

**REQUEST FOR PROPOSALS**

**FOR CONSTRUCTION OF**

**PUBLIC SAFETY BUILDING PARKING LOT IMPROVEMENTS**

**FOR THE**

**TOWN OF MOULTONBOROUGH, NEW HAMPSHIRE**

**JULY 2016**



**KV Partners**  
*CONSULTING ENGINEERS*

Gilford, New Hampshire  
New Boston, New Hampshire  
[www.kvpllc.com](http://www.kvpllc.com)

**REQUEST FOR PROPOSALS**

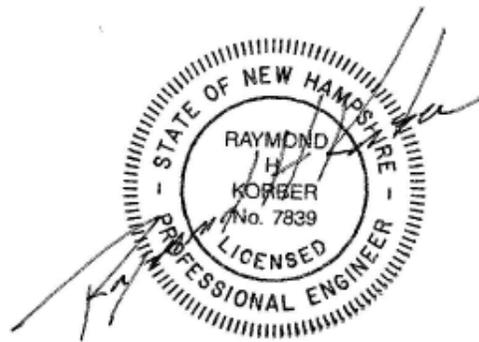
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## **INVITATION TO BID**

### **PUBLIC SAFETY BUILDING PARKING LOT IMPROVEMENTS MOULTONBOROUGH, NEW HAMPSHIRE**

Sealed Bids for the construction of parking lot improvements for the Public Safety Building located in Moultonborough, New Hampshire, will be received until 2:00 p.m. on Wednesday, August 24, 2016 in the Offices of the SelectBoard, 6 Holland Street, PO Box 139, Moultonborough, NH 03254 at which time they will be opened and publicly read aloud. Your Bid envelope must be marked with the project, item or service being sought, and the date the Bids are due as indicated below. If you send your Bid by mail you should put it into a separate sealed envelope, marked as required, inside the mailing envelope to safeguard against it being opened in error. The sealed envelope shall be marked:

Request for Proposals  
Public Safety Building Parking Lot Improvements  
July 2016

The work includes providing all labor, equipment and materials to reconstruct the existing parking lot at the Moultonborough Public Safety Building, Moultonborough, New Hampshire. All work shall be completed on Town-owned property at the Public Safety Building or designated rights-of-way. The work will be completed in two phases. Phase 1 will be completed in 2016; Phase 2 is expected to be completed in 2017.

Each bid shall be accompanied by a bid security in the form of a certified, treasurer's or cashier's check or bid bond in the sum of 5 percent of the bid price. No bidder may withdraw his/her bid for a period of 60 days (excluding Saturdays, Sundays, and legal holidays) after the actual date of the opening of the bids.

A Request for Proposal with details on the project, instructions for bidding, and conditions of the construction contract, is available at [www.moultonboroughnh.gov](http://www.moultonboroughnh.gov) (click on Paid, Volunteer and Contract Openings) or said offices during normal business hours.

A voluntary pre-bid conference will be held at 10:00 a.m. on Friday, August 12, 2016 at Moultonborough Town Hall. Any questions with respect to this invitation must be received, in writing by mail (above address), fax (603.476.5835) or email ([wjohnson@moultonboroughnh.gov](mailto:wjohnson@moultonboroughnh.gov)), by Walter Johnson, Town Administrator, no later than 4:00 p.m. on Wednesday, August 17, 2016.

The Town of Moultonborough reserves the right to reject any and all Bids, and waive any minor or non-material informalities, if deemed to be in its best interests.

## **REQUEST FOR PROPOSALS**

### **PUBLIC SAFETY BUILDING PARKING LOT IMPROVEMENTS MOULTONBOROUGH, NEW HAMPSHIRE**

#### **Invitation to Bid**

The Town of Moultonborough, New Hampshire (Owner) is seeking to retain a firm to reconstruct the existing parking lot at the Moultonborough Public Safety Building. All work shall be completed on Town-owned property at the Public Safety Building. The work will be completed in two phases. Phase 1 will be completed in 2016; Phase 2 is expected to be completed in 2017.

Sealed Bids for the construction of parking lot improvements for the Public Safety Building located in Moultonborough, New Hampshire, will be received until 2:00 p.m. on Wednesday August 24, 2016 in the Offices of the SelectBoard, 6 Holland Street, PO Box 139, Moultonborough, NH 03254 at which time they will be opened and publicly read aloud. Your Bid envelope must be marked with the project, item or service being sought, and the date the Bids are due as indicated below. If you send your Bid by mail you should put it into a separate sealed envelope, marked as required, inside the mailing envelope to safeguard against it being opened in error. The sealed envelope shall be marked:

Request for Proposals  
Public Safety Building Parking Lot Improvements  
July 2016

#### **Instructions to Bidders**

1. All Bids must be submitted in the place, time and manner as set forth in the Invitation to Bid.
2. Complete sets of documents must be used and submitted in preparing the Bid. Documents shall include: the Bid Form and Statement of Bidders Qualifications as herein provided. Failure to submit any part of the requested information may be deemed by the Owner as a non-responsive Bid. The Owner does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete documents.
3. All Bids must be made on the required Bid Form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid Form must be fully completed and executed when submitted. Only one copy of the Bid Form is required.
4. Bidders are cautioned that it is the responsibility of each individual Bidder to assure that his Bid is in the possession of a responsible representative prior to the stated time and at the place of the Bid Opening. The Owner is not responsible for Bids delayed by mail and/or delivery services.
5. Once the Bid is submitted and received by the Owner, the Bidder agrees that he may not and will not withdraw his Bid within 60 business (excluding Saturdays, Sundays, and legal holidays) days after the actual date of the opening of Bids.

6. A Bid must be accompanied by a Bid security made payable to the Owner in the amount of 5 percent of the total amount of the Bid in the form of a certified check, bank money order or Bid Bond (on the form as herein provided) issued by a surety. The certified check, bank money order or Bid Bond may be held by the Owner as security for the fulfillment of the Bidder's agreements as herein set forth and as set forth in the Bid. Should the Bidder fail to fulfill such agreements his Bid check or money order shall become the property of the Owner or if a Bid Bond was furnished the Bid Bond shall become payable to the Owner, as liquidated damages. As soon as the Bid prices have been compared, the Owner will return the Bid security of all except the three lowest responsible Bidders. When the Agreement is executed, the Bid security of the two remaining unsuccessful Bidders will be returned. The Bid security of the successful Bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, after which it will be returned. None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the Agreement has been executed by both the Owner and the accepted Bidder.
7. The Owner may reject Bids which in its sole judgment are incomplete, conditional, obscure, not responsive, which contain additions not called for, erasures not properly initialed, alterations, or other similar irregularities; or the Owner may waive such omissions, conditions or irregularities. The Owner reserves the right to reject any or all Bids and waive any minor or non-material informalities, should the Owner deem it to be in the public interest to do so.
8. If, at the time this contract is to be awarded, all Bids submitted by responsible Bidders exceed the amount of the funds available to finance the contract, the Owner may reject all bids or take any other action deemed to be in the best interest of the Owner.
9. No award will be made to any Bidder who cannot satisfy the Owner that he has sufficient ability and experience in the class of Work to be completed and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time period specified. The Owner's decision or judgment on these matters shall be final, conclusive, and binding.
10. The Owner may make such investigations as it deems necessary, and the Bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.
11. Each Bidder is responsible for inspecting the site. Bidders must satisfy themselves by personal examination of the site and by such other means as they may wish, as to the actual conditions existing at the site, the character and requirements of the Work, the difficulties attendant upon the execution of the Work, and the accuracy of all estimated quantities stated in the Bid. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligations with respect to his Bid.
12. All information given relating to subsurface and other conditions, natural phenomena, existing utilities, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of Bidders and is not guaranteed. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing utilities or other structures encountered during construction will be the same as those indicated on any information provided by the Owner.

13. It is agreed and understood that no Bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner, as a basis of or ground for any claim or demand against the Owner, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing utilities or other structures actually encountered during the construction of the Work.
14. Any information given to Bidders other than by means of Addenda, is given informally for the convenience of the Bidder only and is not guaranteed. The Bidder agrees that such information shall not be used as the basis of any claim or demand against the Owner.
15. Any supplemental instructions and information will be in the form of written Addenda which, if issued, will be emailed, faxed or mailed to all prospective Bidders at the respective addresses furnished for such purposes. The Owner will send a copy of Addenda to those prospective Bidders and parties known to have taken out a Request for Proposals at the time the Addenda is issued. Failure of any Bidder to receive any such Addendum or interpretation shall not relieve any Bidder from any obligation under Bidder's Bid as submitted.
16. The Bidder whose Bid is accepted will be required and agrees to duly execute an agreement to complete the Work. Refer to Appendix C for agreement form.
17. The Bidder whose Bid is accepted agrees to furnish a performance bond and a payment bond each in the amount of 100 percent of the contract price. Bonds shall be duly executed by the Bidder as principal and by a surety company approved by the Owner. Surety company shall be qualified to do business under the laws of the State of New Hampshire. The premiums for such Bonds shall be paid by the Contractor.
18. The Bidder agrees to furnish certificates covering all insurances.
19. A voluntary Pre-Bid Conference will be held at the time and location indicated in the Invitation to Bid. Representatives of the Owner will be present to discuss the project. Oral statements made at the Pre-Bid Conference may not be relied upon and will not be binding or legally effective.
20. The Owner reserves the right to award the contract to a Bidder that is not the lowest responsible and responsive Bidder. Although the Bid price will be a substantial factor in the Owner's award, the final award will be based on the Owner's determination, in its sole discretion, of which Bid will be in the best interest of the Owner.

### **Summary of Work**

1. The Contractor shall provide all labor, equipment and materials to complete the construction of the Public Safety Building Parking Lot Improvements project. In general the contractor shall provide:
  - a. Permits as required by the Town of Moultonborough. Fees for local permits shall be waived.
  - b. Field survey and engineering.
  - c. Materials and compaction testing.
  - d. Providing all traffic control and maintenance of detours.

- e. Clearing and grubbing, stripping and stockpiling and protection of vegetation, trees, plantings, structures and other surface features.
  - f. Locating, protecting and shoring all existing utilities. Coordinating all activities with appropriate utility authority.
  - g. Repairing and/or relocating any utilities broken or conflicting with construction to remain in place.
  - h. Abandonment, removal, and disposal of existing utilities and structures to be replaced.
  - i. Providing, maintaining and operating all temporary facilities such as dams, conduits and pipelines to temporarily redirect flows from drains and water courses to a suitable point of discharge so as not to flow upon the work or create a nuisance.
  - j. Excavating, filling, backfilling, grading and compacting for installation of utilities. Removal and disposal of excess excavated material.
  - k. Furnishing, installing and cleaning all pipe, conduit and appurtenances.
  - l. Excavating, filling, backfilling, grading and compaction of parking lot base courses. Removal and disposal of all excess excavated material.
  - m. Furnishing, placing and compacting hot bituminous pavement for parking lot and curb. Performing all saw cutting, tack coat, cold planning, infrared heating and adjustment of castings.
  - n. Replacement and restoration of disturbed pavement surfaces, utilities, plantings, grass, structures, posts, fences, signs, bounds, and other surface features within the limits of work and areas outside the limits of work disturbed by construction operations.
  - o. Slope stabilization, turf establishment, site restoration and clean-up.
2. Work By Others: The following major items of work shall be completed by others. Contractor shall be responsible for coordinating and scheduling all activities with all third party contractor(s) to minimize conflicts and to match and facilitate proper connections to the work. Contractor shall be responsible for coordinating with appropriate utility authorities who are impacted by Contractor operations.
- a. Pavement markings.

### **Project Execution**

In general, the project will be completed as follows. By submission of a Bid, the Contractor agrees to the terms and conditions as herein stated.

1. Submit performance and payment bonds, insurance certificates and execute and submit the agreement form.
2. Attend a meeting with the Owner to discuss outstanding issues, Owner concerns, project requirements, project schedule, budgetary constraints, and the prosecution of the scope of work.
3. Submit a work plan to the Owner for review. The work plan shall include: names of consultants, suppliers and vendors; name and contact information for project supervisor and after-hours

response personnel; project schedule; and schedule of values. Project schedule and schedule of values shall be in format as approved by the Owner. Additional information may be requested by the Owner; Contractor shall promptly respond to request for additional information.

4. Attend a preconstruction meeting to discuss the execution of the construction phase of the project.
5. Furnish all labor, equipment and materials necessary to complete the construction of the Public Safety Building Parking Lot Improvements project complete and in-place and render the project and all its components operational and functionally and legally useable for its intended purpose. The Contractor shall be responsible for all construction operations and activities.
6. Attend progress meetings with the Owner to discuss project progress as required. Meetings will be scheduled by the Owner.
7. Submittals:
  - a. Shop Drawings, Product Data and Samples: Refer to Technical Specifications in Appendix D.
  - b. Schedule: Submit initial schedule at the preconstruction conference. This schedule shall include the proposed methods of construction, sequence of work and the time the Contractor proposes to complete the various items of work, within the time specified in the contract. After review, resubmit revised schedule within 7 calendar days. Submit revised progress schedules for review and approval, at a minimum, with each application for payment or whenever, in the Engineer's opinion, a timelier update is warranted.
  - c. Submittals shall bear the Contractor's certification that he has reviewed, checked and approved the submittal, that they are consistent with the requirements of the project and with the provisions of the Contract Documents, and that the submittal has been reviewed and verified for materials, products required, field dimensions and measurements, field construction criteria, and conformance with the Contract Documents. Contractor shall also certify that the work represented by the submittal is recommended by the Contractor and that the Contractor's warranty shall apply.
  - d. Contractor shall be responsible for the preparation, coordination and review of all submittals prior to delivery to Engineer. All submittals by subcontractors shall be sent directly to the Contractor for approval. Contractor shall be responsible for their submission at the proper time so as to prevent delays in the work.
  - e. All submittals shall be complete and submitted in advance of construction requirements to provide no less than 15 days (excluding Saturdays, Sundays and legal holidays) for review from the time the submittal is received by the Engineer. Contractor shall make submittals in advance of the 15 days for review of major equipment and items that require review by more than one engineering discipline. Engineer will respond to submittals with reasonable promptness.
  - f. Review by the Engineer is only for general conformance with the design concept of the project and general compliance with the information given in the RFP. Any action indicated is subject to the requirements of the RFP. Engineer assumes no responsibility for identifying deviations from the RFP that are not clearly identified in submittals. Contractor is responsible for details and accuracy, for dimensions to be confirmed and correlated at the job site, for information that pertains to the fabrication processes or to techniques of construction, for coordination of the work of all trades, and for the satisfactory performance of all work.

- g. The review and approval of submittals by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the contract. All risks of error and omission are assumed solely by the Contractor and not by the Engineer or Owner.
8. Permits: Comply with the terms and conditions of all permits issued for the project. Refer to Section 01500 in Appendix D.
9. Schedule and Contract Times: Work will commence at the time and for the duration set by the Owner. It is expected that the time for construction for Phase 1 will not exceed 3 weeks and work for Phase 2 will not exceed 4 weeks. Phase 1 shall be completed on or before October 21, 2016. Phase 2 shall commence after April 16, 2017 and shall be completed on or before June 9, 2017. Additional requirements shall include:
- a. Refer to Agreement, Article 3 in Appendix C.
  - b. The rate of progress shall be satisfactory to the Owner and the Engineer. The Owner and Engineer reserve the right to modify any schedule as required to meet the prevailing conditions.
  - c. Should the prosecution of the work for any reason be discontinued, the Contractor shall notify the Owner and Engineer at least 48 hours in advance of resuming operations.
  - d. Normal construction activity shall be limited to normal business hours of 7:00 AM to 5:30 PM, Monday through Thursday (except holidays) unless otherwise approved by the Engineer.
  - e. Work in streets, roadways and areas adjacent to them shall cease at noon on days before legal holidays and at noon on Fridays prior to Monday holidays.
  - f. Owner will occupy the site during the entire period of construction for the conduct of normal operations. The Contractor shall cooperate with the Owner to minimize conflicts and to facilitate Owner's operations. Contractor shall schedule the work to accommodate this requirement.
10. Substantial Completion: The following major items of work shall be completed for substantial completion:
- a. Removal and disposal of all excess materials.
  - b. Installation of pavement. Once pavement is installed, no further trenching or excavating will be allowed.
  - c. Site restoration.

