INVITATION TO BID
The City of Rochester, New Hampshire is accepting sealed bids for "Design-build proposal for 24,000 square foot manufacturing building". Bids must be submitted in a sealed envelope plainly marked:

Design-build proposal for 24,000 square foot manufacturing building.
Bid # 20-35
City of Rochester
31 Wakefield Street
Rochester, NH 03867
Attn: Purchasing Agent

All bids must be received no later than "March 5, 2020" at 2:15 PM. Actual bid opening will be at Rochester City Hall, 31 Wakefield Street in Rochester NH, at 2:30 PM. No late bids, faxed, e-mailed or telephone bids will be accepted. Bid proposals and specifications may be obtained by visiting www.rochesternh.net, or emailing purchasing@rochesternh.net, or by contacting the Purchasing Agent at City Hall, 31 Wakefield Street, Rochester, NH 03867, (603) 335-7602. All bid questions must be submitted in writing (email preferred) to the Purchasing Agent. Bidders are to monitor website for addendums, and postings of all bid questions and answers. All bid proposals must be made on the bid proposal forms supplied, and the bid proposal forms must be fully completed when submitted.
SCOPE OF WORK

Existing Conditions:
The City of Rochester, through its Economic Development Commission, is seeking turn-key,
design-build proposals for the construction of a 24,000 square-foot manufacturing facility.
The site design has been substantially completed by Norway Plains Associated, INC. under direct
contract with the Owners as shown in Exhibit A.

Scope of Work:
The general arrangement of this site and building is depicted in Exhibit A. This document
package was approved by the City of Rochester Planning Board in January of this year.
The Design-Build Contractor will provide turn-key services for the design and construction of
the proposed project, including but not limited to:

- Engaging a qualified design team to prepare construction documents sufficient to meet
  minimum code requirements and owner project requirements. Deliverables to be
  provided in phases as enumerated in this bid for owner review and acceptance prior to
  progressing to the next phase. Final deliverables shall be sealed by applicable design
  professionals licensed to practice in the State of New Hampshire.
- Applicable architectural, structural, mechanical/HVAC, electrical, plumbing and fire
  protection design, as well as any additional civil/site design not included in the attached
  documents.
- Close coordination with building tenant for required infrastructure needs of the
  manufacturing process
- Project management and construction execution functions as enumerated in the AIA
  documents included in Exhibit B.
- Coordination and completion of any permits or permit extensions as enumerated in
  Exhibit A documents
- Site preparation work described to be required for future phases is also included in the
  scope, as shown in Exhibit A documents

Work to be completed prior to June 30, 2021.
INSTRUCTION TO BIDDERS

PREPARATION OF BID PROPOSAL

1. The Bidder shall submit her/his proposal upon the form(s) furnished by the City (attached). The bidder shall specify a unit price for each pay item. All figures shall be in ink or typed.

2. If a unit price or lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it, and initialed by the bidder, also with ink. In case of discrepancy between the prices written in words and those written in figures, the prices written in words shall govern.

3. The bidder’s proposal must be signed with ink by the individual, by one or more members of the partnership, by one or more members or officers of each firm representing a joint venture, by one or more officers of a corporation, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his name and post office address must be shown, by a partnership the name and post office address of each partnership member must be shown; as a joint venture, the name and post office address of each must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles, and business addresses of the President, Secretary, and Treasurer.

4. All questions shall be submitted in writing to and received by the Purchasing Agent at the above address, a minimum of 7 days prior to the scheduled bid opening. The Purchasing Agent, will then forward both the question and the city’s response to the question to all known prospective bidders.

IRREGULAR PROPOSALS

Bid proposals will be considered irregular and may be rejected for any of the following reasons:

1. If the proposal is on a form other than that furnished by the Owner or if the form is altered or any part thereof is detached.

2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.

3. If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

4. If the proposal does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

DELIVERY OF BID PROPOSALS

When sent by mail, the sealed proposal shall be addressed to the City of Rochester, Purchasing Agent, 31 Wakefield Street, Rochester, NH 03867. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened. Emailed or faxed bid proposals are not acceptable.
WITHDRAWAL OF BID PROPOSALS
A bidder will be permitted to withdraw his proposal unopened after it has been deposited if such request is received in writing prior to the time specified for opening the proposals.

PUBLIC OPENING OF BID PROPOSALS
Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

DISQUALIFICATION OF BIDDERS
Either of the following reasons may be considered as being sufficient for the disqualification of a bidder and the rejection of her/his bid proposal(s):
1. Evidence of collusion among bidders.
2. Failure to supply complete information as requested by the bid specifications.

CONSIDERATION OF PROPOSALS
1. Bids will be made public at the time of opening and may be reviewed only after they have been properly recorded. In case of discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.
2. The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the judgment of the City, the best interest of the City of Rochester will be promoted thereby.
3. Bid results will be available on the website at www.rochesternh.net within 48 hours of the bid opening.

AWARD OF CONTRACT
The City holds the right, in its judgment, to award the contract to the bidder, which it feels is in the best interest of the City. If a contract is to be awarded, the Contractor/Vendor selection shall be based in part on possession of the necessary experience, organization, technical and professional qualifications, skills and facilities, reference checks, project understanding, approach, ability to comply with proposed or required time to completion or performance, licensing or certification, in good standing with Federal, State and Local agencies, possession of satisfactory record of performance, cost and to a responsible and qualified bidder whose proposal complies with all the requirements prescribed as soon as practical after the bid opening. No bid shall be withdrawn for a period of (60) sixty days subsequent to the opening of bids without the consent of the City of Rochester. The successful bidder will be notified, by the form mailed to the address on his proposal, that his bid has been accepted and that he has been awarded the contract.

CANCELLATION OF AWARD
The City reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability or other claim against the City.
BID EVALUATION
In addition to the bid amount, additional factors will be considered as an integral part of the bid evaluation process, including, but not limited to:
1. The bidder’s ability, capacity, and skill to perform within the specified time limits.
2. The bidder’s experience, reputation, efficiency, judgment, and integrity.
3. The quality, availability and adaptability of the supplies and materials sold.
4. The bidder’s past performance.
5. The sufficiency of bidder’s financial resources to fulfill the contract.
6. The bidder’s ability to provide future maintenance and/or services.
7. Any other applicable factors as the City determines necessary and appropriate (such as compatibility with existing equipment).

CONDITIONS AT SITE
Bidders shall be responsible for having ascertained pertinent local conditions, such as: location, accessibility and general character of the site. The character and extent of existing work within or adjacent to the site and any other work being performed thereon at the time of the submission of her/his bid.

LAWS, PERMITS AND REGULATIONS
1. The Contractor shall obtain and pay for all licenses and permits as may be required of him by law, and shall pay for all fees and charges for connection to outside services, and use of property other than the site of the work for storage of materials or other purposes.
2. The Contractor shall comply with all State and Local laws, ordinances, regulations and requirements applicable to work hereunder, including building code requirements. If the Contractor ascertains at any time that any requirement of this Contract is at variance with applicable laws, ordinances, regulations or building code requirements, she/he shall promptly notify the City of Rochester in writing.

CONTRACTOR’S AND SUBCONTRACTOR’S INSURANCE
1. The Contractor shall deliver with bid documents; certificates of all insurance required hereunder. The certificate shall state that the companies issuing insurance will endeavor to mail to the City of Rochester ten (10) days notice of cancellation, alteration or material change of any listed policies. The Contractor shall keep in force the insurance required herein for the period of the Contract. At the request of the City of Rochester, the Contractor shall promptly make available a copy of any and all listed insurance policies. The requested insurance must be written by a Company licensed to do business in New Hampshire at the time the policy is issued.
2. The City of Rochester, NH shall be listed as additional insured on all the Certificates of Insurance.
3. The Contractor shall require each Subcontractor employed on the Project to maintain the coverage listed below unless the Contractor's insurance covers activities of the Subcontractor on the Project.

