well as from extreme temperature changes. Once recovered and cleaned, the core shall not again be allowed to become wet. The Contractor has the responsibility to have all project core on the work site during normal work hours for logging and review by Department personnel.

After drilling is completed, the cores/core boxes shall be delivered to the Department of Environmental Protection, Bureau of Abandoned Mine Reclamation, BD Garage, 310 Industrial Park Road, Ebensburg, PA 15931-4119.

6.6 SEALING BOREHOLES

At the direction of the Department’s Representative, the Contractor shall be required to seal each borehole in the following manner:

A. For boreholes that encounter deep mine voids, upon completion of the borehole and acceptance by the Department’s Representative the Contractor inserts a plug of their choice, which is acceptable to the Department’s Representative, in the borehole a minimum of ten feet (10’) below the overburden/rock interface or below the bottom of the casing, whichever is deeper, or to a point selected by the Department’s Representative. In the event that significant quantities of water are encountered, the Contractor might be required to set the plug below the aquifer and build the seal from that elevation.

B. A minimum of ten feet (10’) of cement concrete is placed on top of the plug and allowed to set for twenty-four (24) hours. Additives to accelerate the curing period may be used, when approved by the Department’s Representative.

C. The casing is withdrawn and the borehole is stemmed to within one foot (1’) of the surface with sand, gravel, 2B stone, drilling cuttings or refuse material. The Contractor may choose to seal the overburden portion of the hole with cement concrete and remove the drill cuttings from the work site.
D. In the event the casing cannot be recovered, it shall be cut off eighteen inches (18”) below the ground surface and the borehole shall be sealed as indicated in the preceding Items A, B and C.

E. The surface will be restored to as good as or better than original condition. All extra drill cuttings shall be leveled out on-site.

F. The cost of sealing the boreholes will be incidental to other Contract items and no separate payment will be made.

6.7 ABANDONED BORINGS

Except with the permission of the Department’s Representative, the Contractor shall not abandon nor complete any boring or remove any casing or drilling equipment without first affording the Department’s Representative the opportunity to obtain the position and the depth of the boring to abandonment or completion and to secure samples of material already penetrated and any other information which the Department’s Representative may require.

No payment will be made for any boring which has been abandoned by the Contractor before reaching the depth, elevation or condition specified, unless the Department’s Representative approves and accepts the boring as being completed. Any boring abandoned by the Contractor without the Department’s Representative's approval shall be sealed at the Contractor's expense in accordance with Section 6.6. The Department’s Representative may, at their option, accept a boring which fails to reach the required depth due to an unusual obstruction, which, in their opinion, could not reasonably have been anticipated.

6.8 MEASUREMENT AND PAYMENT

The item, “NQ Drilling,” when accepted and approved, will be measured on the basis of the linear feet (L.F) of boreholes actually cored into rock and coal beds, but only to the extent directed by the Department’s Representative.

This item, “NQ Drilling,” will be paid for at the Contract unit price bid per linear foot (L.F.), which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete this item of work.

7. MONITORING WELL INSTALLATION-NESTED WELLS

7.1 SCOPE

The work covered by this section consists of furnishing and installing one inch (1”) inside diameter casing pipe for nested monitoring wells. Each nested
monitoring well will have two (2) separate wells. Three (3) of the CME Sampler boreholes, as drilled in accordance with Section 4, will be converted into nested monitoring wells.

7.2 PROCEDURE

The Contractor shall furnish and install new plastic one inch (1”) casing pipe. The Department’s Representative shall approve all casing pipe before it is installed in the borehole.

Plastic casing pipe shall be Schedule 40 with threaded flush-joint couplings. Each well shall have a cap or similar plug on the top and bottom. The well screen shall be 0.01” slot size. Each nested well shall have approximately fifty feet (50’) of well screen, then solid riser pipe to approximately two feet (2’) above grade. A filter sand pack shall be installed to a height of two feet (2’) above the top of the screened interval. A bentonite seal shall be installed to a height of two feet (2’) to five feet (5’) above the filter sand pack. The lower bentonite seal between the two (2) screened intervals shall be allowed to set for twenty four (24) hours prior to installing the upper monitoring well. The remaining annulus above the upper bentonite seal shall be grouted to the surface. A locking protective steel casing shall be installed over each monitoring well.

The Department’s Representative shall approve all casing pipe before it is installed in the borehole. The actual amount of well screen and well riser to be used for each nested monitoring well will be determined in the field by the Department’s Representative.