### **General Conditions of the Contract**

1. Project Work Identification: The Contractor shall furnish all labor, equipment, materials, supplies and plant, and do all operations necessary to complete all work to construct the Public Safety Building Parking Lot Improvements project as shown on the Drawings, as herein specified and as directed by the Owner. All supervision, overhead items, protection and precautions, temporary facilities and controls and all other costs, incidental to the Work, complete, and as specified, are included. Contractor shall perform all work necessary to construct the project and to render the project and all its components operational and functionally and legally useable for the intended purpose. Contractor shall complete all site restoration requirements and leave the site in a manner acceptable to the Owner. A complete working job shall be produced whether or not any particular wording or direction is omitted or not clearly stated.

2. Payment Procedures:

- a. Refer to Agreement, Article 5 in Appendix C.
- b. If requested by Owner, the application for payment shall be accompanied by a bill of sale, invoice, or other documentation (satisfactory to Owner) warranting that Owner has received materials and equipment free and clear of all liens.
- c. The final application for payment shall be accompanied by a list of all claims against the Owner that Contractor believes are unsettled, and complete and legally effective releases or waivers (satisfactory to the Owner) of all lien rights arising out of or liens filed in connection with the Work.
- d. Refer to Section 01200 in Appendix D.
- e. Thirty days from the date the application for payment has been approved by the Owner, the amount owed will become due, and when due, will be paid by Owner to Contractor. The payment amount shall be subject to the terms and conditions as set forth in this RFP.

3. Insurance:

- a. Prior to commencing work, and throughout the term of this Contract, the Contractor shall obtain, and maintain, in the limits and under the conditions set forth below, insurance coverage for the following types and levels of coverage:
  - i. Workers Compensation: Statutory
  - ii. Automobile and Equipment: \$1 Million/\$1 Million
  - iii. Property Damage: \$1 Million/\$2 Million
  - iv. General Liability: \$1 Million/\$2 Million
- b. The Owner shall be named as certificate holder and shall be included as additional insured.
- c. The Owner shall be notified no earlier than thirty (30) days before any such policy is cancelled, altered or materially changed.
- d. If a subcontractor or subconsultant is used for any portion of the work, the Contractor will provide to the Owner a similar certificate, in similar amounts and under similar conditions, from the subcontractor.
- e. Should the Contractor fail to maintain such Workers' Compensation insurance, and should the Owner be found liable to principals, officers, employees and agents of the Contractor, the Owner may recover from the Contractor the amount of any medical costs and compensation paid to or on behalf of the principals, officers, employees and agents of the Contractor and any expenses relating to claims filed under the provisions of Workers' Compensation.

4. Specific Representations: Contractor, by executing an agreement, and without superseding, limiting, or restricting any other representation or warranty set forth elsewhere, or implied by operation of law, makes the following express representations to the Owner:

- a. Contractor is fully qualified to act as the general contractor for the project.
- b. Contractor will maintain all necessary licenses, permits or other authorizations necessary to act

as Contractor for the project until Contractor's duties under the contract have been fully satisfied.

- c. Contractor has the expertise, experience, and knowledge as well as the necessary plant, personnel and financial capability to perform the Work in accordance with the terms of this RFP and the Agreement.
  - d. Contractor assumes full responsibility to the Owner for the improper acts and omissions of its subcontractors and subconsultants or others employed or retained by Contractor in connection with the project.
5. Compliance: Contractor shall be responsible for ensuring the project complies with all local, state and federal regulatory requirements.
6. Correction Period: If within one year after the date of substantial completion, any work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by the Owner is found to be defective, Contractor shall promptly, without cost to the Owner and in accordance with the Owner's written instructions:
- a. Repair such defective land or areas; or
  - b. Correct such defective work; or
  - c. If the defective work has been rejected by the Owner, remove it from the project and replace it with work that is not defective, and
  - d. Satisfactorily correct or repair or remove and replace any damage to other work, to the work of others or other land or areas resulting therefrom.

If Contractor does not promptly comply with the terms of the Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, the Owner may have the defective work corrected or repaired or may have the rejected work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) shall be paid by Contractor.

Where defective work (and damage to other work resulting therefrom) has been corrected or removed and replaced, the correction period hereunder with respect to such work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

7. Indemnification: To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Owner, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of the Owner from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom but only to the

extent caused by any negligent act or omission of Contractor, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the work or anyone for whose acts any of them may be liable.

## **BID FORM**

### **BID INFORMATION**

- A. Project Identification: Public Safety Building Parking Lot Improvements
- B. Proposal Of: \_\_\_\_\_ (hereinafter referred to as Bidder) organized and existing under the laws of the State of \_\_\_\_\_ doing business as a \_\_\_\_\_ (specify corporation; partnership; or individual).
- C. This Bid is Submitted To: Town of Moultonborough, New Hampshire (Owner)

### **BIDDER'S REPRESENTATIONS**

- A. Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Owner to perform and furnish all Work as specified or indicated in the Request for Proposals (RFP) for the bid price and within the contract times stated and in accordance with all other terms and conditions of the RFP.
- B. Bidder hereby agrees to sign and deliver the required number of counterparts of the agreement form (to be provided by the Owner) with the required performance and payment bonds, certificates of insurance and other documents within 10 calendar days after the date of Owner's notice of award.
- C. Bidder accepts all of the terms and conditions of the invitation to bid, instructions to bidders and general conditions of the contract as specified in the RFP.
- D. Bidder hereby agrees that this Bid will remain subject to acceptance for 60 business (excluding Saturday, Sunday and legal holidays) days, after the actual date of the opening of the Bid.
- E. Bidder, by submittal of this Bid, agrees with the Owner that the amount of the Bid security deposited with this Bid fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the Bidder to fulfill his agreements as herein provided. Should the Bidder fail to fulfill any of his agreements as herein set forth, it is agreed that the amount stated in the Bid Bond shall be paid as damages to the Owner by the Surety. If a certified check was issued in lieu of a Bid Bond, the Owner shall have the right to retain, as damages, the certified check which shall become the Owner's property.
- F. In submitting this Bid, Bidder further represents and declares the following:
  - 1. Bidder has examined and carefully studied the RFP.
  - 2. The RFP is generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

- Bidder acknowledges receipt of the following Addenda (List Addenda by Addendum Number and Date):

Number	Date

- Bidder has visited and carefully examined the site of the proposed Work and has become thoroughly familiar with and is fully satisfied as to the conditions that exist at the site, the character, requirements and extent of the proposed Work, and the difficulties in executing the work that may affect (a) the cost, progress, performance of the Work (b) the means methods, techniques, sequences and procedures of construction employed by the Bidder, including applying any specific means, methods, techniques, sequences and procedures of construction expressly required by the RFP; and (c) Bidder's safety precautions and programs.
- Bidder is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.
- Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface utilities or structures at or contiguous to the site. Bidder accepts the determination of the technical data contained in such reports and drawings upon which Bidder is entitled to rely. Bidder acknowledges that such reports and drawings may not be complete for Bidder's purposes.
- Bidder has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto.
- Bidder agrees that no further examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the RFP.
- Bidder acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the RFP with respect to subsurface conditions or underground facilities at or contiguous to the site.
- Bidder has given Owner and Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bid Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted.
- Bidder understands that the quantities of work tabulated in this Bid or indicated in the RFP are

only approximate and are subject to increase or decrease as deemed necessary by the Owner or Engineer.

13. Bidder understands that funds have been appropriated for Phase 1 but that Owner will only proceed with Phase 1 if sufficient funds are available to complete Phase 1. Bidder also understands that funds are not presently available for performance under this contract beyond Phase 1. The Owner's obligation for performance of this contract beyond Phase 1 is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Owner for any payment may arise for performance under this contract beyond Phase 1, until funds are made available for performance and until the Contractor receives notice of availability. Funding for Phase 2 will be presented for approval at the March 2017 Town Meeting.
14. Bidder certifies under the penalties of perjury that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person, firm, joint venture, partnership, corporation or other business or legal entity.
15. Bidder acknowledges that no officer, agent, or employee of the Owner is directly or indirectly interested in this Bid.

#### **BASIS OF BID**

- A. Bid Schedule: The subdivision of the proposed contract price is indicated on the following Bid Schedule. Bidder shall use the Bid Schedule when submitting the Bid. Bidder will complete the Work in accordance with the Contract Documents for the specified price(s).
  1. Bidder must bid on each item. All prices, except item totals, shall be stated in words and figures. In case of discrepancy between price in words and price in figures; the words shall govern. In case of discrepancy between the product obtained by multiplying the estimated quantity by the unit price, and the extended amount, the product obtained shall govern. In case of discrepancy between total of extended amounts and total amount of bid stated, total of items shall govern.
  2. Prices shall be typewritten or written by hand in ink.

#### **ATTACHMENTS TO BID**

- A. The following documents are submitted with and made a condition of this Bid.
  1. Bid Security
  2. Statement of Bidders Qualifications

#### **SUBMITTAL OF BID**

- A. This Bid must bear the written signature of the Bidder or an authorized agent of the Bidder. If the Bidder is a corporation or a partnership, the Bid must be signed by a duly authorized officer of such corporation or by a partner and the title of such office must be stated.

B. This Bid is submitted by:

Respectfully submitted:                      Date \_\_\_\_\_

By \_\_\_\_\_

(Signature and Title of Person Authorized to Sign Bid)

\_\_\_\_\_  
(Name of Bidder)

\_\_\_\_\_  
(Business Street Address)

\_\_\_\_\_  
(City and State)

\_\_\_\_\_  
(Business Telephone Number)

(SEAL – if Bid is by a corporation)

**BID SCHEDULE**

**PUBLIC SAFETY BUILDING  
PARKING LOT IMPROVEMENTS**

ITEM				UNIT PRICE		EXTENDED TOTAL (in figures)
No.	Description	Quantity	Unit	Words	Figures	
1	Mobilization	1	LS			
2	Exploratory Excavation	30	CY			
3	Common Excavation	3240	CY			
4	Excavation of Unsuitable Materials	480	CY			
5a	Water Pipe	210	LF			
5b	Electrical Conduit	170	LF			
5c	6" Underdrain	200	LF			
5d	Flushing Basin	2	EA			
6a	Gravel	1850	CY			
6b	Crushed Gravel	930	CY			
6c	3/4" Crushed Stone	100	CY			
7a	3" HBP Binder Course	940	TN			
7b	1.5" HBP Wearing Course	450	TN			
7c	HBP Hand Method	60	TN			
8	Bituminous Curb	1620	LF			
9	Soil Reinforcement Fabric	2450	SY			
10a	Hay Bales	40	EA			
10b	Silt Fence	1000	LF			
10c	Erosion Stone	40	CY			
10d	Calcium Chloride	80	BG			
11	Loam and Seed	1150	SY			
12	Maintenance of Traffic	1	LS			
13	Asphalt Cement Adjustment	1	AL			
<b>TOTAL BID</b>						

Notes:

1. Key To Units: LF = Linear Feet; SY = Square Yards; CY = Cubic Yards; LS = Lump Sum; EA = Each; LB = Pound; TN = Ton; BG = Bags; AL = Allowance

**STATEMENT OF BIDDERS QUALIFICATIONS**

**GENERAL INFORMATION**

A. Name: \_\_\_\_\_

Principal Office Address: \_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

B. If a Corporation, answer the following:

When incorporated: \_\_\_\_\_

In what State: \_\_\_\_\_

Director's names (s) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

President's Name: \_\_\_\_\_

Vice President's Name: \_\_\_\_\_

Secretary's Name: \_\_\_\_\_

Treasurer's Name: \_\_\_\_\_

C. If a partnership, answer the following:

Date of Organization: \_\_\_\_\_

State whether partnership is general or limited: \_\_\_\_\_

Name and Address of Partners: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**EXPERIENCE**

A. How many years has your organization been in business as contractor under your present business name? \_\_\_\_\_

B. What are the prior names of your organization? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C. How many years of experience does your organization have as a prime contractor in the type of work specified in the Contract Documents? \_\_\_\_\_ As a sub-contractor? \_\_\_\_\_

D. List below the largest projects your organization has completed.

	<u>Contract Amount</u>	<u>Project Title</u>	<u>Owner</u>	<u>When Completed</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

Name and address of references for respective projects listed above:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

E. List other references: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

F. List below two (2) completed projects which agree most similar to the proposed work.

	<u>Contract Amount</u>	<u>Project Title</u>	<u>Owner</u>	<u>When Completed</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____

G. Have you ever failed to complete any work awarded to you? If yes, give name of Owner, name of Bonding Company and circumstances: \_\_\_\_\_  
\_\_\_\_\_

H. State the largest dollar volume of work your organization has completed in any one year and the year that it was completed in: \_\_\_\_\_  
\_\_\_\_\_

**FINANCIAL REFERENCES**

A. Name one (1) banking institution reference:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

B. Name two (2) credit references other than the bank listed above.

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

**CERTIFICATION**

I hereby certify that the information submitted herewith, including any attachment, is true to the best of my knowledge and belief.

\_\_\_\_\_  
Firm Name

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

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

**APPENDIX A**  
**DRIVEWAY PERMIT**



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

District 3 Office, 2 Sawmill Road, Gilford, NH 03249 (603) 524-6667



Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

DRIVEWAY PERMIT

To: Scott Kinmond
Town of Moultonborough
6 Holland Street
Moultonborough, NH 03254

City/Town: Moultonborough
Route/Road: NH 25 (S0000025)
Patrol Section: 305
Tax Map: N/A
Lot: N/A
Development: Public Safety Building

Permit #: 313479A
District: 03
Permit Date 7/26/2016



Permission is hereby granted to construct (alter) a driveway, entrance, exit or approach adjoining NH 25 (S0000025), pursuant to the location and specifications as described below. Failure to adhere to the standards and engineering drawings previously approved shall render this instrument null and void. Failure to start or complete construction of said facility within one calendar year of the date of this permit shall require application for permit extension or renewal in accordance with the Driveway Access Rules. Facilities constructed in violation of the permit specifications or the rules, shall be corrected immediately upon notification by a Department representative. Any cost by the State to correct deficiencies shall be fully borne by the landowner. The landowner shall defend, indemnify and hold harmless the Department and its duly appointed agents and employees against any action for personal injury and/or property damage sustained by reason of the exercise of this permit.

Drive 1 St Prj: F.A. 73(2) Station: 349+85 L
Location: Approximately 0.006 miles east of Old Route 109 (INV#87) on the north side of NH 25 (S0000025). SLD Station: 26045 (left) GPS: 43.756186 N 71.394011 W.

Specifications: This permit authorizes a paved access to be used as a Town of Moultonborough Public Safety Building drive. Any change in use, increase in use or reconstruction of the driveway requires reapplication.

The right-of-way line is located 33 feet from and parallel to the centerline of the highway. The entrance shall be graded so that the surface of the drive drops 0 inches at a point 0 feet from NH 25 (S0000025) edge of pavement to create a drainage swale.

The driveway shall not exceed 85 feet in width. The entrance of the drive may be flared; typically the flare radius is one half the driveway width.

This is an existing paved entrance for emergency vehicles.

Drive 2 St Prj: F.A. 73(2) Station: 351+85 L
Location: Approximately 0.04 miles east of Old Route 109 (INV#87) on the north side of NH 25 (S0000025). SLD Station: 26245 (left) GPS: 43.756564 N 71.393481 W.

Specifications: This permit authorizes a paved access to be used as a Town of Moultonborough Public Safety Building drive. Any change in use, increase in use or reconstruction of the driveway requires reapplication.

The right-of-way line is located 33 feet from and parallel to the centerline of the highway. The entrance shall be graded so that the surface of the drive drops 0 inches at a point 0 feet from NH 25 (S0000025) edge of pavement to create a drainage swale.

The driveway shall not exceed 24 feet in width. The entrance of the drive may be flared; typically the flare radius is one half the driveway width.

This is an existing paved driveway.

Other Conditions:

No structures, including buildings, permanent or portable signs, lights, displays, fences, walls, etc. shall be permitted on, over or under the Highway Right of Way.

No parking, catering or servicing shall be conducted within the Highway Right of Way.

The applicant shall comply with all applicable ordinances and regulations of the municipality or other State Agencies.

The Department has relied on the title and subdivision information provided by the landowner. The Department has not performed additional title research and makes no warranty or representation concerning landowner's legal right to access. In the event of a dispute about the landowner's legal right to the access provided herein, the landowner will defend and indemnify the Department.

This permit requires that in order to provide 400 feet of all-season-safe-sight-distance, any obstruction of trees, earth, snow or other incidentals along the highway shall be removed on both sides of the proposed driveway prior to and during the use of the entrance(s).