4. No operations under this Contract shall commence until certificates of insurance attesting to the below listed requirements have been filed with and approved by the Department of Public Works, and the Contract approved by the City Manager.
   a. **Workmen's Compensation Insurance**
      Limit of Liability - $100,000.00 per accident
   b. **Commercial General Liability**
      Limits of Liability
      Bodily Injury: $1,000,000.00 per occurrence, $1,000,000.00 aggregate
      Property Damage: $500,000.00 per occurrence, $200,000.00 aggregate
      Combined Single Limit, Bodily Injury and Property Damage:
      $2,000,000.00 aggregate
   c. **Automobile Liability**
      Limits of Liability - $500,000.00 per accident.
   d. The Contractor shall indemnify, defend, and save harmless the City of Rochester and its agents and employees from and against any suit, action or claim of loss or expenses because of bodily injury. Including death at any time resulting therefrom, sustained by any person or persons or on account of damage to property, including loss of use thereof, whether caused by or contributed to by said City of Rochester, its agents, employees or others.

**ACCIDENT PROTECTIONS**

It is a condition of this Contract, and shall be made a condition of each subcontract entered into pursuant to the Contract. That a Contractor and any Subcontractors shall not require any laborer or mechanic employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health or safety, as determined by construction safety and health standards of the Occupational Safety and Health Administration, United States Department of Labor, which standards include, by reference, the established Federal Safety and Health regulations for Construction. These standards and regulations comprise Part 1910 and Part 1926 respectively of Title 29 of the Code of Federal Regulations and are set forth in the Federal Register. In the event any revisions in the Code of Federal Regulations are published, such revisions will be deemed to supersede the appropriate Part 1910 and Part 1926, and be effective as of the date set forth in the revised regulation.

**SUBCONTRACTS**

1. Nothing contained in the Specifications or Drawings shall be construed as creating any contractual relationship between any Subcontractor and the City of Rochester. The Division or Sections of the Specifications are not intended to control the Contractor in dividing the work among Subcontractors or to limit the work performed by any trade.
2. The Contractor shall be as fully responsible to the City of Rochester for the acts and omissions of Subcontractors and of persons employed by her/him, as she/he is responsible for the acts and omissions of persons directly employed by her/him.

PROTECTION OF WORK AND PROPERTY
The Contractor shall, at all times, safely guard the City’s property from injury or loss in connection with this Contract. She/he shall, at all times, safely guard and protect her/his own work and that of adjacent property from damage. All passageways, guard fences, lights and other facilities required for protection by State or Municipal laws, regulations and local conditions must be provided and maintained.

USE OF PREMISES AND REMOVAL OF DEBRIS
The Contractor expressly undertakes at his own expense:
1. To take every precaution against injuries to persons or damage to property;
2. To comply with the regulations governing the operations of premises which are occupied and to perform his Contract in such a manner as not to interrupt or interfere with the operation of the Institution;
3. To perform any work necessary to be performed after working hours or on Sunday or legal holidays without additional expense to the City, but only when requested to do so by the City;
4. To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractors;
5. Daily to clean up and legally dispose of (away from the site), all refuse, rubbish, scrap materials and debris caused by his operation. Including milk cartons, paper cups and food wrappings left by his employees, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;
6. All work shall be executed in a workmanlike manner by experienced mechanics in accordance with the most modern mechanical practice and shall represent a neat appearance when completed.

MATERIALS AND WORKMANSHIP
1. Unless otherwise specified, all materials and equipment incorporated into the work under the Contract shall be new. All workmanship shall be first class and by persons qualified in their respective trades.
2. Where the use of optional materials or construction method is approved, the requirements for workmanship, fabrication and installation indicated for the prime material or construction method shall apply wherever applicable. Required and necessary modifications and adjustments resulting from the substitution or use of an optional material or construction method shall be made at no additional cost to the City.
STANDARDS

1. Materials specified by reference to the number, symbol or title of a specific standard, such as a Commercial Standard, a Federal Specification, Department’s Standard Specifications, a trade association standard or other similar standard. Shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the data of advertisement, except as limited to type, class or grade or modified in such reference.

2. Reference in the Specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. In such cases the Contractor may, at his option, use any articles, device, product, material fixture, form or type of construction that, in the judgment of the City expressed in writing to all Bidders before opening of bids as an addendum, is an acceptable substitute to the specified.

3. Substitution During Bid Time: Whenever any particular brand or make of material or apparatus is called for in the Specifications, a Bidder’s Proposal must be based upon such material or apparatus, or upon a brand or make which has been specifically approved as a substitution in an Addendum issued to all Bidders during the bidding time.

4. The intent is that the brand or make of material or apparatus that is called for herein establishes a standard of excellence that, in the opinion of the Consultant and Engineer, is necessary for this particular Project.

5. Substitution After Bid Opening: No substitutions will be considered after bids have been opened unless necessary due to strikes, lockouts, bankruptcy or discontinuance of manufacture, etceteras. In such cases, the Contractor shall apply to the City, in writing within ten (10) days of his realizing his inability to furnish the article specified, describing completely the substitution he desires to make.

EXTRAS

Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the Director of Public Works has ordered the same, in writing.

GUARANTEE OF WORK

1. Except as otherwise specified, all work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment or workmanship for one (1) year from the Date of Final Acceptance.

2. Make good any work or material, or the equipment and contents of said building or site disturbed in fulfilling any such guarantee.

3. In any case, wherein fulfilling the requirements of the Contract or of any guarantee, should the Contractor disturb any work guaranteed under another contract, the Contractor shall restore such disturbed work to a condition satisfactory to the Director of Public Works. And guarantee such restored work to the same extent as it was guaranteed under such other contracts.

4. If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the City of Rochester may have the defects corrected and the Contractor shall be
liable for all expense incurred.

5. All special guarantees applicable to definite parts of the work that may be stipulated in the Specifications or other papers forming a part of the Contract shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

DEFAULT AND TERMINATION OF CONTRACT

If the Contractor:
1. Fails to begin work under Contract within the time specified in the notice to proceed; or
2. Fails to perform the work with sufficient workers and equipment, or with sufficient materials to assume prompt completion of said work; or
3. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable; or
4. Discontinues the prosecution of the work; or
5. Fails to resume work, which has been discontinued, within the time frames included in specifications; or
6. Becomes insolvent or has declared bankruptcy, or commits any act of bankruptcy or insolvency; or
7. Makes an assignment for the benefit of creditors; or
8. For any other causes whatsoever, fails to carry on the work in an acceptable manner the City of Rochester will give notice, in writing, to the Contractor for such delay, neglect, and default.

If the Contractor does not proceed in accordance with the Notice, then the City of Rochester will have full power and authority without violating the Contract to take the prosecution of the work out of the hands of the Contractor. The City of Rochester may enter into an agreement for the completion of said Contract according to the terms and conditions thereof, or use such other methods as in the City’s opinion will be required for the completion of said Contract in an acceptable manner.

All extra costs and charges incurred by the City of Rochester as a result of such delay, neglect or default, together with the cost of completing the work under the Contract will be deducted from any monies due or which may become due to said Contractor. If such expenses exceed the sum which would have been payable under the contract, then the Contractor shall be liable and shall pay to the City of Rochester the amount of such excess.

OBTAINING BID RESULTS

Bid results will be available on the website at www.rochesternh.net within 48 hours of the bid opening.
Request for Proposals

Manufacturing Facility
145 Airport Drive – Rochester, NH
Rochester Economic Development Commission (REDC)

Overview
The City of Rochester, through its Economic Development Commission, is seeking turn-key, design-build proposals for the construction of a 24,000 square-foot manufacturing facility. LDI Solutions, for whom the scope of work and project requirements are tailored, will occupy the building. A future phase includes a 16,000 square-foot addition to this facility. The construction budget for this initial phase is $3,000,000.

The information included in this document and its exhibits shall constitute the Owner’s Project Requirements and minimum scope expected to be included with all proposals.

The City of Rochester is home to approximately 31,000 residents. Its government consists of a governing body consisting of the Mayor and 12 Councilors with a City Manager presiding over a full staff.

