

STATEMENT OF WORK

Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry Soil Microbial and Physico-chemical Property Analysis

I. SCOPE OF WORK:

The Department of Conservation and Natural Resources (DCNR), Bureau of Forestry, requires the services of a genomics laboratory to conduct high-throughput sequencing of soil samples and measure various soil chemistry and health parameters for two distinct research projects. Project 1 soil samples will be collected in the rhizosphere of black cherry (*Prunus serotina*) pre-and post-fungicidal treatments for the foliar disease cherry leaf spot. Project 2 soil samples will be collected in the rhizosphere of pitch pine (*Pinus rigida*) located in the Goat Hill Preserve.

The objective of the Black Cherry Project is to determine the impact of fungicides (used to control cherry leaf spot) on the soil microbial communities and soil physico-chemical properties in stands of black cherry (*Prunus serotina*), focusing on the effects on non-target organisms. This laboratory will also need to either have the capabilities to measure various soil chemistry and health parameters that could have a direct impact on the soil microbiota composition, or contract with a laboratory that can. We want to investigate the effects of different fungicides on non-target organisms.

The objective of the Pitch Pine Project is to determine the impact of the Southern Pine Beetle infestation and the resulting disturbance on the edaphic properties and soil microbial communities within the unique Serpentine Barrens ecosystem of the Goat Hill Preserve. This laboratory will also need to either have the capabilities to measure various soil chemistry and healthy parameters that could have a direct impact on the soil microbiota composition, or contract with a laboratory that can.

PA DCNR staff will do the soil sample collections and prepare the samples for shipping to the laboratory.

The Contractor is responsible for performing the following tasks for an estimated **combined total of 510 rhizosphere and control/bulk soil samples for the initial contract term.**

For each soil sample submitted by the DCNR staff, the lab will be responsible for the following procedures and analyses which will be included in the total cost:

1. DNA extraction + DNA QC
2. Library preparation: Bacterial 16S (V3V4) and Fungal (ITS 2) regions
3. Sequencing (~50k read pairs per sample)
4. Soil chemistry parameters (Haney Test)
5. *Perform texture analysis on all Black Cherry Project samples only*
6. Technical Support: *If requested*, assist in the analysis and interpretation of the results obtained for custom indicators, including AMF (arbuscular mycorrhizal fungi), fungi: bacterial ratios, bacterial and fungal populations/diversity, microbial biomass, average microbial growth rate, protists and archaea.
7. Data Analysis Reports (including raw data)

Questions regarding the technical aspects of this bid should be directed to Jill Rose 717-514-6712 or jirose@pa.gov. Questions regarding the bidding or contracting procedures should be directed to Natalia Truitt at 717-783-3332 or ntruitt@pa.gov.

II. CONTRACT TASKS:

A. Description of Deliverables and Requirements

1. Whole Genome Sequencing:

For the Black Cherry Project, perform whole genome sequencing on all rhizosphere soil samples totaling approximately 450 samples during the initial contract term.

For the Pitch Pine Project, perform on 3 rhizosphere samples plus 1 control soil sample/plot totaling approximately 60 samples during the initial contract term.

2. Soil Chemistry and Health:

Conduct the Haney Soil Test on all submitted samples.

Additional analysis: Determine soil texture for all Black Cherry Project samples.

B. Requirements

1. The company will supply PA DCNR with soil collection bags, shipping labels, and detailed instructions for the shipping process.
2. The company will deliver, for each Black Cherry Project study site, 23 rhizosphere soil samples (collected around black cherry trees) and 2 bulk soil samples.
3. The company will deliver for each Pitch Pine Project study site: 3 rhizosphere soil samples (collected around pitch pine) and 1 bulk soil sample.
4. All study results, including raw data, will be sent from the laboratory to Jill Rose via email at jirose@pa.gov within two (2) months of receiving the samples.

III. POTENTIAL OF ADDITIONAL LINE ITEM(S):

Upon mutual agreement of the Department and the Contractor, items that are consistent with the overall scope of work of the Contract may be added, at a unit price mutually agreed to, upon receipt of a valid written quotation from the Contractor.

The Contract will then be amended to include the additional item(s).

IV. ISSUANCE OF PURCHASE ORDERS

The Department will issue Purchase Orders against this contract. These orders constitute the Contractor's authority to deliver the services as described in the Purchase Order. All Purchase Orders received by the Contractor up to and including the expiration date of the contract are acceptable and must be performed in accordance with the order and the contract. Each Purchase Order will be deemed to incorporate the terms and conditions set forth in this contract.

V. CONTRACT TERM & ESCALATION CLAUSE

The contract will commence upon execution and terminate on December 31, 2026.

Further, the parties may agree to renew this contract up to two (2) additional annual terms, with a final termination date of December 31, 2028, upon the same terms and conditions set forth in the contract. The Department, based on past contractor performance, may negotiate an increase in the unit price(s) by a rate not to exceed 5%.