Any offsite utility improvements within state rights-of-way, related to this development, shall comply with the requirements of the NHDOT Utility Accommodation Manual and shall be authorized by means of a separate Excavation Permit.

Other access to the highway from the premises is to be prevented by maintaining a barrier or barriers, such as a grass plot, low hedge, curbed island, stand of trees, etc.. No part of the right-of-way may be used for any purpose other than travel.

Driveway Entrance Control Type B, Business, Rural applies to the context of this permit.

Pursuant to your application dated July 13, 2016 we are hereby amending permit number 313-479 to allow for the reconstruction and repaving of the existing access only. Please keep in mind that all conditions pertaining to the original permit, or any prior amendments thereto, still remain in effect.

You have been issued a Driveway Permit to construct a driveway along State ROW. However, before your access can be used, the following must be met:

1. You must notify the State at least 48 hours prior to beginning construction of your entrance.
2. The name of the contractor doing the work along with his business and home telephone number shall be made available to our local Patrol Foreman. (The State reserves the right to disapprove of any contractor that has failed to perform in a satisfactory manner in the past.)
3. Use of your drive can begin only after its construction has been inspected and approved by the State.
4. Unless specifically requested in writing, completion of all construction within the State ROW must be completed within 60 days from the notice to start work.
5. Any paving of the driveway or roadway authorized by this Permit is at the owner's risk unless the subgrade has been inspected and approved by the State.
6. Should it become apparent during construction that the requirements of this Permit are in conflict with existing field conditions, the State must be notified at once. Any work performed, not specified by this Permit nor without prior approval, is subject to removal and reconstruction at the owner's expense.
7. This Permit and all plans referenced must be at the construction site at all times.

To give notice to start construction as instructed above, please contact:  
Patrol Foreman Michael Eldridge at Patrol Shed #305, Moultonborough, (603) 476-5777.

Between the hours of 7:00 AM and 3:30 PM, Monday through Friday

Approved William Rollins 7/26/16  
Assistant District Engineer  
For Director of Administration

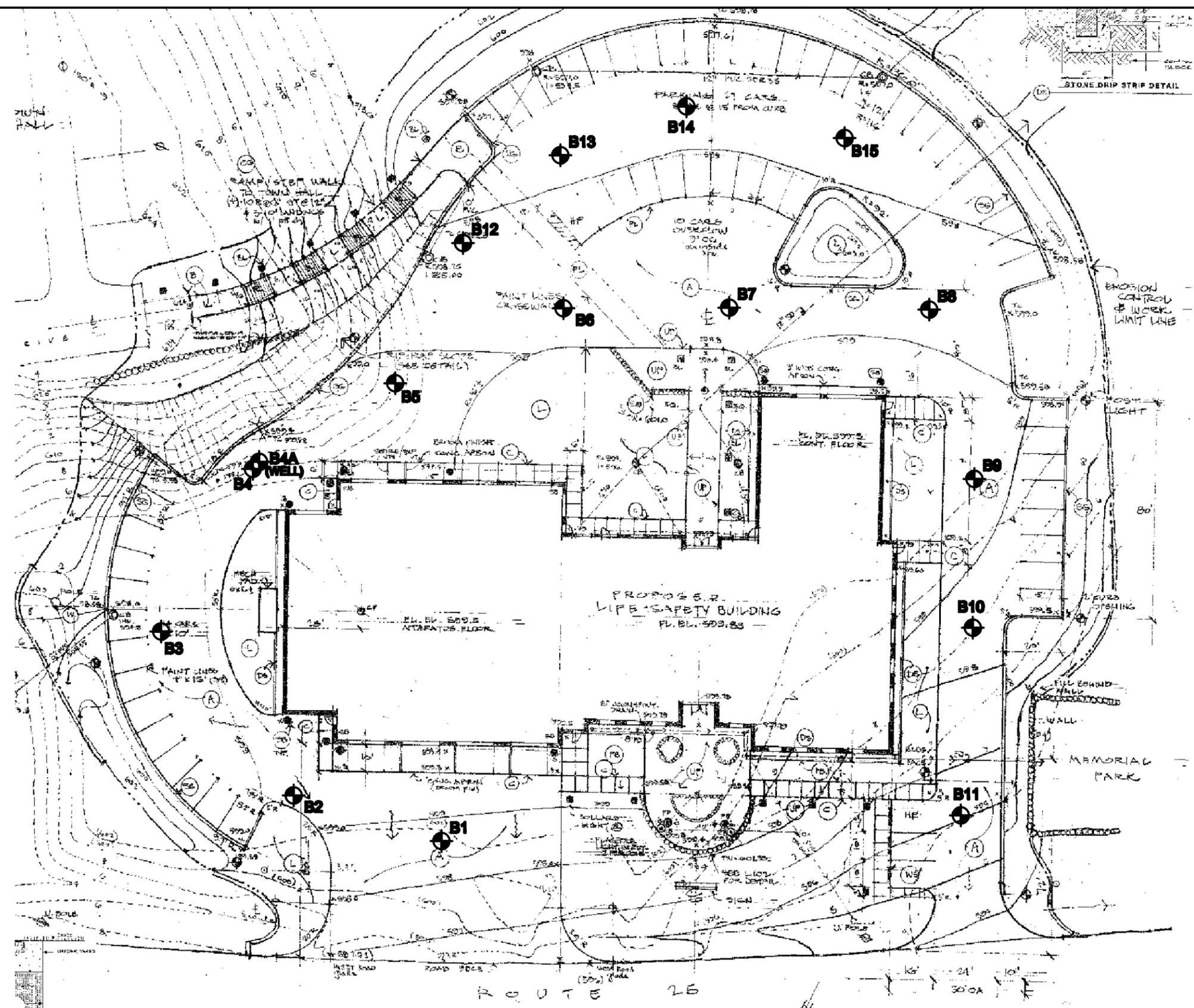
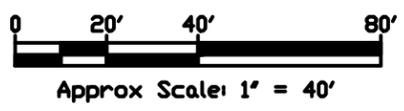
Copies: District, Town, Patrolman

**APPENDIX B**  
**GEOTECHNICAL INFORMATION**



**LEGEND**

 **B1** Boring Location



- Notes:**
1. Site Development Plan, prepared by HKT Architects, dated 1/15/2002, was provided by the Town of Moultonborough for our use in preparing this Boring Location Plan. The Site Development Plan was scanned in PDF format and imported into the AutoCAD drawing file. The resulting scale is approximate.
  2. The borings were drilled by New Hampshire Boring, Inc. and observed by Ward Geotechnical Consulting, PLLC on September 28 through 30, 2010.
  3. Boring locations are based on approximate measurements from corners of the existing building.

KV Partners, LLC  
Gilford, New Hampshire



Ward Geotechnical  
Consulting, PLLC

PUBLIC SAFETY FACILITY PARKING LOT  
MOULTONBOROUGH, NEW HAMPSHIRE

WGC Project 10140

BORING LOCATION PLAN

October 2010



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B1**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/29/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: see Boring Location Plan  
 Datum: \_\_\_\_\_

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
1	S1	48-62 19-20	24	18	Hollow-stem augers  3" split-spoon used for S1.	4.5" Asphalt Pavement	S1: upper 7": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 40%-50% subangular gravel to 2", brown. lower 11": <b>Silty Sand (SM)</b> - fine to medium sand, 15%-25% nonplastic fines, occasional subrounded gravel to 1/2", occasional roots/twigs, ~1" black organic soil at mid-spoon, olive-brown.	Fill  ~2.5'
2								
3	S2	25-20 50/3"	15	12		S2: <b>Sand with Silt (SP-SM)</b> - fine to medium sand, 5%-15% nonplastic fines, occasional subrounded gravel to 1/2", light brown-olive.	Sand with Silt  ~4'	
4								
5								
6	S3	20-39 53-55	24	18		S3: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 10-20% nonplastic fines, 15%-25% subangular gravel to 3/4" (some weathered), heterogeneous structure, light brown-olive.	Glacial Till	
7							Bottom of Boring at 7'	
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel      S - Split Spoon Sample      U - Undisturbed Tube Sample  
 REC - Recovery length of sample      C - Rock Core Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B2**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/29/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: see Boring Location Plan  
 Datum: \_\_\_\_\_

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
1					Hollow-stem augers		5" Asphalt Pavement	
2	S1	13-16 34-19	24	15	3" split-spoon used for S1.		S1: <b>Sand with Silt &amp; Gravel (SP-SM)</b> - fine to medium (some coarse) sand, 5%-15% nonplastic fines, 20%-30% subangular gravel, brown and light brown. Most of gravel in middle 6" of spoon.	Fill
3	S2	9-3 5-6	24	0			S2: <b>No Recovery</b> - Auger cuttings from this depth interval consist of dark brown silty sand with wood fibers.	
4								~4.5
5								
6	S3	12-15 17-25	24	22			S3: <b>Silty Sand (SM)</b> - fine and fine to medium sand, 20%-30% nonplastic fines, occasional subangular gravel to 3/8", stratified structure, wet, light brown and gray with rust staining. Approx 3" band in middle of spoon contains 40%-50% medium plastic fines.	Silty Sand
7							Bottom of Boring at 7'	
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel      S - Split Spoon Sample      U - Undisturbed Tube Sample  
 REC - Recovery length of sample      C - Rock Core Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log

**B3**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/29/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Date:  
 Not Measured

Page 1 of 1

GS Elevation: Boring Location:  
 Datum: see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		3.25" Asphalt Pavement	
1	S1	23-20 17-20	24	19	3" split-spoon used for S1.		S1: upper 6": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 25%-35% subangular and subrounded gravel to 1", brown. middle 10": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 10%-20% nonplastic fines, 15%-25% subangular gravel to 3/4", occasional roots and twigs, olive-brown.	Fill -2'
2.3	S2	19-21 22-37	24	18			lower 3": <b>Sand with Silt (SP-SM)</b> - fine to medium sand, 5%-15% nonplastic fines, light brown.  S2: <b>Sand (SP) and Silty Sand (SM)</b> - fine, fine to medium, and fine to coarse sand, stratified structure, most with <5% fines, upper 1" with 15%-25% nonplastic fines, light brown.	Sand and Silty Sand
4.3	S3	22-37 65-58	24	19			S3: upper 7": <b>Silty Sand (SM)</b> - fine to medium sand, 10%-20% nonplastic fines, vaguely stratified, occasional roots, light brown. Possible fill.  lower 12": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 20%-30% subangular gravel to 1" (some weathered), mottled olive-brown and brown.	-5.8' Glacial Till
7							Bottom of Boring at 7'	
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B4**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: \_\_\_\_\_  
 Datum: \_\_\_\_\_ see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.			
0.5					4" Casing		2" Asphalt Pavement
1	S1	22-100/4"	10	8			S1: upper 6": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 20%-30% subangular gravel to 1", brown.
1.3							
1.5	S2	50/6"	6	0	SPT refusal on boulder.		lower 2": <b>Silty Sand (SM)</b> - fine to medium sand, 20%-30% nonplastic fines, gray.
2					Drilled ahead to 3'. Drove casing to refusal at 2.5'.		S2: <b>No Recovery</b> - probably pushed boulder with spoon.
3							
4					Hole collapsed and couldn't sample. Drive shoe on casing crimped. Tried diamond spin casing - wore out diamond shoe.		Bottom of Boring at 3'
5					Abandoned hole. Moved ~3.5' east to drill B4A.		
6							
7							
8							
9							

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



**Ward Geotechnical**  
Consulting, PLLC

Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B4A**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: 2.8 feet below ground surface  
 Date: 10/30/10  
 GS Elevation:  
 Datum:

Page 1 of 1

Boring Location:  
 see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
1					4" Casing		1.5" Asphalt Pavement	Fill 1'
1.3								
2	S1	17-26 27-26	24	17			S1: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 20%-30% subangular gravel to 1" (some weathered), light brown.	Glacial Till
3					Casing refusal on boulder at 3.5'. Drilled through.		S2: <b>Silty Sand with Gravel (SM)</b> - similar to S1.	
3.3								
4	S2	47-46 57-50/4"	22	20				
5								
5.1								
6					Casing refusal on boulder at 6.3'. Drilled through.		S3: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 25%-35% subangular gravel to 1" (some weathered), light brown.	
6.0								
10								
10.0	S4	71/6"	6	5			S4: <b>Silty Sand with Gravel (SM)</b> - similar to S1.	
10.5								
11							Bottom of Boring at 11'	
12							Installed well to 10.4' below ground surface: - 2" PVC: 5' screen & 5' riser - Sand filter from 2.75' to 11'. - Bentonite seal from 0.8' to 2.75'. - Road box at surface.	

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log

**B5**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Not Measured  
 Date:

Page 1 of 1

GS Elevation: Boring Location: see Boring Location Plan  
 Datum:

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.4					Hollow-stem augers		3" Asphalt Pavement	Fill
1							S1: upper 6": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 40%-50% subangular gravel to 1.5", light brown.	~1'
2	S1	16-13 11-12	24	20	3" split-spoon used for S1.		lower 14": <b>Silty Sand (SM)</b> - fine to medium (some coarse) sand, 20%-30% nonplastic fines, occasional fine gravel, light brown.	Silty Sand
2.4								~2.4'
3	S2	19-51 60	18	16			S2: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 20%-30% subangular gravel to 3/4", light brown.	Glacial Till
3.9								
5	S3	60/6"	6	6			S3: <b>Silty Sand with Gravel (SM)</b> - similar to S2.	
5.5							Bottom of Boring at 5.5'	
6								
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample  
 S - Split Spoon Sample  
 C - Rock Core Sample  
 U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B6**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: see Boring Location Plan  
 Datum: \_\_\_\_\_

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		2" Asphalt Pavement	Fill
1	S1	34-27 33-43	24	17	3" split-spoon used for S1.		S1: upper 10": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 30%-40% subangular gravel to 1.5", brown.	~1.2'
2							lower 7": <b>Silty Sand (SM)</b> - fine to medium (some coarse) sand, 10%-20% nonplastic fines, vaguely stratified with fine sand lenses, occasional subangular gravel to 1/2", light brown.	~2.3'
2.3	S2	38-60 50/4"	16	14			S2" <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 10%-20% nonplastic fines, 15%-25% subangular gravel to 3/4", heterogeneous structure, light brown.	
3								Glacial Till
3.6	S3	22-28 40-50/4"	22	19			S3: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 5%-20% nonplastic fines, 15%-30% subangular and subrounded gravel to 3/4", heterogeneous structure, light brown.	
4								
5								
6								
6.8							Bottom of Boring at 6.8'	
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B7**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: see Boring Location Plan  
 Datum: \_\_\_\_\_

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		3" Asphalt Pavement	
1	S1	26-32 100/3"	15	12	3" split-spoon used for S1.		S1: <b>Sand with Gravel (SW)</b> - fine to coarse sand, 30%-40% subangular gravel to 1", brown.	
1.5								
2	S2	11-20 16-16	24	10			S2: <b>Sand (SW)</b> - fine to coarse sand, brown.	
3								
4								
5								
6	S3	11-3 4-7	24	14			S3: <b>Sand (SW)</b> - fine to coarse sand, brown. Piece of styrofoam in sample.	
7								
8	S4	11-18 54-66	24	18			S1: upper 6": <b>Sand (SW)</b> - fine to coarse sand, brown. middle 12": <b>Silty Sand (SM)</b> - fine sand, 15%-30% nonplastic fines, brown. lower 6": <b>Sand (SP)</b> - fine to medium sand, brown.	~7.5'
9								<b>Sand &amp; Silty Sand</b>
							Bottom of Boring at 9'	

Fill (Possible Utility Trench)

**Notes:**

**Abbreviations:**

PEN - Penetration length of sampler or core barrel      S - Split Spoon Sample      U - Undisturbed Tube Sample  
 REC - Recovery length of sample      C - Rock Core Sample





Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log

**B9**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/30/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Date:  
 Not Measured

Page 1 of 1

GS Elevation: Boring Location:  
 Datum: see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		3" Asphalt Pavement	Fill
1	S1	44-82 44-51	24	20	3" split-spoon used for S1.		S1: upper 10": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 35%-45% subangular gravel to 1", brown.  lower 10": <b>Sand with Silt (SP-SM)</b> - fine to medium sand, 5%-15% nonplastic fines, occasional subangular gravel to 1", vaguely stratified, light brown-tan.	~1.1'
2.3								
3	S2	28-40 42-38	24	17			S2: <b>Sand with Silt (SP-SM)</b> - fine & fine to medium sand, 5%-15% nonplastic fines, occasional subangular gravel to 3/4", vaguely stratified, light tan.	Sand with Silt
4.3								
6	S3	15-21 28-32	24	18			S3: <b>Sand with Silt (SP-SM)</b> - similar to S2.	
7							Bottom of Boring at 7'	
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B10**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/30/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Date:  
 Not Measured