Description of the Rochester Economic Development Commission, Mission and Duties:
The REDC was created under New Hampshire RSA 162-G and is recognized as the Industrial Development Agency (IDA) for the City. As the IDA, REDC is allowed to borrow, lend, buy, sell, build, lease, or most other activities with the goal of promoting economic development throughout the city. The REDC consists of 9 regular and 2 ex-officio members.
RFP Exhibits

Exhibit A: Approved Site Plan and Conceptual Architectural Drawings

Exhibit B: Geotechnical Report

Exhibit C: Contract Documents to be Utilized for Project

AIA A141-2014 Standard Form of Agreement between Owner and Design-Builder

AIA A201-2017 General Conditions of the Contract for Construction

RFP Timeline

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design-Build Contractor Advertisement</td>
<td>February 10, 2020</td>
</tr>
<tr>
<td>Mandatory Pre-Proposal Conference (REDC Offices)</td>
<td>February 20, 2020</td>
</tr>
<tr>
<td>Pre-proposal Questions Due</td>
<td>February 27, 2020</td>
</tr>
<tr>
<td>Pre-proposal Questions Issued by Addendum</td>
<td>March 5, 2020</td>
</tr>
<tr>
<td>RFP Written Responses Due</td>
<td>March 12, 2020</td>
</tr>
<tr>
<td>REDC Review and Interview Selection</td>
<td>March 19, 2020</td>
</tr>
<tr>
<td>Interviews</td>
<td>March 26, 2020</td>
</tr>
<tr>
<td>Design-Build Contract Award</td>
<td>April 2, 2020</td>
</tr>
</tbody>
</table>

Design-Build Project Milestones

In order to fulfill the relocation timing requirements of the future building occupant, the following milestones must be met as part of the RFP Proposal:

<table>
<thead>
<tr>
<th>Milestone</th>
<th>On-or-Before Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project kick-off meeting with REDC and other stakeholders</td>
<td>April 16, 2020</td>
</tr>
<tr>
<td>Schematic Design (25%) Document Submission</td>
<td>May 14, 2020</td>
</tr>
<tr>
<td>Design Development (75%) Document Submission</td>
<td>June 25, 2020</td>
</tr>
<tr>
<td>Construction Documents (100%) Submission</td>
<td>July 30, 2020</td>
</tr>
<tr>
<td>Permits</td>
<td>August 15, 2020</td>
</tr>
<tr>
<td>Construction Start*</td>
<td>August 15, 2020</td>
</tr>
<tr>
<td>Substantial Completion</td>
<td>June 1, 2021</td>
</tr>
<tr>
<td>Occupancy</td>
<td>July 1, 2021</td>
</tr>
</tbody>
</table>

* It is anticipated that site development work can commence sooner than this date provided adequate coordination with the building foundation design is performed and requisite permits are obtained by the design-build contractor.
Project Scope

The general arrangement of the site and building is depicted in Exhibit A. This document package was approved by the City of Rochester Planning Board in January of this year.

The Design-Build Contractor will provide turn-key services for the design and construction of the proposed project, including but not limited to:

- Engaging a qualified design team to prepare construction documents sufficient to meet minimum code requirements and owner project requirements. Deliverables to be provided in phases as enumerated above for owner review and acceptance prior to progressing to the next phase. Final deliverables shall be sealed by applicable design professionals licensed to practice in the state of New Hampshire.
- Applicable architectural, structural, mechanical/HVAC, electrical, plumbing and fire protection design, as well as any additional civil/site design not included in the attached documents.
- Close coordination with building tenant for required infrastructure needs of the manufacturing process.
- Project management and construction execution functions as enumerated in the AIA documents included in Exhibit B.
- Coordination and completion of any permits or permit extensions as enumerated in the Exhibit A documents.
- Site preparation work described to be required for future phases is also included in the scope, as shown in the Exhibit A documents.

The site design has been substantially completed by Norway Plains Associates, Inc. under direct contract with the Owner as shown in Exhibit A. They may be retained by the design-build contractor to perform site layout, required site inspections, and construction administration services.

Work items to be coordinated and accommodated (in-wall blocking, electrical drops, structured cabling drops, etc.) by the design-build contractor but furnished and installed by others:

- Furniture
- Break room appliances
- IT equipment
- AV equipment
- Manufacturing equipment
- White boards
- Tack boards
- TV mounts
- Security cameras and equipment
- Access control system
- Warehouse racking
- Shelving
The design-build contractor should include the following interior finishes in their pricing:

<table>
<thead>
<tr>
<th>Area</th>
<th>Flooring</th>
<th>Ceilings</th>
<th>Walls</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>Carpet tile, rubber base</td>
<td>Tegular Acoustic Ceiling System</td>
<td>Latex painted gypsum wallboard</td>
<td>Provide for painted accent color walls</td>
</tr>
<tr>
<td>Conference Rooms</td>
<td>Carpet tile, rubber base</td>
<td>Gypsum wallboard soffit with Tegular Acoustic Ceiling System</td>
<td>Latex painted gypsum wallboard</td>
<td>Provide for painted accent color walls</td>
</tr>
<tr>
<td>Bathrooms</td>
<td>VCT, rubber base</td>
<td>Tegular Acoustic Ceiling System</td>
<td>Epoxy painted gypsum wallboard</td>
<td></td>
</tr>
<tr>
<td>QC/Labs</td>
<td>VCT, rubber base</td>
<td>Tegular Acoustic Ceiling System</td>
<td>Epoxy painted gypsum wallboard</td>
<td></td>
</tr>
<tr>
<td>Production/Lamination Area</td>
<td>VCT, rubber base</td>
<td>Tegular Acoustic Ceiling System</td>
<td>Epoxy painted gypsum wallboard</td>
<td></td>
</tr>
<tr>
<td>Warehouse/Receiving Area</td>
<td>Sealed concrete</td>
<td>Exposed construction</td>
<td>Exposed construction</td>
<td>Full-height wall for separation between warehouse and offices expected with sound attenuation</td>
</tr>
</tbody>
</table>

In addition to components such as LED lighting, receptacles, switches, thermostats, etc. commonly and/or code required for the spaces listed below, the design-build contractor should include the following tenant-requested components in their pricing:

<table>
<thead>
<tr>
<th>Area</th>
<th>Electrical</th>
<th>Mechanical</th>
<th>Plumbing</th>
<th>IT/AV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>Private Offices: power drops on each wall</td>
<td></td>
<td></td>
<td>Data drops on at least two walls to allow for two different furniture arrangements</td>
</tr>
<tr>
<td>Conference Rooms</td>
<td>Power for wall-mounted TV</td>
<td></td>
<td></td>
<td>HDMI cabling between wall TV mount location and conference table 2 EA data drops per unit</td>
</tr>
<tr>
<td>QC/Labs</td>
<td>Wire-mold receptacles along wall perimeter, power for environmental chamber (LF Environmental 16000 series) and other benchtop lab equipment</td>
<td>Direct outside intake/exhaust for two fume hoods</td>
<td>Hand wash sink and eye wash if required by code or regulation</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>Electrical</td>
<td>Mechanical</td>
<td>Plumbing</td>
<td>IT/AV</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------</td>
<td>------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Production Room</td>
<td>Per unit: 220V, 12A (all units have this similar power requirements); 1 computer workstation</td>
<td>Adequate air changes per hour for light manufacturing. Allow for future di-sublimation process HVAC retrofit which will generate temperatures at 400F and off gas VOCs</td>
<td>Hand wash sink and eye wash if required by code or regulation</td>
<td>2 EA data drops per unit</td>
</tr>
<tr>
<td>Lamination Room</td>
<td>Per unit: 240V, 3PH, 40A, 9600W. Power for future fume hood.</td>
<td>Adequate air changes per hour for light manufacturing, currently facility is designed for 10 AC/H. Provide N+1 redundancy for exhaust fans.</td>
<td>Hand wash sink and eye wash if required by code or regulation</td>
<td>2 EA data drops per unit</td>
</tr>
<tr>
<td>Inspection Room</td>
<td>Per unit: 220V, 3PH, 12A</td>
<td>Adequate air changes per hour for light manufacturing</td>
<td>Hand wash sink and eye wash if required by code or regulation</td>
<td>2 EA data drops per unit</td>
</tr>
<tr>
<td>Warehouse/Receiving Area</td>
<td></td>
<td></td>
<td>Hand wash sink and eye wash if required by code or regulation</td>
<td>Wifi coverage</td>
</tr>
</tbody>
</table>

**General statement on electrical power design requirements:** the quantities for equipment above represent the currently anticipated future layout for this growing manufacturing company. The electrical service should be sized and distributed to meet this as a minimum, along with a 20% allowance for future needs in the Production, Lamination, and Inspection areas. This includes both three-phase and single-phase power capacity and distribution (spare breaker slots on panels, etc.)