The Department will reach out to the Contractor no later than August 31st prior to the termination date to begin renewal discussions. Once the renewal terms are mutually decided, the Contractor will provide notification of the intent to renew, including the requested price increase if desired, to the Department no later than September 30th prior to the termination date.

VI. INSURANCE:

The Contractor is required to have in place during the term of the Contract and any renewals or extensions thereof, the following types of insurance, issued by companies acceptable to the Commonwealth and authorized to conduct such business under the laws of the Commonwealth of Pennsylvania:

A. Workmen's Compensation Insurance for all of the Contractor's employees and those of any subcontractor, engaged in work at the site of the project as required by law.

B. Public Liability and Property Damage Insurance to protect the Commonwealth, the Contractor and any and all subcontractors from claims for damages for personal injury (including bodily injury), sickness or disease, accidental death and damage to property including the loss of use resulting from any property damage. Which may arise from the activities performed under the Contract, or the failure to perform under the Contract, whether such performance or non-performance be by the Contractor, by any subcontractor, or by anyone directly or indirectly employed by either. The minimum amounts of coverage shall be \$250,000 per person and \$1,000,000 per occurrence for bodily injury, including death, and \$250,000 per person and \$1,000,000 per occurrence for property damage. Such policies shall be occurrence rather than claims-made policies and shall not contain any endorsements or any other form designated to limit and restrict any action by the Commonwealth, as an additional insured, against the insurance coverage in regard to work performed for the Commonwealth.

Prior to commencement of the work under the Contract and at each insurance renewal date during the term of the Contract, the Contractor shall provide the Commonwealth with current certificates of insurance. These certificates or policies shall name the Commonwealth as an additional insured and shall contain a provision that the coverage's afforded under the policies will not be cancelled or changed until at least thirty (30) days written notice has been given to the Commonwealth.

The Commonwealth shall be under no obligation to obtain such certificates from the Contractor(s). Failure by the Commonwealth to obtain the certificates shall not be deemed a waiver of the Contractor's obligation to obtain and furnish certificates. The Commonwealth shall have the right to inspect the original insurance policies.

VII. BID AWARD:

Bidder must complete and return the following with their bid response:

- A. The electronic Invitation for Bid to be found at www.pasupplierportal.state.pa.us.
- B. A properly executed Worker Protection and Investment Certification Form.

Bidders should not attach any other documents other than those requested.

Bids will be awarded based on lowest total sum. Bidder must bid on all items to be considered for award.

The contract quantities herein are estimated only and may increase or decrease depending on the needs of the Department.

The unit price must include all labor, materials, equipment, tools, insurance, shipping, handling, fees, and all items necessary to complete contract tasks (including travel, lodging, food, and any miscellaneous expenses).

Note: The Department will only accept out to two (2) decimal points when entering your "Unit Price" figures in the bid.

VIII. INVOICES:

Invoice format will be in accordance with the IFB – Invitation for Bid.

All invoices for this contract MUST either be:

- A. Emailed to the following for a Paperless Email Invoice Option: 69180@pa.gov.

For information on the Commonwealth's E-Invoicing Program, visit:
<http://www.budget.pa.gov/Programs/Pages/E-Invoicing.aspx>.

- B. Or mailed to the following address:

Commonwealth of Pennsylvania – PO Invoice
PO Box 69180
Harrisburg, PA 17106

All invoices MUST have the purchase order number as well as your SAP Vendor Number on the invoice.

The name and address listed on the purchase order must also be listed on each invoice. Failure to provide this information may result in a delay of payment.

Please Note: Vendors are reminded to NOT include any employer identification numbers, Social Security Numbers, bank account information, or other personally identifiable information on their invoices. That information is uniquely tied to your SAP Vendor Number and for security purposes, must not be explicitly stated on an invoice.

IX. PAYMENT TERMS:

Payment will be on a reimbursement basis for actual services performed.

This contract will be paid by Automated Clearing House (ACH), commonly referred to as direct deposit. Contractor should review Section V.25 CONTRACT-016.2 Automated Clearing House (ACH) Payments of the Commonwealth's Terms and Conditions for complete details and contractor's responsibilities.

X. RECEIPT AND OPENING OF BIDS:

Bids must be submitted via the PA Supplier Portal, to be found at www.pasupplierportal.state.pa.us. Faxed, emailed, and mailed bids will not be accepted.

No responsibility will be attached to any employee of the Department for the premature opening of, or the failure to open, a bid not properly addressed and identified, or for any reason whatsoever.

XI. BID RESULTS:

Bidder can obtain bid results by accessing www.emarketplace.state.pa.us/bidtabs.aspx. The bids will be posted as soon as practicable following the bid opening. The results are the apparent bidders, and all bids are under review until final award of the contract.