Page 1 of 1

GS Elevation: Boring Location:  
 Datum: see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.			
0.4					Hollow-stem augers		3" Asphalt Pavement
1	S1	69-54 19-22	24	18	3" split-spoon used for S1.		S1: upper 5": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 25%-35% subangular gravel to 2", brown. middle 5": <b>Silty Sand with Gravel (SM)</b> - fine to medium sand, 15%-25% nonplastic fines, 15%-25% subangular gravel to 3/4", olive-brown and gray. Piece of bark. lower 8": <b>Silty Sand (SM)</b> - fine to medium sand, 10%-20% nonplastic fines, occasional rounded gravel to 3/4", twigs/roots throughout, orange-brown.
2							Fill
2.4							~2.5'
3	S2	18-12 17-48	24	16			S2: <b>Silty Sand (SM)</b> - fine and fine to medium sand, 10%-20% nonplastic fines, occasional fine gravel, vaguely stratified, light tan.
4							
4.4							
5							
6	S3	16-19 22-24	24	18			S3: <b>Silty Sand (SM)</b> - similar to S2.
7							
8							
9							
Btoom of Boring at 7'							

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel      S - Split Spoon Sample      U - Undisturbed Tube Sample  
 REC - Recovery length of sample      C - Rock Core Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log

**B11**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/30/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: \_\_\_\_\_  
 Datum: \_\_\_\_\_ see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.5					Hollow-stem augers		3" Asphalt Pavement	
1	S1	47-21 26-16	24	17	3" split-spoon used for S1.		S1: upper 7": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 35%-45% subangular gravel to 2", brown. lower 10": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 15%-25% subangular gravel to 1.5", occasional roots and twigs, olive-brown.	Fill ~2.5'
2								
2.5								
3	S2	12-12 15-18	24	18			S2: <b>Sand with Silt (SP-SM)</b> - fine & fine to medium sand, 5%-25% nonplastic fines, occasional subrounded gravel to 1", vaguely stratified, light brown and tan.	
4								
4.5								
5								
6	S3	14-17 23-30	24	18			S3: <b>Sand with Silt (SP-SM)</b> - similar to S2.	
7							Bottom of Boring at 7'	
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B12**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: see Boring Location Plan  
 Datum: \_\_\_\_\_

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.5					Hollow-stem augers		6" Asphalt Pavement	
1	S1	19-20 24-24	24	23	3" split-spoon used for S1.		S1: upper 6": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 30%-40% subangular gravel to 1.5", brown. middle 6": <b>Silty Sand (SM)</b> - fine (some medium) sand, 10%-20% nonplastic fines, light tan. middle 2": <b>Silty Sand (SM)</b> - fine to medium sand, 15%-25% nonplastic organic fines, dark brown. Possible old topsoil layer. lower 9": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 10%-25% nonplastic fines, 15%-25% gravel, 6" weathered cobble, olive brown.	Fill ~2.5'
2								
2.5								
3	S2	14-21 26-42	24	19			S2: upper 13": <b>Silty Sand (SM)</b> - fine & fine to medium sand, 10%-25% nonplastic fines, occasional silt lenses (1/32" to 1/4"), stratified structure, light brown-tan. lower 6": <b>Sand (SP)</b> - fine to medium sand, light brown.	Sand & Silty Sand
4								
4.5								
5								
5	S3	19-58 100/4"	16	16			S3: <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 20%-30% subangular gravel (some weathered) to 1", heterogeneous structure, olive brown.	Glacial Till
6								
6.3							Bottom of Boring at 6.3'	
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B13**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/28/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Date:  
 Not Measured

Page 1 of 1

GS Elevation: Boring Location:  
 Datum: see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		3" Asphalt Pavement	
1	S1	31-28 36-50/2"	20	16	3" split-spoon used for S1.		S1: upper 9": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 25%-35% subangular gravel to 1.5", brown. lower 7": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 20%-30% subangular gravel to 1.5", occasional pieces of bark and twigs, olive-gray & brown.	Fill
2					SPT refusal at 2'. Augered through boulders to 5'.			-2'
3								Boulders (possible fill) - Soil matrix not sampled
4								
5	S2	50/3"	3	0	SPT refusal at 5.3'. Augered to refusal at 6.1'.		S2: <b>No Recovery</b> - probably pushed boulder with spoon.	
5.3								
6							Bottom of Boring at 6.1'	
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log

**B14**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/29/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: Date:  
 Not Measured

Page 1 of 1

GS Elevation: Boring Location:  
 Datum: see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		2.5" Asphalt Pavement	
1	S1	34-64 100/5"	17	16	3" split-spoon used for S1.		S1: upper 7": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 25%-35% subangular gravel to 1.5", brown. middle 6": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 10%-20% subangular gravel to 1.5"; light brown-olive.	Fill
1.7					SPT refusal on boulder at 1.7'. Augered to 3'.		lower 3": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 15%-25% subangular gravel to 1", light brown.	~2'
3	S2	100/3"	3	2	SPT refusal on boulder at 3.3'. Augered to 4.5'.		S2: <b>Silty Sand with Gravel (SM)</b> - fine (some medium & coarse) sand, 10%-20% nonplastic fines, 10%-20% subangular gravel to 3/8", light brown.	Glacial Till
3.3								
4.5	S3	45-55/5"	11	10	SPT refusal on boulder at 5.4'. Augered to refusal at 6.3'.		S3: <b>Silty Sand with Gravel (SM)</b> - fine (some medium & coarse) sand, 10%-20% nonplastic fines, 10%-20% subangular gravel to 3/4", light brown.	
5.4								
6							Bottom of Boring at 6.3'	
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample



Project: Public Safety Facility Parking Lot  
 Location: Moultonborough, New Hampshire  
 Client: KV Partners, PLLC  
 Project No.: 10140

Boring Log  
**B15**

Contractor: New Hampshire Boring, Inc.  
 Logged By: Craig Ward  
 Drilling Dates: 9/29/2010  
 Drill Rig: Mobile B-59 Truck

Groundwater Depth: \_\_\_\_\_ Date: \_\_\_\_\_  
 Not Measured

Page 1 of 1

GS Elevation: \_\_\_\_\_ Boring Location: \_\_\_\_\_  
 Datum: \_\_\_\_\_ see Boring Location Plan

DEPTH FT.	SAMPLE				REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS	
	TYPE & NO.	BLOWS per 6 IN.	PEN. IN.	REC. IN.				
0.3					Hollow-stem augers		3" Asphalt Pavement	
1	S1	31-18 26-50/4"	22	20	3" split-spoon used for S1.		S1: upper 6": <b>Sand with Gravel (SW)</b> - fine to coarse sand, 35%-45% subangular gravel, brown. middle 6": <b>Sand with Gravel (SP)</b> - fine to medium (some coarse) sand, 20%-30% subangular gravel to 1.5", tan. lower 8": <b>Silty Sand (SM)</b> - fine (some medium) sand, 15%-25% nonplastic fines, occasional subangular gravel to 1.5", heterogeneous structure, tan-light brown.	Fill
2.1					Augered thru boulder at 2.1'.			~2.5'
3								
4	S2	11-13 34-58	24	21			S2: <b>Silty Sand (SM)</b> - fine (some medium) sand, 15%-25% nonplastic fines, vaguely stratified, light brown.	Silty Sand
5								
6	S3	56-61 93	18	11			S3: upper 9": <b>Silty Sand (SM)</b> - similar to S2. lower 2": <b>Silty Sand with Gravel (SM)</b> - fine to medium (some coarse) sand, 15%-25% nonplastic fines, 15%-25% gravel, heterogeneous structure, light brown-olive.	~6' Glacial Till
6.5							Bottom of Boring at 6.5'	
7								
8								
9								

Notes:

**Abbreviations:**

PEN - Penetration length of sampler or core barrel  
 REC - Recovery length of sample

S - Split Spoon Sample  
 C - Rock Core Sample

U - Undisturbed Tube Sample





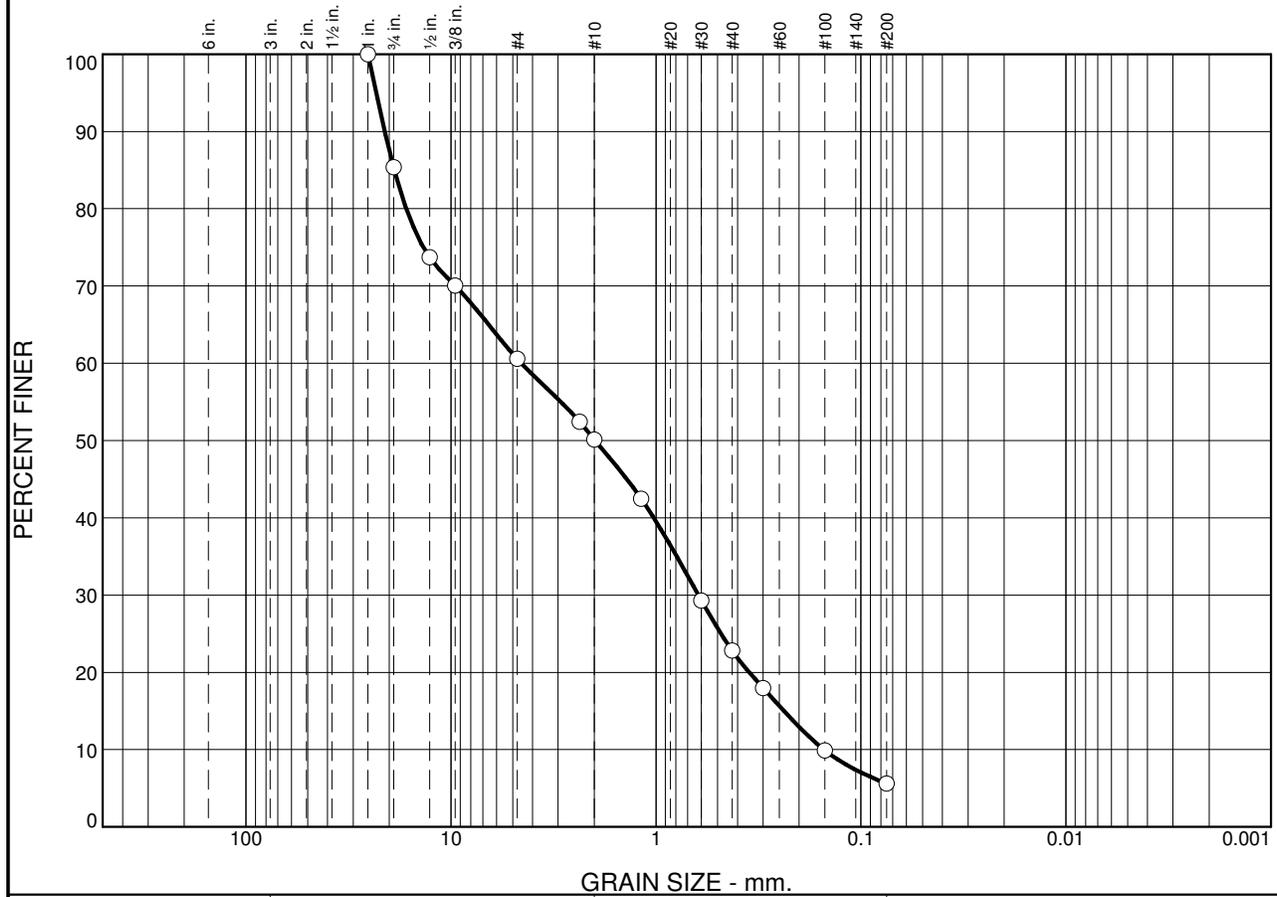








# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	30.0	19.9	20.8	13.7	10.0	5.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	85.4		
1/2"	73.7		
3/8"	70.0		
#4	60.6		
#8	52.4		
#10	50.1		
#16	42.5		
#30	29.3		
#40	22.8		
#50	18.0		
#100	9.9		
#200	5.6		

**Material Description**

coarse to fine Sand, trace Silt, and med to fine Gravel

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 18.8896      D<sub>60</sub>= 4.5388              D<sub>50</sub>= 1.9805  
D<sub>30</sub>= 0.6208        D<sub>15</sub>= 0.2375              D<sub>10</sub>= 0.1515  
C<sub>u</sub>= 29.95            C<sub>c</sub>= 0.56

**Classification**

USCS=                      AASHTO=

**Remarks**

\* (no specification provided)

**Sample No.:** L-635-10  
**Location:** S-1A

**Source of Sample:** Boring 8

**Date:** 10/18/10  
**Elev./Depth:**

**GEOTECHNICAL SERVICES, INC.**

**Goffstown, New Hampshire**

**Client:** KV Partners LLC  
**Project:** Public Safety Parking Lot  
Moultonborough, NH

**Project No:** 210293

**Plate**











**APPENDIX C**  
**CONTRACT FORMS**

**PERFORMANCE BOND**

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

\_\_\_\_\_  
CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

**CONTRACT**

Effective Date of Agreement:  
Amount:  
Description (*Name and Location*):

**BOND**

Bond Number:  
Date (*Not earlier than Effective Date of Agreement*):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
(Seal)  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
(Seal)  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
  - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract; or
    2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
  - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any

## PERFORMANCE BOND

remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

## PERFORMANCE BOND

- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*

Surety Agency or Broker:

Owner's Representative: KVPartners LLC, PO Box 7721, Gilford, NH 03247; (603) 513-1909

PERFORMANCE BOND

**PAYMENT BOND**

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

**CONTRACT**

Effective Date of Agreement:  
Amount:  
Description (*Name and Location*):

**BOND**

Bond Number:  
Date (*Not earlier than Effective Date of Agreement*):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

**PAYMENT BOND**

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2 Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this

## PAYMENT BOND

Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – <i>(Name, Address, and Telephone)</i> Surety Agency or Broker: Owner's Representative: KVPartners LLC, PO Box 7721, Gilford, NH 03247; (603) 513-1909
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PAYMENT BOND

## **AGREEMENT**

This Agreement is by and between the Town of Moultonborough New Hampshire, (Owner) and \_\_\_\_\_ (Contractor). Owner and Contractor hereby agree as follows:

### **ARTICLE 1 - WORK**

- 1.1 Contractor shall complete all Work for the construction of the Public Safety Building Parking Lot Improvements project. In general the Work shall include the reconstruction of the existing parking lot at the Moultonborough Public Safety Building, Moultonborough, New Hampshire. All work will be completed within Town-owned property or designated rights-of-way.
- 1.2 Contractor shall furnish all labor, equipment, materials, supplies, plant and services necessary for the construction of the Work complete in place and fully operational as specified in the Request for Proposals (RFP).

### **ARTICLE 2 - CONTRACT TIMES**

- 2.1 Days to Achieve Substantial Completion and Final Payment: The Work will be substantially complete within --- calendar days after the date when contract times commence to run and completed and ready for final payment within --- calendar days after the date when the contract times commence to run.
- 2.2 Liquidated Damages: Owner and Contractor recognize that time is of the essence in completing the Work and that the Owner will suffer financial loss if the Work is not completed within the contract times specified in Paragraph 2.1 above, plus any extensions thereof allowed by the Owner. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner \$900.00 for each day that expires after the time specified in Paragraph 2.1 above for substantial completion until the Work is substantially complete. After substantial completion, if the Contractor shall neglect, refuse, or fail to complete the remaining Work for final payment within the time specified in Paragraph 2.1 above, or any proper extension thereof granted by Owner, Contractor shall pay Owner \$700.00 for each day that expires after the time specified in Paragraph 2.1 above for completion and readiness for final payment.

### **ARTICLE 3 - CONTRACT PRICE**

- 3.1 Owner shall pay Contractor for completion of the Work in accordance with the RFP an amount in current funds equal to the sum of the amounts at the prices stated in the Contractor's Bid.

### **ARTICLE 4 - PAYMENT PROCEDURES**

- 4.1 Submittal and Processing of Payments: Contractor shall submit Applications for Payment in accordance with the RFP. Applications for Payment will be processed by Owner or Engineer.