Other miscellaneous items to be included with proposal:

- Window treatments
- Solid surface (Corian, etc.) countertops and window sills
- Structured cabling infrastructure, including WiFi broadcast points with coverage over entire building
- Millwork for break room to be high-pressure laminate with ANSI/BHMA Grade 2 hardware
- Hollow metal door and interior window frames
- Hollow metal doors for non-office areas, painted
- Solid-core birch doors for office areas, prefinished
- Commercial-grade door hardware
- LED lighting, dimmable with individual controls in offices and conference room
- Individual HVAC controls for offices, lab, production areas and conference room
- Acoustic insulation in all walls
- Structural support for ceilings of office area due to extended building structure height above finished ceiling height
- Warehouse slab structural design to accommodate fork truck, scissor lift, and steel rack shelving systems
- Fire protection and life safety systems and devices as required by code and ordinance
- Signage, both code-required and on building (roadside signage by others)
The design-build contractor should allow time and resources for adequate meetings during all phases of the project. It is anticipated that there will be at least four meetings to review progress during design development and bi-weekly meetings during construction.

**Budget**

The budget for this portion of the project is $3,000,000.
RFP Response Content

Responses to the RFP should be written and neatly organized, and include the following sections (at a minimum):

A. Cover letter

B. Firm profile, including
   a. Size of staff
   b. Number and location of offices
   c. Annual gross volume of design-build work

C. Project Management and Approach
   a. Provide an overall approach to a successful outcome of this project, including:
      i. Budget and Cost Controls
      ii. Schedule management
      iii. Subcontractor management, including design teams
      iv. Design-build project execution
   b. Proposed project team structure, with organizational chart, resumes and applicable credentials

D. Experience with Similar Projects
   a. Municipal
   b. Office
   c. Manufacturing facilities

E. References
   a. Provide five references for projects and/or clients that best represent your past successes. Include contact names, phone numbers, and email addresses for each.

F. Price proposal
   a. Base Price: Lump sum for turnkey design-build project delivery
   b. DEDUCT Alternate 1: Delete second floor windows

G. A statement confirming ability to meet the schedule dates outlined above

H. Other items of worthwhile consideration to the evaluators
RFP Evaluation and Award Criteria

Responses will be scored by a team of stakeholders from the City of Rochester and tabulated by the owner’s project manager.

Scoring matrix as follows:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifications and similar experience</td>
<td>20</td>
</tr>
<tr>
<td>References</td>
<td>10</td>
</tr>
<tr>
<td>Proposed approach</td>
<td>10</td>
</tr>
<tr>
<td>Completeness of response</td>
<td>10</td>
</tr>
<tr>
<td>Base Price Proposal</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>

RFQ Questions and Submissions should be sent electronically to:

City of Rochester, NH
Purchasing Office
Attn: Procurement Officer
31 Wakefield Street
Rochester, NH 03867
purchasing@rochesternh.net
Exhibit A: Planning Board Approved Site Plans and Concept Architectural Drawings

REDC Manufacturing Building, Design-Build Contractor RFP
PROPOSED MANUFACTURING FACILITY
FOR
CITY OF ROCHESTER
145 AIRPORT DRIVE
ROCHESTER, N.H. 03867
DECEMBER 2019
Not For Construction

CIVIL ENGINEERS
NORWAY PLAINS ASSOCIATES, INC.
2 CONTINENTAL BOULEVARD
ROCHESTER, NEW HAMPSHIRE 03867
(603) 325-3840

LANDSCAPING ARCHITECTS
WOODBURN & COMPANY LANDSCAPE ARCHITECTURE, LLC
156 BENT PLACE
NEWMARKET, NEW HAMPSHIRE 03857
(603) 659-5848

OWNER OF RECORD
CITY OF ROCHESTER
51 WAREFIELD STREET
ROCHESTER, NEW HAMPSHIRE 03867
(603) 336-7500

APPLICANT
CITY OF ROCHESTER
51 WAREFIELD STREET
ROCHESTER, NEW HAMPSHIRE 03867
(603) 336-7500

NORWAY PLAINS ASSOCIATES, INC.
Exhibit B: Geotechnical Report

REDC Manufacturing Building, Design-Build Contractor RFP
GEOTECHNICAL INVESTIGATION REPORT

PROPOSED HM MACHINE BUILDING
127 & 145 AIRPORT DRIVE
ROCHESTER, NEW HAMPSHIRE

Prepared For:

Scott A. Lawler, P.E.
Norway Plains Associates, Inc.
PO Box 249
Rochester, New Hampshire 03866

Prepared By:

John Turner Consulting, Inc.
19 Dover Street
Dover, New Hampshire 03820

JTC Project No.: 15-15-059

October 27, 2015
TABLE OF CONTENTS

Report Text, Limitations, & Tables

Grading and Drainage Plan & Test Boring Location Plan

Test Boring Logs & Key to Symbols and Descriptions

Geotechnical Laboratory Testing Reports

Site Photographs
GEOTECHNICAL SUMMARY REPORT

Prepared by:

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NEW HAMPSHIRE
P. 603-749-1841/F. 603-516-6851
consultJTC.com

TO: Norway Plains Associates, Inc.
2 Continental Boulevard
Rochester, NH 03106

FROM: Kevin Martin, P.E.
Geotechnical Engineer

DATE: October 27, 2015

RE: GEOTECHNICAL SUMMARY REPORT
HM MACHINE
PROPOSED MANUFACTURING BUILDING
127 & 145 AIRPORT ROAD
ROCHESTER, NEW HAMPSHIRE
Project No. 15-15-059

This memorandum serves as a Geotechnical Summary Report for the project. The contents of this report are subject to the attached Limitations.

BACKGROUND

The site includes an undeveloped wooded lot. Based on review of the Site Plan, grades in the project area possess a gradual downward slope to the rear (north). Site grades vary from elevation ~284-268 ft.

The project includes a new manufacturing building. The building is to consist of a single-story, steel framed structure about ~24,000 ft² in footprint area with future expansion of about ~16,000 ft². It is intended to support the building on a conventional spread footing foundation with a concrete floor slab-on-grade (no basement). Grading Plans indicate a FFE of 277.5 ft. As such, some shallow cuts and deeper fill (~4-7 ft) will be necessary to achieve final grade.

The purpose of this study is to provide a geotechnical evaluation of the subgrade conditions as they pertain to foundation design and construction as required by the State Building Code. This report does not include an environmental assessment relative to oil, gasoline, solid waste and/or
other hazardous materials. The environmental aspects of the project should be reviewed by others. This study also does not include review of site design or construction issues such as infiltration systems, dry wells, detention ponds, excavation support systems, underground utilities, protection of surrounding utilities/structures, crane pads, blasing issues, shoring or other site and/or temporary design unless specifically addressed herein.

**SUBSURFACE EXPLORATIONS & LABORATORY TESTING**

**Test Borings**

The subgrade conditions were reviewed with the completion of seven (7) test borings completed around the building. The test borings (B1 to B7) were advanced to refusal depths of about ≈5-18 ft utilizing 2¾ inch hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2-inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater, depth to apparent bedrock refusal and other pertinent data are contained on the attached *Test Boring Logs*. The test borings were located by referencing existing survey as shown on the *Boring Location Plan*.

**Laboratory Testing**

Selected split-spoon sample obtained from the test borings were submitted to our laboratory for sieve analysis and in-situ moisture content per ASTM Standards. The purpose of the testing was to assess engineering characteristics for design and to assess the suitability of the site soils for reuse as structural fill on the project. The test results are attached for review.

**SUBGRADE CONDITIONS**

The subgrade conditions below some shallow surface Organic soils include compact Glacial Till then Bedrock.