The construction as-built measurements of the nested monitoring wells shall be added to the corresponding borehole log.

7.3 MEASUREMENT AND PAYMENT

The item, “Monitoring Well Installation-Nested Wells,” when accepted and approved, will be measured on the basis of the linear feet (L.F.) of completed monitoring well, including the filter sand pack, bentonite seals and grout, but only to the extent directed by the Department’s Representative.

This item, “Monitoring Well Installation-Nested Wells,” will be paid for at the Contract unit price bid per linear foot (L.F.), which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete this item of work.
8. **MONITORING WELL INSTALLATION-STANDARD WELLS**

8.1 **SCOPE**

The work covered by this section consists of furnishing and installing one and one-half inch (1 1/2”) inside diameter casing pipe for standard monitoring wells. Eleven (11) of the CME Sampler boreholes, as drilled in accordance with Section 4, will be converted into standard monitoring wells.

8.2 **PROCEDURE**

The Contractor shall furnish and install new plastic one and one-half inch (1 1/2”) casing pipe. The Department’s Representative shall approve all casing pipe before it is installed in the borehole.

Plastic casing pipe shall be Schedule 40 with threaded flush-joint couplings. Each well shall have a cap or similar plug on the top and bottom. The well screen shall be 0.01” slot size. Each monitoring well is anticipated to be constructed with five feet (5’) to ten feet (10’) of solid PVC riser with the remainder of the monitoring well to termination depth constructed with well screen.

Each monitoring well shall be installed to a height of approximately two feet (2’) above grade. A filter sand pack shall be installed to a height of two feet (2’) above the top of the screened interval. A bentonite seal shall be installed to a height of two feet (2’) to five feet (5’) above the filter sand pack. The remaining annulus above the upper bentonite seal shall be grouted to the surface. A locking protective steel casing shall be installed over each monitoring well.

The Department’s Representative shall approve all casing pipe before it is installed in the borehole. The actual amount of well screen and well riser to be used for each nested monitoring well will be determined in the field by the Department’s Representative.

The construction as-built measurements of the nested monitoring wells shall be added to the corresponding borehole log.

8.3 **MEASUREMENT AND PAYMENT**

The item, “Monitoring Well Installation-Standard Wells,” when accepted and approved, will be measured on the basis of the linear feet (L.F.) of completed monitoring well, including the filter sand pack, bentonite seals and grout, but only to the extent directed by the Department’s Representative.

This item, “Monitoring Well Installation-Standard Wells,” will be paid for at the Contract unit price bid per linear foot (L.F.), which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies
and all necessary incidentals required to satisfactorily complete this item of work.

9. **RESTORATION**

9.1 **SCOPE**

The work covered under this section consists of providing all labor, material, equipment and other incidentals necessary to restore the area surrounding each borehole and the access route to each borehole to a condition equal to or better than that which existed prior to the start of work. The work included in this section is considered discretionary and must be directed, approved and accepted by the Department’s Representative since clean-up and restoration is considered incidental to and included in Contract Item, “Work Site Mobilization and Demobilization.”

9.2 **PROCEDURE**

Restoration includes, but is not limited to repairing or replacing any roads, parking areas or vegetated areas and other improvements to the property which may have been damaged or removed as a result of the work, but only to the extent directed, approved and accepted by the Department’s Representative.

9.3 **MEASUREMENT AND PAYMENT**

The item, “Restoration,” when accepted and approved at the specified locations, will be measured as a lump sum for the entire project, but only to the extent directed, approved and accepted by the Department’s Representative.

This item, “Restoration,” will be paid for at the Contract unit price bid per each, which price and payment shall constitute full compensation for furnishing all labor, material, equipment, supplies and all necessary incidentals required to satisfactorily complete this item of work. No payment will be made for restoration of boreholes that have not been directed, approved and accepted by the Department’s Representative since clean-up and restoration is considered incidental to and included in Contract Item, “Work Site Mobilization and Demobilization.”

10. **INSPECTIONS**

Ample opportunity shall be furnished at all times to the Department’s Representative for inspecting the work. If any imperfect work is performed at any time, the defects therein shall be remedied by the Contractor, at their expense, to the full satisfaction of the Department’s Representative. No drilling or field testing shall be done except in the presence of the inspector or Department’s Representative, unless specific permission has
been granted to the contrary. The presence of an inspector or the keeping of separate drilling records by the Department’s Representative shall not relieve the Contractor of the responsibility for work specified in the Contract.