AGREEMENT

- 4.2 Progress Payments and Retainage: Owner shall make progress payments on account of the contract price on the basis of Contractor's Applications for Payment during performance of the Work as provided below.
- A. Prior to Substantial Completion, Owner shall make progress payments in an amount equal to 90 percent of the Work completed (with the balance being retainage) but, in each case, less the aggregate of payments previously made and less such amounts as Owner or Engineer shall determine, or Owner may withhold, including but not limited to liquidated damages.
  - B. Following Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 98 percent of the Work completed (with the balance being retainage), less the Owner or Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected and less such amounts as Owner or Engineer shall determine, or Owner may withhold, including but not limited to liquidated damages.
- 4.3 Final Payment: Upon final completion and acceptance of the Work, Owner shall pay the remainder of the contract price less a 2% retainage which the Owner may hold for the Correction Period. If the final 2% retainage is withheld for the Correction Period, it shall be released only after the Owner has accepted the Project.

## **ARTICLE 5 - CONTRACTOR'S REPRESENTATIONS**

- 5.1 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the RFP and all technical data and information as is available.
  - B. Contractor has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, and furnishing of the Work.
  - C. Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, performance, and furnishing of the Work.
  - D. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the site; information and observations obtained from visits to the site; the RFP; and the site-related data and information, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the RFP; and (3) Contractor's safety precautions and programs.
  - E. Based on the information and observations referred above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary

## **AGREEMENT**

for the performance of the Work at the contract price, within the contract times, and in accordance with the other terms and conditions of the RFP.

- F. Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the RFP.
- G. Contractor has given Owner and Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the RFP and the written resolution thereof by Engineer is acceptable to Contractor, and the RFP is generally sufficient to indicate and convey the understanding of all terms and conditions for performance and furnishing of the Work.
- H. The RFP is generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 6 - MISCELLANEOUS**

- 6.1 Availability of Funds: The Owner's obligation for performance of this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made.
- 6.2 Documents: All the terms, conditions, provisions and requirements as stated in the RFP shall comprise the entire Agreement between Owner and Contractor. Exhibits to the Agreement shall include Contractor's Bid and any documentation submitted by the Contractor prior to the notice of award. The following, which may be delivered or issued after the effective date of the Agreement, shall also be included in the Agreement between Owner and Contractor:
  - A. Work Change Directives
  - B. Change Orders
  - C. Other documents amending, modifying or supplementing the RFP.
- 6.3 Assignment of Contract: No assignment by a party hereto of any rights under or interests in the RFP will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the RFP.
- 6.4 Successors and Assigns: Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the RFP.
- 6.5 Severability: Any provision or part of the RFP held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the RFP shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

## **AGREEMENT**

6.6 Contractor's Certifications: Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Agreement. For the purposes of this paragraph:

- A. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Agreement execution;
- B. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Agreement to the detriment of Owner, (b) to establish Bid or contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
- C. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
- D. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor.

This Agreement will be effective on \_\_\_\_\_, 2016 (which is the Effective Date of the Agreement).

Owner Moultonborough, New Hampshire Contractor \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

[CORPORATE SEAL]

Attest \_\_\_\_\_

Attest \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

License No. \_\_\_\_\_

Agent for service of process:

\_\_\_\_\_  
(If Contractor is corporation, attach evidence of authority to sign.)

AGREEMENT

**APPENDIX D**

**GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS**

## SECTION 01200

### MEASUREMENT AND PAYMENT

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes description of payment items, work requirements per payment item and measurement requirements per payment item.

##### 1.2 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.

##### 1.3 SUBMITTALS

- A. Application for Payment: The Application for Payment shall be submitted on a form acceptable to the Engineer. Refer to General Conditions for additional requirements.
- B. Schedule of Values: The Contractor shall submit a breakdown of the cost of all lump sum items in the Bid in a manner that may be used as the basis for estimating the value of the work completed to the end of any month. The basis and detail of the breakdown shall meet with the Engineer's approval. The schedule of values of all lump sum items in the Bid shall be submitted within 7 calendar days from the date of the Notice to Award.

##### 1.4 PROCEDURES

- A. The Contractor shall furnish all labor, equipment, materials, supplies and plant, and do all operations necessary to complete all work specified or shown. All supervision, overhead items, protection and precautions and all other costs, incidental to the construction work, complete, and as specified, are included.
- B. A complete working job shall be produced whether or not any particular wording or direction is omitted or not clearly stated.
- C. Measurement for payment shall be by the Engineer, except where noted elsewhere in this Specification.
- D. Each price stated in the Bid shall constitute full compensation for each item of work completed.
- E. For unit price items, the Contractor shall be paid for the actual amount of work accepted during the period of construction. After the work is completed and before final payment is made, the Engineer shall make final measurements to determine the quantities of the various items of work accepted as the basis of final payment.

### MEASUREMENT AND PAYMENT

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- F. For lump sum items, the Contractor shall be paid in accordance with the progress schedule and schedule of values on the basis of the percentage of the actual work accepted during the period of construction. After the work for the respective lump sum items is completed, 100% of the lump sum price may be paid, less retained amounts, unless otherwise specified.
- G. Volume Measurement of Materials in Vehicles: When volume measurement of materials in vehicles is permitted, the quantity shall be determined as 80% of the loose volume as determined by the Engineer.
- H. At the end of each workday, the Contractor shall meet with the Engineer and determine the quantities of the unit price and/or lump sum items completed during the workday.
- I. Payment for Material Delivered: Refer to General Conditions for requirements for partial payment of materials delivered and stored on site.
- J. If requested by Owner, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation (satisfactory to Owner) warranting that Owner has received materials and equipment free and clear of all Liens.
- K. The Owner reserves the right to delete any item of work from the Contract without penalty.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 – EXECUTION**

### **3.1 ITEM DESCRIPTIONS**

#### **A. Item 1, Mobilization:**

1. The lump sum price under this item shall constitute full compensation to move equipment to the site and prepare to begin construction.
2. Mobilization costs are the costs of initiating the Contract, exclusive of the cost of materials.
3. Mobilization costs shall be payable when the Contractor is operational on site. Operational shall mean the substantial commencement of work on site. No payment shall be made prior to the substantial commencement of work on site.
4. The lump sum price bid for mobilization shall not exceed 5 percent of the total of all items excluding this item.

## **MEASUREMENT AND PAYMENT**

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B. Item 2, Exploratory Excavation:

1. The unit price under this item shall constitute full compensation to complete exploratory excavations as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but not be limited to: excavation; backfill; aggregate base course material; pavement; compaction; restoration; cleanup; and all incidental work required to complete exploratory excavations and backfill.
2. Measurement for payment shall be by the cubic yard of material excavated.

C. Item 3, Common Excavation:

1. The unit price under this item shall constitute full compensation to complete common excavations as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but not be limited to: clearing and grubbing; saw cutting paved surfaces; excavation; removal and disposal of excess excavated material; grading; compaction; cleanup; and all incidental work required to complete common excavation.
2. Measurement for payment shall be by the cubic yard of material excavated to the limits and depths as shown on the Drawings and as directed by the Engineer.
3. Backfill of excavated areas shall be paid for under the respective items in the Bid.
4. Payment under this item shall be made for the removal of the existing parking lot pavement structure and curb only. Excavation required for utility installation, removal and relocation, or other work is not included as common excavation and shall be subsidiary to the work being performed or shall be paid for under the respective items in the Bid.

D. Item 4, Excavation of Unsuitable Material:

1. The unit price under this item shall constitute full compensation to complete excavation of unsuitable material as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but not be limited to: excavation; removal and disposal of unsuitable material; gravel backfill; compaction; and all incidental work required to complete excavation of unsuitable material and backfill.
2. Measurement for payment shall be by the cubic yard of material excavated.
3. The pay limit for excavation of unsuitable materials shall be as shown on the Drawings, as herein specified or as directed by the Engineer.
  - a. Pipelines: The depth of unsuitable material shall be measured from the trench bottom below the specified bedding for the pipe as indicated on the Drawings to the depth of replacement backfill. The width of unsuitable material shall be the allowable trench width as indicated on the Drawings.
  - b. Structures: The depth of unsuitable material shall be measured from the trench

MEASUREMENT AND PAYMENT

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bottom below the specified bedding material for the structure as indicated on the Drawings to the depth of replacement backfill. The width of unsuitable material shall be 1 foot outside the widest dimension of the structure or the allowable trench width, whichever is greater.

- c. Parking Lot and Drives: The depth of unsuitable materials shall be measured from subgrade below aggregate base course materials as indicated on the Drawings to the depth of replacement backfill. The width of unsuitable material shall be the maximum of the allowable excavation limit as directed by the Engineer or the limit of the pavement section as shown on the Drawings.
- d. Any unsuitable material excavated to a depth or width greater than that as specified shall be backfilled with gravel at the Contractor's expense.

E. Item 5, Underdrain, Water Pipe and Electrical Conduit:

1. The unit price under the appropriate subdivision of this item shall constitute full compensation for installing underdrain and flushing basins, water pipe and electrical conduit as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: locating, protecting and supporting existing utilities and structures; repair and/or relocation of any utilities and structures broken and/or conflicting with construction for which separate payment is not provided under other items in the Bid; clearing and grubbing; stripping and stockpiling; protection of trees and plantings; saw cutting paved surfaces; excavation, shoring and support; dewatering; disposal of excess excavated material; removal and disposal of existing pipe and structures; pipe; pipe fittings; jointing materials; bedding, laying and jointing of pipe and fittings; filter fabric; core drilling; pipe connections to existing utilities; cleaning and testing of pipe; backfill; grading; compaction; stormwater flow control; surface restoration (excluding loam and seed and pavement paid for under the respective item in the Bid); cleanup; and all incidental work required to install underdrain and flushing basins, water pipe and electrical conduit.
2. Measurement for payment for pipe shall be by the linear foot to the nearest 0.1 foot along the horizontal projection of the centerline of the pipe installed.
3. Measurement for payment for flushing basins shall be the number of each unit installed.

F. Item 6, Borrow:

1. Item 6a, Gravel:
  - a. The unit price under this item shall constitute full compensation for furnishing and installing gravel as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: subgrade preparation; gravel; placement; grading; compaction and all incidental work required to install gravel.
  - b. Measurement for payment shall be by the cubic yard of material compacted in place.

MEASUREMENT AND PAYMENT

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2. Item 6b, Crushed Gravel:

- a. The unit price under this item shall constitute full compensation for furnishing and installing crushed gravel as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: subgrade preparation; crushed gravel; placement; grading; compaction and all incidental work required to install crushed gravel.
- b. Measurement for payment shall be by the cubic yard of material compacted in place.

3. Item 6c, Crushed Stone:

- a. The unit price under the appropriate subdivision this item shall constitute full compensation for furnishing and installing crushed stone for use in locations not included in other items in the Bid, as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: excavation; subgrade preparation; crushed stone; placement; grading; compaction and all incidental work required to install crushed stone.
- b. Measurement for payment shall be by the cubic yard of material compacted in place.
- c. Crushed stone for bedding for pipes and structures shall not be paid for under this item, but shall be paid for under the respective items in the Bid.

G. Item 7, Hot Bituminous Pavement (HBP):

1. The unit prices under the appropriate subdivision of this item shall constitute full compensation for furnishing and installing hot bituminous pavement as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: saw cutting paved surfaces; cold planing; cleaning and preparing pavement edges and surfaces; tack coat; adjusting valve boxes, frames and covers, frames and grates, and other castings and structures; fine grading aggregate base course; pavement materials; placement; compaction; cleanup; and all incidental work required to install hot bituminous pavement.
2. Measurement for payment shall be by the ton of material compacted in place.
3. Pavement quantities will be measured by the actual tonnage of pavement compacted in place less the quantity placed beyond specified thickness or outside payment limits. Payment limits will be as shown on the Drawings and stated in the Specifications.
4. The Contractor shall submit to the Engineer weight slips for hot bituminous pavement delivered and placed. The Engineer will measure pavement placed within the specified payment limits and multiply the area by the specified thickness and by a coefficient of 0.056 tons per square yard per inch of thickness to obtain the tonnage of hot bituminous pavement. Payment will be made based on the number of tons obtained using the measured in place method or the weight slips, whichever is less.

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5. Pavement to adjust for settlement and to adjust for final grade shall be furnished and installed at no cost to the Owner.

H. Item 8, Bituminous Curb:

1. The unit price under this item shall constitute full compensation for furnishing and installing bituminous curb as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: cleaning pavement surface; tack coat; pavement; placement; compaction; cleanup; and all incidental work required to install bituminous curb.
2. Measurement for payment shall be by the linear foot to the nearest 0.1 foot as measured from end to end along the lower edge of the exposed face of the curb.

I. Item 9, Soil Reinforcement Fabric:

1. The unit price under this item shall constitute full compensation for furnishing and installing soil reinforcement fabric as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: fabric; subgrade preparation and compaction; installation of fabric; and all incidental work required to install soil reinforcement fabric.
2. Measurement for payment shall be by the square yard of the actual surface measurement of covered area within the limits as shown on the Drawings.
3. Additional fabric required and used for overlaps and repairs shall not be measured or paid for.

J. Item 10, Erosion and Sediment Controls:

1. Item 10a, Hay Bales:

- a. The unit price under this item shall constitute full compensation for furnishing, installing and maintaining hay bales for erosion and sediment control and protecting wetlands, waterways, catch basins, drains, etc., as shown on the Drawings, as directed by the Engineer, and as herein specified. Item shall include, but is not limited to: hay bales; stakes; installation, maintenance and replacement; removal and disposal; cleanup; and all incidental work required to install and maintain hay bales.
- b. Measurement for payment shall be by the number of each unit installed.

2. Item 10b, Silt Fence:

- a. The unit price under this item shall constitute full compensation for furnishing, installing and maintaining silt fence for erosion and sediment control and protecting wetlands, waterways, etc., as shown on the Drawings, as directed by the Engineer, and as herein specified. Item shall include, but is not limited to: silt fence; stakes; staples; installation, maintenance and replacement; removal and disposal; cleanup;

## MEASUREMENT AND PAYMENT

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and all incidental work required to install and maintain silt fence.

b. Measurement for payment shall be by the linear foot of material installed.

3. Item 10c, Erosion Stone:

a. The unit price under this item shall constitute full compensation for furnishing and installing erosion stone for erosion and sediment control and protecting wetlands, waterways, etc., as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: subgrade preparation; erosion stone; placement; grading; compaction and all work required to complete installation of erosion stone.

b. Measurement for payment shall be by the cubic yard of material compacted in place.

4. Item 10d, Calcium Chloride:

a. The unit price under this item shall constitute full compensation for furnishing and applying calcium chloride as directed by the Engineer.

b. Measurement for payment shall be by the number of 100 pound bags, or major fraction thereof, applied.

c. Dust control by use of water shall be subsidiary to the work being performed and shall not be paid for under this item.

K. Item 11, Loam and Seed:

1. The unit price under this item shall constitute full compensation for furnishing, placing and maintaining loam and seed as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but is not limited to: preparation of subgrade and surface; screening, testing and amending topsoil (where applicable); loam; placement, spreading and grading of loam; application of fertilizer, superphosphate, limestone and herbicide; seeding; erosion control; maintenance; cleanup; and all incidental work required for turf establishment.

2. Measurement for payment shall be by the square yard of material placed to the nearest square yard from measurements taken on the ground surface covered.

3. No payment will be made until areas are properly fertilized, watered, lime and herbicide applied, and significant growth (as determined by the Engineer) occurs.

4. A maximum of 75 percent of the contract price bid under this item shall be paid for upon completion of work and prior to acceptance. The above percentage shall be applied prior to the specified retainage to be withheld.

L. Item 12, Maintenance of Traffic:

1. The lump sum price under this item shall constitute full compensation for furnishing all

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labor, equipment and materials necessary to maintain safe and passable traffic conditions for pedestrians and vehicles as shown on the Drawings, as directed by the Engineer and as herein specified. Item shall include, but not be limited to: dust control; maintenance of excavated, backfilled and graded areas; traffic signs, barricades, lights, signals, delineators, pavement markings, concrete barriers and other traffic control warning devices; flaggers; and all incidental work required to guide vehicular and pedestrian traffic through the work zone in a safe and convenient manner.