The wooded site is blanketed with an Organic Forest Mat about ≈5-6 inches in thickness. Below the Forest Mat is the Subsoil horizon which extends about ≈20-24 inches below grade. The Subsoil horizon consists of a rust brown, silty Sand with minor roots, loam and organic matter as leached from the surface.

The predominate overburden includes a compact Glacial Till. The Till varies in composition but generally consists of a brown, well-graded, fine to medium Sand, some silt, little gravel. Cobbles and boulders appear embedded in the Till given difficulty advancing the augers. Gradation tests indicate a well-graded Till with about ≈15-25% fines by weight (Silt passing the No. 200 sieve).

A Residual Soil or Weathered Bedrock were encountered at depths of ≈4-11 ft through the site. These depths are outlined on the attached Plan. At most locations, the weathered ledge was sampled and penetrated to depths of ≈5-18 ft (or about ≈1-7 ft thickness). It is suspected the Weathered Rock may be rippable with large excavation equipment.
Groundwater was not encountered in the test borings upon completion. Groundwater may become seasonally perched atop the Weathered Bedrock. Mottling and rust staining suggest seasonally wet conditions. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, utilities, flooding and other factors differing from the time of the measurements. The study was completed at a time of seasonally low groundwater.

FOUNDDATION SUBGRADE RECOMMENDATIONS

The subgrade conditions are favorable for supporting the proposed building on a conventional spread footing foundation with a concrete floor slab-on-grade. The Organic laden soils (Forest Mat, Subsoil, Stump holes, etc) and other questionable materials shall be fully removed from the building area including at least \( \approx 10 \) ft laterally beyond the building perimeter. There is expected to be about \( \approx 1-2 \) ft of site stripping and grubbing in this regard. Structural Fill should conform to the Specifications outlined on Table 1.

The parent subgrade soils should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Recommended proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 850 pound static weight) operating at peak energy. During the proof rolling process, the subgrade should be observed by an Engineer to identify areas exhibiting weaving or instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill. Proof-rolling should not be used when the subgrade is wet (groundwater, storm water, perched water, etc) as this may result in soil pumping and instability. The contractor should exercise extra precaution to minimize subgrade disturbance in these wet areas. The groundwater table or puddled storm water should be continuously maintained at least one foot below construction grade until the backfilling is complete. A base of \( \frac{3}{4} \)-inch minus crushed stone should be placed atop the earthen subgrade if wet conditions are present. The stone should be immediately placed atop the undisturbed subgrade then tamped with a plate compactor exhibiting stable conditions. The purpose of the stone base is to protect the wet subgrade, facilitate necessary dewatering and provide a dry/stable base upon which to progress foundation construction. Proper groundwater control and storm water management are also necessary to maintain site stability. Wet conditions are typically more problematic if construction occurs during the wetter winter or spring season. The drier summer months are more favorable for groundwater control.

Bedrock may impact portions of the project in the deeper cut areas. A hoe ram may be used for small, localized ledge removal. Hydraulic fracturing may be another means to remove ledge. Foundation subgrades consisting of bedrock should be relatively level and free of loose rocks and/or extensively heaved overblast. Surface irregularities may be filled with one-inch crushed stone or lean concrete. The bedrock slope should be no greater than 15%. Where bedrock is encountered at foundation grade, it is recommended that a \( \approx 10 \) inch lift of compacted one-inch minus crushed stone be placed atop the intact bedrock to provide more uniform and elastic bearing conditions throughout the foundation to mitigate differential settlement. Removal of the bedrock with a hoe ram (if feasible) should mitigate bedrock disturbance in this respect.
The bearing subgrade should ultimately be stable, dewatered, protected from frost and compact throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions or other cause will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from JTC should be scheduled to review the foundation subgrade conditions and preparation during construction.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the Glacial Till and/or compacted Structural Fill (Table 1). Footings may be designed using an allowable bearing capacity of 4 ksf (FS=3). The allowable bearing capacity may be increased a third (1/3) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. The settlement should be negligible where bedrock is within ≈1-2 ft of BOF. The settlement should be elastic and occur during construction. Exterior footings shall be provided with at least 4 ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the International Building Code (2012). Based on the relative density of the site soils, the site is not susceptible to liquefaction (complete loss of shear resistance) in the event of an earthquake. Based on interpretation of the Building Code together with the project and site conditions, the Site Classification (Table 1615.1.1) is “C” (Very Dense Soil).

It is recommended that a minimum 8-inch base of Clean Granular Fill (Table 1) be placed below the concrete floor slab for moisture and frost control. The gravel base shall be increased to no less than 12 inches for exterior concrete slabs exposed to frost (=20 inches at entrances and ramps). A subgrade modulus of 175 pci may be used for design of the floor slab. The subgrade modulus may be increased 25 pci for every 2 inch increase in additional gravel base thickness (225 pci @ 12 inch gravel base) as necessary. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards. A typical vapor retarder would include minimum 10-mil polyethylene or StegoWrap™ with joints lapped at least ≈10 inches at seams.

Structural fill necessary within and below the foundation should also conform to the attached Specifications (Table 1). The Glacial Till may be suitable for re-use as Structural Fill if properly segregated from the organic soils, screened of large stones and compacted to specified density (minimum 95%). The Till is also highly moisture sensitive and will require strict moisture control for stability and compaction in this regard. Specifically, the site soils will need to be compacted within ±2% of optimum moisture content per the Modified Proctor Test. The drier months in summer are more favorable for moisture control.
CONSTRUCTION CONCERNS

The contractor should be required to maintain stable-dewatered subgrades for foundations, pavements and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. It should be understood that the Glacial Till soils (silty Sand, little gravel) are considered highly moisture sensitive and will readily become weakened or softened if exposed to wet conditions and construction activities. The moisture sensitivity is associated with the high percentage of fine-grained soil (fine sand/silt) which acts to retain moisture. The presence of shallow or perched groundwater may further impact the subgrade in this regard. The contractor should understand these concerns and take precautions to reduce subgrade disturbance. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, limiting the extent of exposed subgrade especially if inclement weather is forecast, backfilling footings as soon as practicable and maintaining an effective dewatering program. Adequate protection of the bearing subgrade is necessary during construction. The subgrade concerns are more problematic if construction takes place during the winter/spring season or other periods of inclement weather. A protective base of ¾-inch minus crushed stone with geotextile filter fabric should be placed at least ≈6 inches below and laterally beyond the footing limits. The stone base is to protect the glacial soils, facilitate necessary dewatering and provide a dry/stable base upon which to progress foundation construction. The protective base should be considered elective and dependent upon the site conditions. The stone base should be considered necessary if wet conditions are encountered at footing grade. The stone base shall be tamped with a plate compactor and exhibit stable and compact conditions. Additional stone may be used for subgrade protection depending upon the site conditions at the time of construction.

The subgrade should ultimately be stable, dewatered, compact and protected from frost throughout construction. Bearing subgrades that become weakened or disturbed due to wet conditions or other cause will be rendered unsuitable for structural support. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from JTC should be scheduled to review the foundation subgrade conditions and preparation during construction.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that JTC be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

kmm55/jtc15/RochesterHMMachine.wpd
LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by John Turner Consulting, Inc.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of Norway Plains Engineering in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by John Turner Consulting, Inc. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to geotechnical design considerations.
TABLE 1

HM Machine
Rochester, NH

Recommended Soil Gradation & Compaction Specifications

**Clean Granular Fill**
(Select Crushed Gravel Fill)

<table>
<thead>
<tr>
<th>SIEVE SIZE</th>
<th>PERCENT PASSING BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inch</td>
<td>100</td>
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<tr>
<td>3/4 inch</td>
<td>60-90</td>
</tr>
<tr>
<td>No. 4</td>
<td>20-70</td>
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<tr>
<td>No. 200</td>
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**NOTE:**
For minimum 8-inch base below Concrete Floor Slabs (in heated areas)
For minimum 12-inch base for concrete slabs exposed to frost
For minimum 20-inch base below entrances, ramps, etc
Shall have less than 12% fines (No. 200 sieve) based on the Sand fraction

**Structural Fill**
(Gravelly SAND, trace Silt)

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<th>SIEVE SIZE</th>
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<tr>
<td>5 inch</td>
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<tr>
<td>3/4 inch</td>
<td>60-100</td>
</tr>
<tr>
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<td>20-85</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-10</td>
</tr>
</tbody>
</table>

**NOTE:**
For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A ⅜-inch crushed stone may be used in wet conditions

Structural Fill placed beneath the foundation should include the Footing Zone of Influence which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. All Structural Fill should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). Structural Fill should be compacted within ±3% of optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the State Building Code.
Notes:
1. Test borings were performed on October 15, 2015 under the direction of JTC.
2. Test boring locations should be considered approximate.
3. Refer to the Test Boring Logs for the subsurface conditions encountered at each boring location.
5. Not to scale.
SOIL DESCRIPTION
AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS
FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

DEPTH (ft)

LEGEND

ELEV

277.0

SAMPLES

IDENT

BLOW COUNT

PL (%) Ns (%) LL (%)

\(\text{FINES} (%)\) \(\text{SPT (N-value)}\) \(\text{ORG} (%)\)

1 10

20 30

40 50 60

70 80 90

0

D E P T H (ft)

SS-1

1-1-1-2

(N = 2)

SS-2

10-14-19-19

(N = 33)

SS-3

503'

Dark brown, silty fine to medium sand (SM) - frequent
organics; very loose, moist: TOPSOIL/FOREST MAT

Orange brown, silty fine to medium sand (SM) - trace coarse
sand, trace fine gravel; very loose, moist: SUBSOIL

Yellow brown, silty fine to coarse sand with fine gravel (SM) -
dense; moist: GLACIAL TILL

Highly-weathered rock

Boring terminated at 5.25 ft bgs due to practical refusal
(probable BEDROCK)

DRILL DATE(s): 10-15-2015
DRILLER: Great Works Pump & Test Boring
RIG TYPE: Track-Mounted CME 850
METHOD: Hollow-Stem Augers
HOLE DIAM.: 2.25" ID
SPTs: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.

LOGGED BY: RG CHECKED BY/DATE:

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE
SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE
CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS
SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA
MAY BE GRADUAL.

TEST BORING LOG

BORING NO.: B-1
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059 PAGE 1 OF 1
SOIL DESCRIPTION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

DEPTH (Ft)

ELEV (Ft)

LEGEND

SAMPLES

IDENT TYPE BLOW COUNT

PL (%) NM (%) LL (%) CL (%)

Gy FD RD AN OR %

FINES (%) SPT (N-value) ORG (%)

10 20 30 40 50 60 70 80 90 0

SS-1 1-14-7 (N = 5)

SS-2 14-15-15-18 (N = 20)

SS-3 15-16-17-20 (N = 33)

Highly-weathered rock (based on soil cuttings)

Boring terminated at 10 ft bgs due to practical refusal (probable BEDROCK)

Dark brown, silty fine to medium sand (SM) - frequent organics; loose; moist; TOPSOIL/FOREST MAT

Orange brown, silty fine to medium sand (SM) - trace coarse sand, trace fine gravel; loose; moist; SUBSOIL

Yellow brown with orange motting, silty fine to coarse sand with fine gravel (SM) - dense; moist; GLACIAL TILL

TEST BORING LOG

BORING NO.: B-2
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059

DRILL DATE(s): 10/15/2015
DRILLER: Great Works Pump & Test Boring
RIG TYPE: Track-Mounted CME 850
METHOD: Hollow-Stem Augers
HOLE DIAM: 2.25" ID
SPTs: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.

LOGGED BY: RG CHECKED BY/DATE: JTC

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.
SOIL DESCRIPTION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

- Dark brown, silty fine to medium sand (SM) - frequent organic deposits, very loose, moist: TOPSOIL/FOREST MAT
- Orange brown, silty fine to medium sand (SM) - trace coarse sand, trace fine gravel; very loose; moist: SUBSOIL
- Yellow brown with orange motling, silty fine to coarse sand with fine gravel (SM) - medium dense; moist: GLACIAL TILL

REMARKS:
- Highly weathered rock
- Boring terminated at 10.25 ft bgs due to practical refusal (probable BEDROCK)

SAMPLES

<table>
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<tr>
<th>IDENT</th>
<th>BLOW COUNT</th>
<th>PL (%)</th>
<th>NM (%)</th>
<th>LL (%)</th>
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<td>N = 3</td>
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<td>SS-2 5-9-13-16</td>
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<td>SS-3 10-14-14-11</td>
<td>N = 28</td>
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<tr>
<td>SS-4 503&quot;</td>
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DRILL DATE(s): 10-15-2015
DRILLER: Great Works Pump & Test Boring
RIG TYPE: Track-Mounted CME 850
METHOD: Hollow-Stem Augers
HOE DIA: 2.25" ID
SPTs: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.
LOGGED BY: RG CHECKED BY/DATE:

TEST BORING LOG
BORING NO.: B-3
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.
SOIL DESCRIPTION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

DEPTH (ft)

0
Dark brown, silty fine to medium sand (SM) - frequent organics, loose, moist; TOPSOIL/FOREST MAT
Reddish brown, silty fine to coarse sand (SM) - few fine gravel; loose; moist; SUBSOIL
Yellow brown, silty fine to medium sand (SM) - trace coarse sand, trace fine gravel, occasional cobbles; medium dense; moist; GLACIAL TILL

5
Olive brown, silty fine to coarse sand with fine gravel (SM) - dense, moist; GLACIAL TILL

10
Highly-weathered rock

15
Boring terminated at 8.5 ft bgs due to practical refusal (probable BEDROCK)

DEPTH (ft)

20

TEST BORING LOG

BORING NO.: B-4
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059

DRILL DATE(s): 10-15-2015
DRILLER: Great Works Pump & Test Boring
RG TYPE: Track-Mounted CME 850
METHOD: Hollow-Stem Augers
HOLE DIAM.: 2.25" ID
SPT's: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.

LOGGED BY: RG CHECKED BY/DATE:

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.
SOIL DESCRIPTION
AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS
FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

Dark brown, silty fine to medium sand (SM) - frequent
organics; loose; moist; TOPSOIL/FOREST MAT
Orange brown, silty fine to coarse sand (SM) - trace fine
gavel; loose; moist; SUBSOIL

Yellow brown, silty fine to medium sand (SM) - trace coarse
sand, trace fine gravel; occasional cobbles; medium dense;
moist; GLACIAL TILL

Olive brown mottled with orange brown, silty fine to coarse
sand with fine gravel (SM) - dense; moist; GLACIAL TILL

Boring terminated at 6.5 ft bgs due to practical refusal
(probably BEDROCK)

DRILL DATE(s): 10-15-2015
DRILLER: Great Works Pump & Test Boring
RIG TYPE: Track-Mounted CME 850
METHOD: Hollow-Stem Augers
HOLE DIAM.: 2.25" ID
SPTs: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.

TEST BORING LOG

BORING NO.: B-5
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE
SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE
CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS
SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA
MAY BE GRADUAL.
SOIL DESCRIPTION
AND REMARKS
SEE KEY TO SYMBOLS AND DESCRIPTIONS
FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

Depth (ft)
0
Dark brown, silty fine to medium sand (SM) - frequent
organic; very loose; moist: TOPSOIL/FOREST MAT
Orange brown, silty fine to medium sand (SM) - trace coarse
sand, trace fine gravel; very loose; moist: SUBSOIL.

Yellow brown with orange mottling, silty fine to coarse sand
(SM) - few fine gravel; medium dense; moist: GLACIAL TILL

5
Highly weathered rock

10
Boring terminated at 11.75 ft bgs due to practical refusal
(probably BEDROCK)

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

105

110

Depth (ft)

LEGEND
IDENT
SAMPLES
Depth (ft)

PL (%)
NM (%)
LL (%)
FINES (%) SPT (N-values) ORG (%)

BLOW COUNT

1-1-1-2 (N = 2)

6-8-9-11 (N = 17)

11-19-26-23 (N = 45)

18-22-21-50/4" (N = 45)

DRILL DATE(s): 10-15-2015
DRILLER: Great Works Pump & Test Boring
RIG TYPE: Track-Mounted CME 850
METHOD: Hollow Stem Augers
HOLE DIAM.: 2.25" ID
SPTs: Automatic Hammer
REMARKS: Backfilled with soil cuttings upon completion.