2. Measurement for payment shall be by the percent complete as determined by the Engineer.

M. Item 13, Asphalt Cement Adjustment:

1. Bid items containing asphalt cement will be subject to a price adjustment. This adjustment will take effect when the monthly price for asphalt cement as furnished by the New Hampshire Department of Transportation, Bureau of Materials and Research differs from the base price as herein specified. The price adjustment will be based on the percent of virgin asphalt cement in the approved mix design.
2. The base price of asphalt cement shall be the price as specified by the New Hampshire Department of Transportation, Bureau of Materials and Research at the time of the effective date of the Contract.
3. The monthly price of asphalt cement will be furnished by the New Hampshire Department of Transportation, Bureau of Materials and Research on the first business day following the 14th calendar day of each month.
4. The contract prices of Hot Bituminous Pavement will be paid under the respective items in the Bid. The price adjustment, as provided herein, upwards or downwards, will be made only once and in the month in which the work for Phase 2 commences as follows:
  - a.  $\text{Contract Adjustment} = [\text{monthly price minus the base price}] \times [\text{approved mix design percent of virgin asphalt cement}] \times [\text{tons of pavement used}]$ .
5. The allowance stated in the Bid is approximate and the actual amount to be paid may be more or less as authorized by the Engineer.

END OF SECTION

MEASUREMENT AND PAYMENT

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## SECTION 01500

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes the furnishing of all plant, labor, equipment and materials and performing all operations in connection with providing temporary facilities and controls including, but not limited to: general construction requirements; temporary utilities and service; environmental controls; project signage; access and parking; security; temporary enclosures; traffic control; permits; and field offices.

##### 1.2 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.

##### 1.3 TRANSPORTATION, HANDLING AND STORAGE

- A. Contractor shall transport, handle and store products and materials in accordance with manufacturer's instructions.
- B. Contractor shall promptly inspect shipments to assure that products and materials comply with the requirements of the Contract Documents, quantities are correct, containers and packages are intact, labels are legible and products and materials are properly protected and undamaged.
- C. Contractor shall provide equipment and personnel to properly transport, handle and store products and materials to prevent damage, soiling or disfigurement to the products and materials or surrounding surfaces and areas.
- D. Contractor shall provide off-site storage and protection when site does not permit on-site storage or protection.
- E. Contractor shall arrange storage of products and materials to provide access for inspection. Contractor shall periodically inspect products and materials to assure they are undamaged and are maintained under specified conditions.
- F. Any product and material damaged because of improper transportation, handling or storage shall be unacceptable for installation and shall be removed from the site and replaced at the Contractor's expense.
- G. Contractor shall remove surplus products and materials at the completion of the work.

### TEMPORARY FACILITIES AND CONTROLS

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#### 1.4 GENERAL INSTALLATION PROVISIONS

- A. Contractor shall inspect the conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner. Corrections shall be completed at no additional cost to the Owner.
- B. Contractor shall comply with manufacturer's written installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.
- C. Contractor shall inspect materials or equipment prior to installation. Reject damaged and defective items, all at no additional cost to the Owner.
- D. Contractor shall provide attachment and connection devices and methods for securing work. Secure work true to line and level. Allow for expansion and movement.
- E. Contractor shall recheck measurements and dimensions before starting installation or erection.
- F. Contractor shall install each component during weather conditions and status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material to prevent deterioration.
- G. Contractor shall coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

#### 1.5 CUTTING AND PATCHING

- A. Contractor shall match existing products and materials for patching and extending work.
- B. Contractor shall remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original and specified condition.
- C. Where new work abuts or aligns with existing, Contractor shall perform a smooth and even transition and match existing adjacent work in texture and appearance.
- D. Contractor shall patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- E. Contractor shall finish surfaces as stated in Specifications.

#### 1.6 COORDINATION WITH EXISTING FACILITIES

- A. Where the dimensions and locations of existing structures are important in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.
- B. Contractor shall conduct operations so as to interfere as little as possible with existing works.

### TEMPORARY FACILITIES AND CONTROLS

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## 1.7 CLEANING AND PROTECTION OF INSTALLED WORK

- A. Contractor shall control activity within the work area to prevent injury or damage to the work. All installed work shall be carefully protected from any injury or damage. All portions of the work injured or damaged shall be reconstructed by the Contractor at no additional cost to the Owner.
- B. Contractor shall clean and protect construction in progress and adjoining materials in place. Install protective covering to ensure protection from damage or deterioration.
- C. Contractor shall clean and maintain completed construction as frequently as necessary for the duration of the construction period.
- D. Contractor shall supervise construction activities to ensure that no part of the work completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

## 1.8 CARE AND PROTECTION OF PROPERTY

- A. Contractor shall not enter or occupy private property outside of easements, except by permission of the landowner. Contractor shall notify the Owner of receipt of said permission prior to the commencement of work.
- B. Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor at Contractor's expense to a condition similar or equal to that existing before the damage was done.

## 1.9 PROTECTION OF PUBLIC

- A. Provide barriers, warning signs, guardrails, lights, etc. as may be required to adequately protect the public from hazards resulting from the work and to exclude unauthorized persons from the work area. Provide for public protection as required by law and ordinance.
  - 1. Continuously maintain protection as necessary to protect the work as a whole, and adjacent property and improvements from accidents, injuries or damage.
  - 2. Provide barricades at all open excavations and elsewhere as may be directed or required for public and workmen protection. During nighttime hours and where appropriate and needed, provide warning lights, including flashing red or amber lights.

## 1.10 EXPLORATORY EXCAVATIONS

- A. Exploratory excavations for the purpose of locating underground utilities or structures in advance of the construction shall be excavated and backfilled by the Contractor at the

## TEMPORARY FACILITIES AND CONTROLS

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direction of the Engineer and/or as shown on the Drawings. Exploratory excavations shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

#### 1.11 TEMPORARY UTILITIES

- A. Temporary Sanitary Facilities: Contractor shall provide and maintain sanitary facilities for the use of his employees and the Engineer. Contractor shall comply with the requirements and regulations of the local and state Departments of Health.

#### 1.12 MAINTAINING WATER, SEWER AND DRAINAGE SERVICE

- A. Contractor shall provide, maintain and operate all temporary facilities such as dams, conduits and pipelines, and provide all labor and equipment necessary to redirect flows from drains and water courses to a suitable point of discharge so as not to flow upon the work or create a nuisance. Temporary diversion of flows shall be performed at the Contractor's expense.
- B. Procedures for maintaining existing flows and service shall be coordinated with the Engineer and appropriate utility authority well in advance of the interruption of any flows or service.

#### 1.13 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of water as necessary, so as to minimize the creation and dispersion of dust during working and non-working hours.
- B. Frequency of application shall be determined by site conditions and weather and as directed by the Engineer. If the Engineer decides that it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and apply the material as directed.
- C. Calcium chloride shall be commercial grade, furnished in 100 lb, 5-ply bags, stored under weatherproof cover and stacked alternately for ventilation. Application for dust control shall be at the rate of approximately 1/2 pound per square yard, unless otherwise directed by the Engineer.
- D. The use of petroleum products for dust control is prohibited.

#### 1.14 SURFACE WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the site, utilities, structures or adjoining properties. Control fill, grading and ditching to direct surface water away from excavations, pits, tunnels and other constructed areas; and to direct surface water to proper runoff.
- B. Dispose of surface water in a manner to prevent flooding, erosion, siltation or other damage to any portion of the site, utilities, structures or adjoining properties.
- C. Contractor shall comply with all applicable local, state and federal statutes, regulations and

### TEMPORARY FACILITIES AND CONTROLS

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ordinances.

#### 1.15 EROSION AND SEDIMENTATION CONTROL

- A. Plan and execute construction to prevent erosion and sedimentation from cuts and fills, borrow areas, stockpiles and waste disposal areas. Minimize areas of bare soil exposed at any one time.
- B. Provide temporary control measures such as berms, dikes, diversion ditches and drains, sedimentation barriers and basins, silt fences and hay bales, and fiber matting as required and as directed by the Engineer to prevent erosion and sedimentation. Contractor shall periodically inspect control measures and promptly correct any defects as required or as directed by the Engineer.
- C. Protect existing drainage structures from silt and debris. Contractor shall promptly remove accumulated silt and debris from drainage structures impacted by construction activities.
- D. Contractor shall keep streams, wetlands, and other water crossings clear of mud, silt, debris, and other objectionable materials resulting from Contractor's construction operations.
- E. Contractor shall maintain the flow capacity of river and stream channels to prevent unnatural flooding due to Contractor's operations.
- F. Contractor shall preserve existing natural drainage patterns and vegetative cover.
- G. Contractor shall comply with all applicable local, state and federal statutes, regulations and ordinances.

#### 1.16 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Provide equipment, personnel, and perform emergency measures, as may be required, to contain any spillage and to remove contaminated soils or liquids. Excavate and dispose of any contaminated earth off-site, in such a manner and at such location permitted by law, and according to Federal, state, and local regulations, and replace with suitable compacted fill and topsoil.
- C. Maintain work areas free of extraneous debris. Maintain storage and lay down yards in neat and orderly fashion, free of debris and waste materials.
- D. Initiate and maintain a specific program to prevent accumulation of debris at construction site storage and parking areas, or along access roads and haul routes.
  - 1. Provide containers for deposit of debris.
  - 2. Prohibit overloading of trucks to prevent spillage on access and haul routes. Provide

### TEMPORARY FACILITIES AND CONTROLS

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periodic inspection of traffic areas to enforce requirements.

- E. Maintain Material Safety Data sheets for substances used in the work, as required. Storage of construction materials shall be secured and contained. Display right-to-know and NFPA chemical hazard labels where appropriate.
- F. Schedule periodic collection and disposal of debris. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.
- G. Protection of Natural Resource Areas:
  - 1. Burning of rubbish and waste material on the site shall not be permitted.
  - 2. Construction equipment shall be equipped with properly operating emission control devices and mufflers. Equipment not utilizing said devices shall be removed immediately from the site.
  - 3. The following activities shall not be permitted within 50 feet of designated natural resource areas:
    - a. Stockpiling and storage of equipment or materials.
    - b. Refueling of equipment.
    - c. Maintenance and repair of vehicles and equipment.
  - 4. The Owner reserves the right to order the Contractor to immediately cease all activities on-site should the Owner deem that the Contractor's activities are unnecessarily detrimental to natural resource areas. The Contractor shall not resume activities until the situation is resolved to the satisfaction of the Owner. Any delay or additional work required shall be at the Contractor's expense.
- H. Hazardous Material and Waste Control:
  - 1. Disposal of volatile fluid wastes (such as mineral spirits, waste oil, gasoline, or paint thinner) in storm or sanitary sewer systems or into streams or waterways shall not be permitted. In the event that any such waste is spilled onto the ground, the Contractor shall immediately notify the Engineer, promptly clean up the spillage and all contaminated soil, and dispose of the cleanings as hazardous waste material. If a spill occurs, the clean-up activities shall take precedence over normal construction activities in order that damage to the environment is minimized.
  - 2. Fuels, lubricants or other hazardous materials shall not be stored in proximity to any waterways or wetlands areas
  - 3. Fuels, lubricants and other hazardous materials shall be stockpiled within an area of positive containment. The area shall have no open communication with surface water bodies or other resource areas, and shall have a base of relatively impermeable material and shall have an adequate supply of materials required for spill clean up.
  - 4. All hazardous materials containers shall be properly marked and their contents identified. All fuel oil, lubricant, gasoline, and hydraulic fluid containers shall be fixed in place on the transport vehicle when the vehicle is in motion.

## TEMPORARY FACILITIES AND CONTROLS

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5. The construction project shall be in compliance with all local, state and federal laws with respect to hazardous materials.
6. All clean up and disposal operations shall comply with all applicable local, state and federal statutes, regulations and ordinances and anti-pollution laws.

I. Noise Abatement

1. Construction equipment including generators and compressors shall be enclosed or equipped with mufflers, silencers or other equipment to minimize noise.
2. The Contractor shall limit construction noise in accordance with local, state, EPA and OSHA latest standard criteria.

J. Soil and Groundwater Contamination

1. Contractor shall immediately notify the Engineer and Owner if contaminated soil or groundwater is encountered.

1.17 RODENT CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction or storage areas. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
- B. The use of any rodenticide shall be in full accordance with the manufacturer's printed instructions and recommendations, and shall be used only with the approval of local Board of Health, or other Owner's representative.

1.18 TRAFFIC CONTROL

- A. When police details are not required, Contractor shall provide flagmen to regulate traffic when construction operations or traffic encroach upon public traffic lanes.
- B. When police details are required, prior to construction and delivery of equipment and materials, the Contractor shall arrange for necessary police details with the appropriate police agency having authority. In general, local police shall be utilized on municipally-owned roads; state police shall be utilized on state-owned and -operated roads. The police agency shall determine the extent of police detail required during the project. Contractor shall provide 24-hour advance notice to the Police Department through the office of the Police Chief to request any changes to pre-approved traffic control details.
- C. Road closures and/or traffic details shall not be allowed without prior permission of the Owner, and Police and Fire Departments.
- D. Contractor shall furnish and maintain traffic cones, barriers, drums, flares and lights as may be required for traffic control. Cones, barriers, drums, lights and flares shall be in compliance with NHDOT standards, shall be relocated as the work progresses and shall be removed when they are no longer required.

TEMPORARY FACILITIES AND CONTROLS

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- E. Contractor shall furnish and maintain traffic control signage throughout the project and at all construction areas. Signs shall be standard signs in compliance with NHDOT standards. Signs shall be relocated as the work progresses and removed when the signage is no longer required.
- F. It is the intent of this Contract that traffic is maintained at all times in the areas of construction. Unless otherwise specified by the Owner, the Contractor shall maintain single lane two-way traffic at all times for municipally-owned roads and two lane two-way traffic at all times for state-owned and -operated roads. Local traffic shall be maintained at all times.
- G. Contractor shall provide the necessary labor, equipment and materials to maintain roads affected by the Contractor's operations.
  - 1. Contractor may be required to halt operations and/or transport material to areas beyond immediate work locations in order to minimize traffic disruptions.
  - 2. Contractor shall perform all snow removal operations necessary to keep all roads, sidewalks and right-of-ways clear for vehicle and pedestrian traffic.
  - 3. Maintenance shall be performed to the satisfaction of the Owner.
- H. Contractor shall consult with authority having jurisdiction in establishing use of public roads to be used for haul routes and site access. Contractor shall confine operations to designated haul routes and provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.
- I. Contractor shall maintain access to private drives at all times.

#### 1.19 ACCESS ROADS AND PARKING AREAS

- A. Contractor shall provide and maintain vehicular access to site and within site to provide uninterrupted access to temporary construction facilities, storage areas, and work areas by authorized personnel and equipment, emergency vehicles, Owner and Engineer.
- B. Contractor shall provide and maintain temporary parking facilities for use by construction personnel, Owner and Engineer.
- C. Parking of construction equipment and vehicles shall not be permitted on drives, walkways, adjacent streets and locations outside the work area unless otherwise approved by the Owner.
- D. Contractor shall maintain access roads and parking areas in a sound, clean and dry condition. Repair or replace any portion of facilities damaged during the progress of the work.
- E. Remove temporary access and parking facilities when no longer needed to perform the work and restore disturbed areas to original or specified conditions.

### TEMPORARY FACILITIES AND CONTROLS

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## 1.20 PERMITS

- A. Contractor shall comply with all requirements of all applicable local, state and federal regulations and all permits issued for the Contract.
  - 1. Owner has coordinated with the New Hampshire Department of Transportation (NHDOT) regarding work proposed within the NHDOT right-of-way. Contractor shall comply with the terms and conditions of permits issued by the NHDOT.
  - 2. Owner has coordinated with the New Hampshire Department of Environmental Services (NHDES) regarding work proposed within the Shoreland Protection Area. Contractor shall comply with the terms and conditions of permits issued by the NHDES.
- B. Contractor shall prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent required by the National Pollution Discharge Elimination System and applicable Construction General Permit for construction, implementation and maintenance of erosion and sediment control measures and dewatering activities for all phases of construction. The SWPPP shall be prepared, stamped and signed by a licensed Professional Engineer registered in the State of New Hampshire.

## 1.21 PROJECT SIGNS

Not Used

## 1.22 ENGINEER'S FIELD OFFICE

Not Used

## 1.23 SECURITY

- A. Contractor shall protect work, stored products and materials and construction equipment from theft and vandalism. Contractor shall initiate security measures promptly after mobilization and maintain security measures for the duration of the project.
- B. Contractor shall provide control of all persons and vehicles entering and leaving the site.
- C. Contractor shall be responsible for any loss of equipment, products or materials by theft or vandalism. Contractor shall be responsible for damage to any and all of Owner's property because of construction activities and or failure to provide adequate security. The Owner will seek reimbursement for replacement of property through direct invoicing of Contractor for costs incurred. Costs shall be recovered by reduction of pay application amounts and Owner shall be entitled to an appropriate decrease in Contract Price.