LOGGED BY: RG CHECKED BY/DATE:

TEST BORING LOG
BORING NO.: B-6
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059
PAGE 1 OF 1

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE
SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE
CONDITIONS AT OTHER LOCATIONS MAY BE DIFFER. STRATA INTERFACES (AS
SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA
MAY BE GRADUAL.
SOIL DESCRIPTION AND REMARKS

FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS SEE KEY TO SYMBOLS AND DESCRIPTIONS

Dark brown, silty fine to medium sand (SM) - frequent organics, loose; moist: TOPSOIL/FOREST MAT
Brown, silty fine to medium sand (SM) - trace coarse sand, trace fine gravel; occasional rootslets; loose; moist: SUBSOIL

Yellow brown with orange motting, silty fine to coarse sand (SM) - trace fine gravel; medium dense to dense; moist: GLACIAL TILL

Highly-weathered rock

Metallic gray, fine-grained, highly-weathered rock

Boring terminated at 18.5 ft bgs

TEST BORING LOG

BORING NO.: B-7
CLIENT: Norway Plains Associates
PROJECT: Proposed HM Machine Building
LOCATION: Rochester, New Hampshire
JTC PROJ. NO.: 15-15-059

THIS TEST BORING LOG PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.
## Major Divisions

<table>
<thead>
<tr>
<th>Coarse Grained Soils (More than 50% retained on No. 200 sieve)</th>
<th>Clean Gravels (More than 50% of coarse fraction retained on No. 4 sieve)</th>
<th>Gravels With Fines (More than 12% fines)</th>
<th>Sands (50% or more of coarse fraction passes the No. 4 sieve)</th>
<th>Sands With Fines (More than 12% fines)</th>
<th>Silts And Clays (Liquid Limit Less than 50)</th>
<th>Silts And Clays (Liquid Limit of 50 or Greater)</th>
<th>Highly Organic Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAVELS</td>
<td>CLEAN GRAVELS</td>
<td>GRAVELS WITH FINES</td>
<td>SANDS</td>
<td>SANDS WITH FINES</td>
<td>SILTS AND CLAYS</td>
<td>SILTS AND CLAYS</td>
<td>HIGHLY ORGANIC SOILS</td>
</tr>
<tr>
<td>GW</td>
<td>GP</td>
<td>GM</td>
<td>GC</td>
<td>GC</td>
<td>ML</td>
<td>CL</td>
<td>OL</td>
</tr>
<tr>
<td>Well graded gravels or gravel-sand mixtures; trace or no fines.</td>
<td>Poorly graded gravels or gravel-sand mixtures; trace or no fines.</td>
<td>Silty gravels or gravel-sand-silt mixtures.</td>
<td>Clayey gravels or gravel-sand-clay mixtures.</td>
<td></td>
<td>Inorganic silts or rock flour. Non-plastic or very slightly plastic. PI &lt; 4 or plots below &quot;A&quot; line.</td>
<td>Inorganic lean clay. Low to medium plasticity. PI plots on or above &quot;A&quot; line.</td>
<td>Organic silts, clays, and silty clays. Low to medium plasticity.</td>
</tr>
</tbody>
</table>

## General Descriptions

- **Gravels**
  - GW: Well graded gravels or gravel-sand mixtures; trace or no fines.
  - GP: Poorly graded gravels or gravel-sand mixtures; trace or no fines.
  - GM: Silty gravels or gravel-sand-silt mixtures.
  - GC: Clayey gravels or gravel-sand-clay mixtures.

- **Sands**
  - SW: Well graded sands or sand-gravel mixtures; trace or no fines.
  - SP: Poorly graded sands or sand-gravel mixtures; trace or no fines.
  - SM: Silty sands or sand-silt mixtures.

- **Silt and Clays**
  - ML: Inorganic silts or rock flour. Non-plastic or very slightly plastic. PI < 4 or plots below "A" line.
  - CL: Inorganic lean clay. Low to medium plasticity. PI plots on or above "A" line.
  - OL: Organic silts, clays, and silty clays. Low to medium plasticity.
  - CH: Inorganic fat clay. High plasticity. PI plots on or above "A" line.

- **Highly Organic Soils**
  - PT: Peat and other highly organic soils. Decomposed vegetable tissue. Fibrous to amorphous texture.

## Typical Symbols

- Shelby Tube
- Auger Cuttings
- Standard Split Spoon Sample
- 3" Split Spoon Sample
- Rock Core
- Dynamic Cone Penetrometer
- Vane Shear
- Bulk/Grab Sample
- Geoprobe Sample
- Sonic or Vibro-Core Sample
- Water Table at Time of Drilling
- Water Table After 24 Hours

## Correlation of Standard Penetration Test (SPT) with Relative Density and Consistency

<table>
<thead>
<tr>
<th>GRAVEL, SAND, &amp; SILT (NON-PLASTIC)</th>
<th>SILT (PLASTIC) &amp; CLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Value</td>
<td>Relative Density</td>
</tr>
<tr>
<td>0 - 4</td>
<td>Very Loose</td>
</tr>
<tr>
<td>4 - 10</td>
<td>Loose</td>
</tr>
<tr>
<td>10 - 30</td>
<td>Medium Dense</td>
</tr>
<tr>
<td>30 - 50</td>
<td>Dense</td>
</tr>
<tr>
<td>Over 50</td>
<td>Very Dense</td>
</tr>
<tr>
<td>Over 30</td>
<td>Over 4000</td>
</tr>
</tbody>
</table>

**SPT Notes:** WR = Weight of Rods; WH = Weight of Hammer

## Terms Describing Soils

- Terms Describing Soils (excludes particles > 3", organics, debris, etc.)
  - Trace: Particles present, but < 5%
  - Few: 5% to 15%
  - Little: 15% to 25%
  - Some: 25% to 50%

## Terms Describing Moisture

- Terms Describing Moisture
  - Dry: Absence of moisture; dusty
  - Moist: Damp, but no visible water
  - Wet: Visible/free water

## Terms Describing Structure

- Terms Describing Structure
  - Layer: > 3" thick
  - Seam: 1/16" to 3" thick
  - Parting: < 1/16" thick

## Key to Symbols and Descriptions

[Image of key to symbols and descriptions]

**References:**

- ASTM D 2487 (Unified Soil Classification System)
Particle Size Distribution Report

<table>
<thead>
<tr>
<th>GRAIN SIZE - mm.</th>
<th>% Cobble</th>
<th>% Gravel</th>
<th>% Sand</th>
<th>% Fines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coarse</td>
<td>Fine</td>
<td>Coarse</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>5.2</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**TEST RESULTS**

<table>
<thead>
<tr>
<th>Opening Size</th>
<th>Percent Finer</th>
<th>Spec.* (Percent)</th>
<th>Pass? (X=Fall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>95.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>95.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>94.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>93.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#20</td>
<td>88.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#40</td>
<td>71.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#50</td>
<td>56.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#100</td>
<td>28.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#200</td>
<td>15.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (no specification provided)

**Material Description**

Silty sand

**Atterberg Limits (ASTM D 4318)**

\[
\text{PL} = \ \text{LL} = \ \text{Pl} =
\]

**Classification**

USCS (D 2487)= SM  AASHTO (M 145)=

**Coefficients**

\[
\begin{align*}
D_{60} &= 0.9553 \\
D_{60} &= 0.6790 \\
D_{60} &= 0.3251 \\
D_{10} &= 0.2619 \\
D_{10} &= 0.1599 \\
D_{10} &= 0.015 \\
C_{u} &=
\end{align*}
\]

**Remarks**

In-Situ Moisture: 13.9%

**Date Received:** 10-15-15  **Date Tested:** 10-19-15

**Tested By:** Ted Moody  **Checked By:** Travis Carpenter  **Title:** Director of Geotech. Eng.

**Location:** B-1(S-1)  **Sample Number:** 15-1256  **Depth:** 0'-2'  **Date Sampled:** 10-15-15

**Client:** Norway Plains Associates  **Project:** HM Machine - 127 Airport Drive, Rochester, NH  **Project No:** 15-15-059  **Figure:** 001
Particle Size Distribution Report