## **PART 2 - PRODUCTS**

Not Used

## TEMPORARY FACILITIES AND CONTROLS

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## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Contractor shall furnish plant and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such plant appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, the Engineer may order the Contractor to increase the efficiency, change the character or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of obligations to secure the quality of the work and rate of progress required.
- B. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas, as indicated on the Drawings or required in the Specifications.
- C. During construction, the Owner may notify Contractor of nuisance conditions and will expect Contractor to make every effort to correct the nuisance immediately. If conditions remain uncorrected for a period in excess of 24 hours, the Owner reserves the right to take corrective action. The Owner reserves the right to perform any corrective work it deems appropriate if any of the temporary facilities and controls or procedures are inadequate. The Owner will seek reimbursement for taking corrective action through direct invoicing of Contractor for costs incurred. Costs shall be recovered by reduction of pay application amounts and Owner shall be entitled to an appropriate decrease in Contract Price.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS

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## SECTION 01720

### FIELD ENGINEERING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes furnishing all labor, equipment, and materials, and performing all operations in connection with survey and engineering required in the execution of the work.

##### 1.2 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.

##### 1.3 SUBMITTALS

- A. Submit name, address and telephone number and license number of Contractor's surveyor or engineer prior to the commencement of the work.
- B. Submit documentation to verify accuracy of field engineering and survey work as requested by the Engineer.
- C. Submit certificate signed by the Contractor's surveyor or engineer, that elevations and locations of the work are in conformance with Contract Documents.
- D. All drawings and information prepared by a registered Land Surveyor and submitted by the Contractor shall be stamped and signed by the registered Land Surveyor completing the work.
- E. Record Drawings:
  - 1. Contractor shall maintain two sets of drawings indicating as-built locations, elevations and dimensions of work. Each major system of the work shall be recorded by a separate color on the record drawings. The Contractor shall record information concurrently with construction progress.
  - 2. Submit progress prints of record drawings each month with payment applications as requested by the Engineer.
  - 3. Final record drawings shall be submitted to the Engineer at substantial completion or contract closeout, as determined by the Engineer.
  - 4. Coordinate with Engineer regarding standards for submission of electronic files of record drawings. Contractor shall coordinate with Engineer in advance of preparation of record drawings.

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#### 1.4 FIELD MEASUREMENTS

- A. The Engineer will provide benchmark information on the Drawings or separately in writing. The Contractor shall do all layout of the work from said benchmarks.
- B. Contractor shall locate and protect survey control and reference points and shall field verify all control and reference points. If control and reference points have been disturbed by others prior to construction or are found in error, the Engineer shall be promptly notified.
- C. Contractor shall carefully preserve benchmarks, reference points and stakes, and in case of destruction by his own operations shall be responsible for re-establishing benchmarks, reference points and stakes at no cost to the Owner. Any mistakes or delays caused by the disturbance or loss of benchmarks, reference points and stakes shall be the responsibility of the Contractor.
- D. Contractor shall be responsible to offset control points where construction activities may destroy or disturb original points. Control points lost as a result of Contractor's activities shall be reset at Contractor's expense.
- E. All work shall be done to lines, grades and elevations as shown on the Drawings and as directed by the Engineer.
- F. Contractor shall perform all survey, layout and measurement necessary to complete construction. Contractor shall be responsible for reestablishing existing profiles, alignments (vertical and horizontal), lines, grades and elevations and setting new profiles, alignments (vertical and horizontal), lines, grades and elevations. Survey, layout and measurements shall be verified with Engineer prior to construction.
  - 1. Contractor shall stakeout in the field all proposed construction as shown on the Drawings and as directed by the Engineer. Stakes shall remain in place until the Engineer reviews the work completed.
- G. Contractor shall keep on site, at all times during construction operations, a level and transit and allow the Engineer unrestricted use of same at the work site. Any check by Engineer shall not be considered as approval of the Contractor's work.
- H. Contractor shall designate a field superintendent who will be responsible for survey, layout and measurements. Superintendent shall have a minimum of 5 years experience in construction survey and layout for the work being performed.
- I. Contractor shall retain a registered Land Surveyor at his own expense. Surveyor shall be licensed in the state where the work is to be performed. Surveyor shall have a minimum of 5 years experience in the type of work to be performed. Surveyor shall employ experienced personnel and provide adequate supervision to satisfaction of the Engineer at all times when operations are in progress. At a minimum, Contractor shall retain a registered Land Surveyor to complete the following operations:

#### FIELD ENGINEERING 01720-2

1. Establish permanent benchmarks during the progress of the work.
2. Replace property boundary markers destroyed, disturbed or removed as a result of Contractor operations.
3. If, in the opinion of the Engineer or Owner, the record drawing mark-ups are insufficient to document as-built locations, elevations and dimensions, complete an as-built survey to meet the requirements for submittal of the record drawings. The survey may include but not be limited to:
  - a. Location, size and type of surface features, structures and utilities.
  - b. Utility rim and invert elevations.
  - c. Roadway centerline and edgeline.
  - d. Location of curb and sidewalk.
  - e. Topographic information.
  - f. Location of natural resource areas.
- J. Contractor shall keep Engineer informed, in writing, two weeks in advance, of times and places at which work is to be performed, so that horizontal and vertical control points may be established and any checking deemed necessary by the Engineer may be performed.
- K. Remove and reconstruct work that is improperly located as determined by the Engineer at no additional cost to the Owner.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

Not Used

END OF SECTION

FIELD ENGINEERING  
01720-3

## SECTION 02210

### SITE AND SUBSURFACE INVESTIGATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes Contractor requirements and responsibilities for site and subsurface investigations.

##### 1.2 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.

##### 1.3 SITE INVESTIGATIONS

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work and the general and local conditions, including but not limited to: transportation; disposal, handling, and storage of materials; availability of labor; availability of water, electric power, and roads; uncertainties of weather, groundwater table and other similar physical conditions at the site; the conformation of subsurface materials to be encountered; the character of equipment and facilities needed prior to and during the prosecution of the work; and all other matters which can in any way affect the work or the cost thereof under this Contract.
- B. Any failure by the Contractor to acquaint himself with all available information concerning the aforementioned conditions will not relieve the Contractor from responsibility for estimating properly the difficulty or cost of successfully performing the work.

##### 1.4 SUBSURFACE INVESTIGATIONS

- A. The Contractor acknowledges that he assumes all risk contingent upon the nature of the subsurface conditions, to be actually encountered by Contractor in performing the work covered by the Contract, even though such actual conditions may result in the Contractor performing more or less work than he originally anticipated.

#### PART 2 - PRODUCTS

Not Used

### SITE AND SUBSURFACE INVESTIGATION

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**PART 3 - EXECUTION**

Not Used

END OF SECTION

SITE AND SUBSURFACE INVESTIGATION

02210-2

## **SECTION 02300**

### **EARTHWORK**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. This Section includes furnishing all plant, labor, equipment and materials and performing all operations in connection with excavations, excavation support systems, dewatering, blasting, backfilling, filling, grading, constructing embankments, compaction and appurtenant work, complete in place, in accordance with the Drawings and Specifications and as directed by the Engineer.

##### **1.2 RELATED DOCUMENTS**

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.
- B. The State of New Hampshire Department of Transportation (NHDOT) Standard Specifications for Road and Bridge Construction (hereinafter referred to as NHDOT Standard Specifications), latest edition.
  - 1. All references to Method of Measurement, Basis of Payment and Payment Items in the NHDOT Standard Specifications are hereby deleted. References made to particular sections or paragraphs in the NHDOT Standard Specifications shall include all related articles mentioned therein.

##### **1.3 SUBMITTALS**

- A. Submit in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Backfill Materials: Submit a grain size analysis and curve performed in accordance with ASTM D422 and a moisture density curve indicating the maximum dry density and optimum moisture content in accordance with ASTM D1557, for each proposed source of backfill for review by the Engineer. The grain size analysis shall indicate that the backfill material conforms to the gradation requirements specified.
- C. In-Place Density Tests: Submit report on test results from a qualified geotechnical testing firm verifying compaction requirements meet these Specifications.
- D. Filter Fabric: Submit manufacturer's descriptive literature, information, data and certification that materials and products meet these Specifications.
- E. Materials Testing Firm:
  - 1. Submit the qualifications of the independent geotechnical testing firm performing soil

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testing and inspection services during earthwork operations. The geotechnical testing firm must demonstrate to the Engineer's satisfaction, based on evaluation of laboratory submitted criteria conforming to ASTM D3740, that it has the experience and capability to conduct required field and laboratory geotechnical testing.

2. The firm's laboratory shall be supervised by a licensed Professional Engineer registered in the State of New Hampshire.

F. Excavation Support and Dewatering Plans:

1. Design Responsibility: The design of the excavation support and dewatering systems is the responsibility of the Contractor. The designs shall be prepared, sealed and signed by a licensed Professional Engineer registered in the State of New Hampshire with a minimum of five years experience designing excavation support systems and dewatering systems.
2. Excavation Support Plan:
  - a. Design excavation support systems in accordance with the Drawings and the Specifications.
  - b. Design internal bracing support members for the maximum forces during excavation or removal stages.
  - c. Design excavation support systems in a manner permitting safe and expeditious construction of permanent structures, minimizing movement or settlement of the ground, and preventing damage to adjacent facilities.
  - d. For support systems in which bracing is installed between opposite sides of the excavation, design and construct support of both sides to obtain comparable rigidity.
  - e. Choose location of excavation support to allow for expected deviations from line during installation without encroaching on future permanent structures or right-of-way limits.
  - f. Tiebacks are not permitted.
  - g. Excavation support systems shall be located within the right-of-way or easements.
  - h. Submit drawings for the record, for contractor-designed excavation support systems.
  - i. Submit design calculations for the record, including theoretical deflections of all excavation support members, and anticipated surface settlement versus horizontal distance from excavation support members. The design calculations shall be prepared, sealed and signed by the licensed Professional Engineer registered in the State of New Hampshire who is responsible for the design.
  - j. Proceed with caution in areas of utility facilities. Expose utility facilities by hand

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excavation or by other methods acceptable to the utility owner and the Engineer.

- k. If existing utility facilities interfere with the proposed method of support, modify or relocate such facilities as required. Written permission shall be obtained from the Engineer prior to any modification or relocation of any existing facility.

3. Dewatering Plan:

- a. Design Criteria: The Contractor is responsible for the adequacy of the groundwater control systems, and for designing groundwater control systems, to:
  - 1) Provide a substantially dry and stable subgrade for the prosecution of the subsequent operations.
  - 2) Not result in damage to adjacent properties, buildings, structures, utilities, other work, work of adjacent contracts, and other facilities.
  - 3) Prevent soil particles and debris from entering the discharge by providing trash racks and sedimentation basins as required.
  - 4) Assure that after 12 hours of initial pumping, no soil particles will be present in discharge.
  - 5) The groundwater level shall be maintained at least 3 feet below the pipe invert during excavation, construction and backfilling.
  - 6) Collection and disposal of groundwater discharge shall be in accordance with all Federal, State and local codes, rules and regulations. The Contractor shall obtain all necessary permits.
- b. Prior to installation of the groundwater control system, submit working drawings and design data for the record, showing the following:
  - 1) The proposed type of groundwater control system.
  - 2) Arrangement and location of groundwater control system components. Description of equipment and other components to be used, with installation, operation, maintenance, and sediment disposal procedures.
  - 3) Types and sizes of sedimentation basins and filters.
  - 4) Design calculations demonstrating adequacy of the purposes groundwater control system and equipment.
  - 5) Within one week, resubmit revised working drawings as necessary to reflect changes required by field conditions.
  - 6) Obtain and submit to the Engineer, required agency permits for discharge of

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effluent. Submit two copies of all required permits at least one week prior to system installation.

G. Blasting:

Not Used

1.4 EXCAVATION CLASSIFICATIONS

A. Earth Excavation or "Excavation" consists of removal of materials encountered to the subgrade elevations indicated and subsequent reuse or disposal of the materials removed. All excavation is classified as earth excavation unless it otherwise meets the classifications provided below for unauthorized excavation, additional excavation, or rock excavation.

B. Unauthorized Excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at Contractor's expense.

1. Under footings, foundations bases, concrete slabs, retaining walls or other structures, fill unauthorized excavations to the proper elevations with lean concrete. Elsewhere, backfill and compact unauthorized excavations as specified for excavations of the same class, unless otherwise directed by the Engineer.

C. Additional Excavation:

1. When excavation has reached required subgrade elevations, notify the Engineer who will review subgrade conditions.
2. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by the Engineer.
3. Removal of unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in work or as provided for under the unit rates for this classification.

D. Rock Excavation:

1. Rock excavation in trenches and pits includes removal and disposal of materials and obstructions encountered which cannot be excavated with a 1.0 cubic yard (heaped) capacity, 42-inch wide bucket on track-mounted power excavator rated at not less than 90HP flywheel power and 30,000 lb. drawbar pull.
2. Rock excavation in open excavations includes removal and disposal of materials and obstructions encountered which cannot be dislodged and excavated with modern track-mounted heavy-duty excavating equipment without drilling, blasting or ripping. Rock excavation equipment is defined as track-mounted loader, rated at not less than 170HP flywheel power and developing 40,000 lb. break-out force.

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- a. Trenches in excess of 10 foot in width and pits in excess of 30 feet in either length or width are classified as open excavation.
3. Determination of rock excavation classification will be made by the Engineer. Typical of materials classified as rock are boulders 1.0 cu. yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits. Intermittent drilling, blasting or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation. Do not perform rock excavation work until material to be excavated has been cross-sectioned and classified by Engineer. If the area to be excavated is preblasted prior to the excavation of overburden soils, the Engineer shall be notified at least two days in advance to allow observation of the preblast drilling by the Engineer in order to classify the excavation. Visual observation of the completed excavation may be made by the Engineer to modify the excavation classifications. Removal of rock excavation prior to classification by the Engineer shall be considered as earth excavation unless accepted by the Engineer in writing. Such excavation will be paid on the basis of contract unit rates for this classification.

1.5 QUALITY ASSURANCE

- A. Testing: Employ a certified, independent testing laboratory acceptable to Owner and Engineer to perform field and laboratory material evaluation tests. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

**PART 2 - PRODUCTS**

2.1 BACKFILL MATERIALS

- A. Common Fill: Common fill shall be soil containing no stone greater than 2/3 loose lift thickness. The materials shall be free of trash, ice, snow, tree stumps, roots and other organic and deleterious materials. Common fill shall not contain more than 35 percent by weight of silt and clay. It shall be of such a nature and character that it can be compacted to the specified densities in a reasonable length of time. Topsoil and subsoil shall not be considered common fill.
- B. Structural Fill: Structural fill shall consist of gravel and sand consisting of hard durable particles, and free from trash, ice and snow, tree stumps, roots and other organic and deleterious or organic matter. Structural fill shall conform to the following gradation requirements:

Sieve Size	Percent Passing by Weight
8-inch	100 (a)
3-inch	70-100

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Sieve Size	Percent Passing by Weight
1-inch	45-90
No. 4	20-70
No. 10	15-60
No. 40	10-40
No. 200	0-10
(a) Four-inch maximum particle size within 12 inches of slab, footing or pavement grade.	

- C. Stone Fill, Class B: As specified in NHDOT Standard Specifications, Section 585.
- D. Stone Fill, Class C: As specified in NHDOT Standard Specifications, Section 585.
- E. Crushed Ledge: Crushed ledge shall consist of durable crushed ledge, free from ice, and snow, sand, clay, loam or other deleterious or organic material. Crushed ledge shall conform to the following gradation requirements:

Sieve Size	Percent Passing by Weight
1-inch	90-100
1/2-inch	60-80
No. 4	30-50
No. 200 (a)	0-10
(a) Fraction passing the No. 4 Sieve.	