<table>
<thead>
<tr>
<th>GRAIN SIZE - mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Cobble Coarse</td>
</tr>
</tbody>
</table>

TEST RESULTS

<table>
<thead>
<tr>
<th>Opening Size</th>
<th>Percent Finer</th>
<th>Spec.* (Percent)</th>
<th>Pass? (X=Fail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>91.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>85.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>79.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>71.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#20</td>
<td>64.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#40</td>
<td>57.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#50</td>
<td>51.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#100</td>
<td>37.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#200</td>
<td>23.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material Description

Silty sand with gravel

Atterberg Limits (ASTM D 4318)

<table>
<thead>
<tr>
<th>PL=</th>
<th>LL=</th>
</tr>
</thead>
</table>

Classification

USCS (D 2487)= SM

AASHTO (M 145)=

Coefficients

D_90= 11.7456
D_60= 9.1587
D_30= 0.2719
D_10= 0.1031
C_u= 0.5393
C_c=

Remarks

In-Situ Moisture: 9.1%

Date Received: 10-19-15

Date Tested: 10-19-15

Tested By: Ted Moody

Checked By: Travis Carpenter

Title: Director of Geotech. Eng.

Date Sampled: 10-15-15

Location: B-2(8-3)

Sample Number: 15-1257

Depth: 5'-7'

Client: Norway Plains Associates

Project: HM Machine - 127 Airport Drive, Rochester, NH

Project No: 15-15-059

Figure 002
Particle Size Distribution Report

<table>
<thead>
<tr>
<th>GRAIN SIZE - mm.</th>
<th>% Cobble</th>
<th>% Gravel</th>
<th>% Sand</th>
<th>% Fines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coarse</td>
<td>Fine</td>
<td>Coarse</td>
<td>Medium</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>4.1</td>
<td>2.8</td>
<td>19.5</td>
</tr>
</tbody>
</table>

### TEST RESULTS

<table>
<thead>
<tr>
<th>Opening Size</th>
<th>Percent Finer</th>
<th>Spec.* (Percent)</th>
<th>Pass? (X=Fall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>98.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>98.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>95.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>93.1</td>
<td></td>
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<td>#20</td>
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</tr>
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<td>#100</td>
<td>48.2</td>
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<td></td>
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<tr>
<td>#200</td>
<td>30.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (no specification provided)

### Material Description

- Silty sand

### Atterberg Limits (ASTM D 4318)

- PL=
- LL=
- PI=

### Classification

- USCS (D 2487)= SM
- AASHTO (M 145)=

### Coefficients

- D_90= 1.2266
- D_60= 0.7934
- D_30= 0.2351
- D_10= 0.1608
- C_U= 0.68
- C_C= 0.68

### Remarks

- In-Situ Moisture: 7.6%

### Date Received: 10-16-15  Date Tested: 10-19-15

- Tested By: Ted Moody
- Checked By: Travis Carpenter
- Title: Director of Geotech. Eng.

### Location: B-4(S-2)  Sample Number: 15-1258  Depth: 2'-4'

### Date Sampled: 10-15-15

- Client: Norway Plains Associates
- Project: HM Machine - 127 Airport Drive, Rochester, NH

### Project No: 15-15-059  Figure: 003
Particle Size Distribution Report

<table>
<thead>
<tr>
<th>GRAIN SIZE - mm.</th>
<th>% Cobble</th>
<th>% Gravel</th>
<th>% Sand</th>
<th>% Fines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coarse</td>
<td>Fine</td>
<td>Coarse</td>
<td>Medium</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>7.2</td>
<td>7.0</td>
<td>19.9</td>
</tr>
</tbody>
</table>

TEST RESULTS

<table>
<thead>
<tr>
<th>Opening Size</th>
<th>Percent Finer</th>
<th>Spec.* (Percent)</th>
<th>Pass? (X=Fail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>98.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>97.6</td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<tr>
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<td>85.8</td>
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<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>#40</td>
<td>65.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#50</td>
<td>57.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#100</td>
<td>34.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#200</td>
<td>17.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material Description

Silty sand

Atterberg Limits (ASTM D 4318)

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>USCS (D 2487)= SM</td>
</tr>
<tr>
<td>AASHTO (M 145)=</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_90= 3.4110</td>
</tr>
<tr>
<td>D_60= 1.7931</td>
</tr>
<tr>
<td>D_30= 0.1284</td>
</tr>
<tr>
<td>D_10= 0.2391</td>
</tr>
<tr>
<td>Cu=</td>
</tr>
<tr>
<td>Cc=</td>
</tr>
</tbody>
</table>

Remarks

In-Situ Moisture: 6.2%

Date Received: 10-16-15     Date Tested: 10-19-15

Tested By: Ted Moody
Checked By: Travis Carpenter
Title: Director of Geotech. Eng.

Date Sampled: 10-15-15

Location: B-6(S-2)     Sample Number: 15-1259     Depth: 2'-4'

Client: Norway Plains Associates     Project: HM Machine - 127 Airport Drive, Rochester, NH

Project No: 15-15-059     Figure 004
## Particle Size Distribution Report

### GRAIN SIZE - mm.

<table>
<thead>
<tr>
<th>% Cobble</th>
<th>% Gravel</th>
<th>% Sand</th>
<th>% Fines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coarse</td>
<td>Fine</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>26.5</td>
<td>48.8</td>
<td>12.2</td>
</tr>
</tbody>
</table>

### TEST RESULTS

<table>
<thead>
<tr>
<th>Opening Size</th>
<th>Percent Finer</th>
<th>Spec.(^\ast) (Percent)</th>
<th>Pass? (X=Fail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>96.5</td>
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<tr>
<td>#10</td>
<td>87.5</td>
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</tr>
<tr>
<td>#200</td>
<td>12.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^\ast\) (no specification provided)

### Material Description

- **Silty sand**

### Atterberg Limits (ASTM D 4318)

- **PL**
- **LL**
- **Pl**

### Classification

- USCS (D 2487) = SM
- AASHTO (M 145) =

### Coefficients

- **D_90** = 2.4535
- **D_60** = 1.6428
- **D_30** = 0.1730
- **D_10** =
- **C_u** =
- **C_c** =

### Remarks

- In-Situ Moisture: 8.1%

### Date and Information

- **Date Received:** 10-16-15
- **Date Tested:** 10-19-15
- **Tested By:** Ted Moody
- **Checked By:** Jeff Young
- **Title:** Lab Manager
- **Date Sampled:** 10-15-15

### Location

- **Location:** B-7(S-4)
- **Sample Number:** 15-1260
- **Depth:** 10'-12'

### Client

- **Client:** Norway Plains Associates

### Project

- **Project:** HM Machine - 127 Airport Drive, Rochester, NH

### Project No.

- **Project No:** 15-15-059

### Figure

- **Figure:** 005
SITE PHOTOGRAPHS

PROPOSED HM MACHINE BUILDING
ROCHESTER, NEW HAMPSHIRE

Site from Airport Drive, To North

Mobilizing to B-3, To Northwest

Drilling operations, typical

Spoon sample of Glacial Till, typical

Weathered rock in spoon sample, typical

Rock coring operations, typical
Exhibit C: Contract Documents (Samples)

REDC Manufacturing Building, Design-Build Contractor RFP

AIA A141 - 2014 Standard Form of Agreement Between Owner and Design-Builder
AIA A201 - 2017 General Conditions for the Contract for Construction
Design-build proposal for 24,000 square foot manufacturing building
Bid #20-35

Total bid amount for Rochester Child Care Center fire sprinklers upgrades including all labor and materials per specifications.

$ ____________________________________________
(cost in numbers)

$ ____________________________________________
(cost in words)

COMPANY NAME: ____________________________________________

CONTACT PERSON: ____________________________________________

ADDRESS: __________________________________________________

TELEPHONE# __________________ FAX# __________________ E-MAIL ______

SIGNATURE: ________________________________________________

Bid results will be posted after 48 hours on the City of Rochester's web site:  
www.rochesternh.net or will be available by request via e-mail at the following address:  
purchasing@rochesternh.net