- F. Crushed Stone: As specified in NHDOT Standard Specifications, Section 520, Standard Stone Size No. 467 (1-1/2-inch), 67 (3/4-inch) and 89 (3/8-inch).
- H. Gravel: As specified in NHDOT Standard Specifications, Section 304.
- I. Crushed Gravel: As specified in NHDOT Standard Specifications, Section 304.
- J. Sand: As specified in NHDOT Standard Specifications, Section 304.
- K. Crushed Aggregate for Shoulders: As specified in NHDOT Standard Specifications, Section 304.
- L. Reclaimed Stabilized Base: As specified in NHDOT Standard Specifications, Section 306.
- M. Controlled Density Fill: Controlled Density Fill (CDF) shall be self compacting, excavatable,

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cement-based backfill material. It shall consist of cement, fine aggregate, fly ash and water; air-entraining mixtures may also be added. The 28 day compressive strength shall be less than 100 psi, in place density shall be 90 to 100 psf. Air entrainment shall be 25% to 30%.

## 2.2 GEOTEXTILES

- A. Geotextile fabric shall be as specified in NHDOT Standard Specifications, Section 593.
- B. Geotextile fabric shall be made from polypropylene or polyethylene filaments, fibers or yarns. The fabric shall be inert to biological degradation and resist naturally occurring chemicals, alkalis and acids encountered in the soil. The fabric shall be woven or nonwoven. Strength class shall be determined by the Engineer unless otherwise specified. Refer to NHDOT Qualified Products List for acceptable products for applications as specified below:
  - 1. Subsurface Drainage: Geotextile for this application consists of fabric placed against a soil to allow long-term passage of water into a subsurface drain system while retaining the in-situ soils.
  - 2. Separation: Geotextile for this application consists of fabric placed to prevent mixing of in-situ or subgrade soil with aggregate cover material.
  - 3. Stabilization: Geotextile for this application consists of fabric placed in wet, saturated conditions to provide the coincident functions of separation and filtration and/or to provide the function of reinforcement.
  - 4. Permitted Erosion Control: Geotextile for this application consists of fabric placed below riprap or other armor systems to prevent soil loss and/or instability of the erosion control system.

## PART 3 - EXECUTION

### 3.1 EXCAVATION

- A. The Contractor shall perform all excavations of every description and of whatever substances encountered, in a manner as required to allow for placing of temporary earth support, forms, installation of pipe and other work, and to permit access to the Engineer for the purpose of observing the work. Bottoms of trenches and excavations shall be protected from frost and shall be firm, dry and in an acceptable condition to receive the work; work shall not be placed on frozen surfaces nor shall work be placed on wet or unstable surfaces.
- B. All excavations made in open cut will be controlled by the conditions existing at the various locations and shall always be confined to the limits as designated by the Engineer. In no case shall earth be excavated or disturbed by machinery so near to the finished subgrade for structures and pipelines as to result in the disturbance of the earth below the subgrade. The final excavation to subgrade should be accomplished with a smooth faced bucket or by hand if directed by the Engineer.

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- C. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property.
- D. Contractor shall provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

### 3.2 BLASTING

Not Used

### 3.3 TEMPORARY EARTH SUPPORT

- A. The Contractor shall furnish, place and maintain such sheeting, shoring, and bracing at locations necessary to support the sides of excavations and to prevent danger to persons or damage to pavements, facilities, utilities, or structures, and to prevent injurious caving or erosion or the loss of ground, and to maintain pedestrian and vehicular traffic as directed and required.
- B. In all sheeting, shoring and bracing operations, care shall be taken to prevent injury to persons or damage to structures, facilities, utilities and services. Any injuries to persons shall be the responsibility of the Contractor; and any damage to the work occurring as a result of settlement, water or earth pressure, or other causes due to inadequate bracing or other construction operations of the Contractor shall be satisfactorily repaired or made good by the Contractor, at no additional expense to the Owner.
- C. Where sheeting is to be used, it shall be driven ahead of excavation operations to the extent practicable so as to avoid the loss of material from behind the sheeting; where voids occur outside of the sheeting, they shall be filled immediately with selected fill and thoroughly compacted.
- D. The Contractor shall leave in place all sheeting and bracing at the locations and within the limits ordered by the Engineer in writing. The Contractor shall cut off the sheeting at elevations to be determined by the Engineer.
- E. The Contractor shall comply with all federal, state, and local safety regulations, and requirements.
- F. Install, maintain, and remove the excavation support system in accordance with the record drawings, and in such a manner as to prevent movement, settlement, or loss of ground, removal of fines from the adjacent ground, and damage to or movement of adjacent structures.
- G. Perform field welding by certified welders in accordance with American Welding Society Standard AWS D 1.1, "Structural Welding Code."
- H. The distance from ground surface to the uppermost brace level or tieback shall not exceed 5 feet. The vertical distance between brace levels shall not exceed 12 feet. The maximum distance between the lowermost brace level to the excavation bottom shall not exceed 10 feet.

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#### I. Soldier Piles and Lagging:

1. Use only in areas where the groundwater table outside of the excavation support system is lower than the bottom of excavation.
2. Prebore holes for soldier poles to a diameter at least 4 inches larger than the maximum diagonal dimension of the pile sections. Extend holes to the full design depth of the soldier pile.
3. Carry bottom of soldier pile design below the main excavation adequate to prevent lateral and vertical movement. In areas where additional excavation is required below the main excavation subgrade after the soldier poles have been installed, make provisions to prevent movement of main excavation supports.
4. After seating soldier piles in pre-excavated holes, encase piles with structural concrete by tremie methods up to the lowest point of the excavation adjacent to the pile location. Immediately fill remainder of the hole with lean concrete or sand by tremie methods, completely encasing the pile.
5. After concrete filled soldier piles have attained 25% of concrete design strength, excavation may proceed. As excavation proceeds, remove lean concrete or sand from pile as long as excavation progresses sufficient to place lagging. Follow the excavation closely with placement of lagging.
6. Use timber lagging, precast reinforced concrete lagging, or steel sheeting secured in place to soldier piles, or installed behind flanges. Use precast reinforced concrete members or steel sheeting secured in place to soldier piles when excavation support system is to be left in place.
7. Carefully perform excavation for the installation of lagging to minimize the formation of voids.
8. If unstable material is encountered during excavation, take suitable measures to stabilize it and prevent ground displacement.
9. Maintain a sufficient quantity of material on hand for lagging, bracing, and other operations for protection of the work and for use in case of an accident or an emergency.
10. Fill voids behind lagging with sand bags or other material acceptable to the Engineer.
11. The hole bottom shall be cleaned free of all loose soil using methods acceptable to the Engineer.

#### J. Sheet Piling:

1. Install sheet piling to the depth below the bottom of excavation to prevent movement of the supported soil, to cut off groundwater, and prevent heaving or piping of the bottom of the excavation.

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2. Grout may be used by the Contractor, or the Contractor may be directed by the Engineer to use grout to increase the stability and strength of soil, to minimize soil loss, or to control seepage through interlocks.

K. Internal Bracing for Support System:

1. Use wales, struts, and rakers as necessary to provide internal excavation support. Continuous wales shall be used for either sheet piles, or soldier piles and lagging.
2. When wales are used, obtain tight bearing between wales and wall, and ample bearing area with wedges and packing for load transfer. Connections between struts, wales, and the wall system shall be capable of resisting the design compressive loads as well as a tensile load equal to ten percent of the strut compressive design load.
3. Provide struts with intermediate bracing as needed to enable the struts to carry the maximum load without distortion or buckling. The slenderness ratio of the struts shall be less than 120.
4. Provide diagonal bracing as needed for stability of the system.
5. Include web stiffeners, plates, or angles as needed to prevent rotation, crippling, or buckling of connections and points of bearing between structural steel members. Allow for eccentricities caused by field fabrication and assembly.
6. Install and maintain internal bracing support members in tight contact with each other and with the surface being supported.
7. Preload internal bracing members, including struts, shores and similar members to 50 percent of the design load.
  - a. Use procedures that produce uniform loading members without inducing harmful eccentricities, over-stressing, or distortion.
  - b. Make provisions for permanently fixing each member with steel shims or wedges welded into place.
  - c. Accomplish preloading by jacking supports in place against soldier piles or wales. Do not use wooden wedges to preload bracing members.
  - d. Include in the preloading system the means to determine, within five percent, the amount of preload induced into bracing members.
8. Excavate no more than 2 feet below the bottom of strut about to be placed. Install strut, and preload immediately after installation and before continuing excavation.
9. Do not remove internal bracing and transfer loads to the permanent structure except as provided in the accepted design. When removing struts, increased vertical spacing will

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not be allowed.

L. Removal of Excavation Support:

1. Remove all portions of the excavation support system. When removing the excavation support system, do not disturb or damage adjacent buildings, structures, waterproofing material, or utilities. Fill voids immediately with lean concrete.
2. Remove non-salvageable material of the excavation support system from the site immediately.
3. The Contractor shall be responsible for any damage to adjacent buildings, structures, waterproofing material, or utilities due to the removal of the excavation support system. All damage to existing buildings, structures, waterproofing materials, or utilities shall be repaired immediately by the Contractor to the satisfaction of the Owner, Utility Owner, and the Engineer, at no additional cost to the Owner or the Utility Authority.

3.4 GROUNDWATER CONTROL

- A. The Contractor shall provide, at his own expense, adequate pumping and drainage facilities to maintain the excavated area sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures nor cause excessive disturbance of underlying natural ground. The drainage of all water resulting from pumping shall be managed so as not to cause damage to adjacent property.
- B. Any damage resulting from the failure of the dewatering operations of the Contractor, and any damage resulting from the failure of the Contractor to maintain all the areas of work in a suitable dry condition, shall be repaired by the Contractor, as directed by the Engineer, at no additional expense to the Owner. The Contractor's pumping and dewatering operations shall be carried out in such a manner as to prevent damage to the Contract work and so that no loss of ground will result from these operations. Precautions shall be taken to protect new work from flooding during storms or from other causes. Pumping shall be continuous where directed by the Engineer to protect the work and/or to maintain satisfactory progress.
- C. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected. Water from the trenches, excavations and drainage operations shall be disposed of in such a manner as to avoid public nuisance, injury to public health or the environment, damage to public or private property, or damage to the work completed or in progress.
- D. The Contractor shall control the grading in the areas surrounding all excavations so that the surface of the ground will be properly sloped to prevent water from running into the excavated area. Where required, temporary ditches shall be provided for drainage. Upon completion of the work and when directed, all areas shall be restored by the Contractor in a satisfactory manner and as directed.

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### 3.5 FILLING AND BACKFILLING

#### A. Backfill Material Selection:

1. Unless otherwise specified or directed, material used for filling and backfilling shall meet the requirements as herein specified.
2. In general, the material used for backfilling utility trench excavations shall be material removed from the excavations provided that the reuse of these materials result in the required trench compaction and meets the requirements specified for common fill.
3. All backfill placed within building limits shall be structural fill unless otherwise specified.
4. In areas where the bottom of the excavation is in fine sand and silt and is below the groundwater table, the first lift of backfill shall be 12 inches of compacted crushed stone, unless otherwise indicated on the Drawings, to provide a working mat and drainage layer.
5. Maintain backfill material with a uniform moisture content, with no visible wet or dry streaking, between plus 2 percent and minus 3 percent of optimum moisture content. The final filled soil mass shall be as uniform as possible in lift thickness, moisture content, and effort required to compact soil mass.

#### B. Trench Backfill:

1. The trenches shall be backfilled as soon as practicable with suitable material. All trench backfilling shall be done with special care, in the following manner and as directed by the Engineer.
2. Backfill material for pipe bedding shall be deposited in the trench, uniformly on both sides of the pipe, for the entire width of the trench to the springline of the pipe. The selected backfill material shall be placed by hand shovels, in layers not more than 4 inches thick in loose depth, and each layer shall be thoroughly and evenly compacted by tamping on each side of the pipe to provide uniform support around the pipe, free from voids.
3. The balance of backfill shall be spread in layers not exceeding 12 inches in loose depth. Each layer shall be thoroughly compacted by mechanical methods and shall contain no rock, stones or boulders larger than 4 inches in their greatest dimension.
4. All trench backfilling shall be done with special care and must be carefully placed so as not to disturb the work at any time; if necessary, a timber grillage or other suitable method shall be used to break the fall of material.
5. The moisture content of the backfill material shall be such that proper compaction will be obtained. Puddling of backfill with water will not be permitted.
6. Backfill within areas to receive topsoil or pavement construction shall be made to grades

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required to establish the proper subgrade for the placement of topsoil or pavement base courses.

7. In backfilling trenches, each layer of backfill material shall be moistened and compacted to a density at least equal to that of the surrounding undisturbed earth, and in such a manner as to permit the rolling and compaction of the filled trench or excavation with the adjoining earth to provide the required bearing value, so that paving of the excavated and disturbed areas, where required, can proceed immediately after backfilling is completed.
8. Any trenches or excavations improperly backfilled or where settlement occurs shall be reopened, to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to the Owner.
9. During filling and backfilling operations, pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred. If the observation of the pipelines shows poor alignment, displaced pipe or any other defects, they shall be remedied in a manner satisfactory to the Engineer at no additional cost to the Owner.
10. The top 18 inches of backfill in unpaved roads shall be constructed with 6 inches of crushed gravel on top of 12 inches of gravel. The material shall be placed in three 6-inch lifts, each lift proof rolled and compacted with rollers before placing subsequent lifts.

C. Backfilling Against Structures:

1. Backfilling against masonry or concrete shall not be done until permitted by the Engineer. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads (including construction loads) to which they will be subjected, without distortion, cracking or other damage. As soon as practicable after the structures are structurally adequate and other necessary work has been satisfactorily completed, special leakage tests of the structures shall be made by the Contractor, as required by the Engineer. After the satisfactory completion of leakage tests and the satisfactory completion of any other required work in connection with the structures, the backfilling around the structures shall proceed using suitable and approved excavation material. The best of the backfill material shall be used for backfilling within 2 feet of the structure. Just prior to placing backfill, the areas shall be cleaned of all excess construction material and debris and the bottom of excavations shall be in a thoroughly compacted condition.
2. Symmetrical backfill loading shall be maintained. Special care shall be taken to prevent any wedging action or eccentric loading upon or against the structures. During backfilling operations, care shall be exercised that the equipment used will not overload the structures in passing over and compacting these fills. Except as otherwise specified or directed, backfill shall be placed in layers not more than 12 inches in loose depth and each layer of backfill shall be compacted thoroughly and evenly using approved types of mechanical equipment. Each pass of the equipment shall cover the entire area of each layer of backfill.

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3. In compacting and other operations, the Contractor shall conduct his operations in a manner to prevent damage to structures due to passage of heavy equipment over, or adjacent to, structures, and any damage thereto shall be made good by the Contractor at no additional expense to the Owner.
- D. After backfilling trenches and excavations, the Contractor shall maintain the surfaces of backfill areas in good condition so as to present a smooth surface at all times level with adjacent surfaces. Any subsequent settling over backfilled areas shall be repaired by the Contractor immediately, in a manner satisfactory to the Engineer, and such maintenance shall be provided by the Contractor for the life of this Contract, at no additional expense to the Owner.
- E. The finished subgrade of the fills and filled excavations upon which topsoil is to be placed, or pavements are to be constructed, shall not be disturbed by traffic of other operations and shall be maintained in a satisfactory condition until the finished courses are placed. The storage or stockpiling of materials on finished subgrade will not be permitted.
- F. Geotextile Installation: Geotextile fabric shall be installed as specified in NHDOT Standard Specifications, Section 593 and in accordance with manufacturer recommendations.

### 3.6 GRADING

- A. Grade all excavated and filled sections, embankments and adjacent transition areas, and all areas disturbed as a result of the Contractor's operations to the line, grade, slope, elevation, cross section and true surface as indicated on the Drawings and as directed. The finished surfaces shall be smooth, compacted and free from surface irregularities.
  1. Provide a smooth transition between adjacent existing grades and proposed grades.
  2. Provide constant gradients between given elevations unless otherwise noted.
  3. All areas shall drain with flow lines and shall be free of depressions which permit water to stand. Slope to drains where provided.
  4. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances. Fill low sections, holes or depressions with accepted materials. All soft or otherwise unsuitable material shall be removed and replaced with suitable material from excavation or borrow.
  5. Compact excavated and graded areas as specified. This operation shall include any required reshaping and wetting to obtain proper compaction. Any portion which is not accessible to a roller shall be thoroughly compacted by other mechanical methods.
- B. Accuracy: Finish subgrades to the required elevations within the following tolerances.
  1. Pavements: Plus or minus 1/4-inch provided that this 1/4-inch above or below grade is not maintained for a distance longer than 25 feet and that the required crown and cross slope is maintained.

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2. Lawn (except recreation fields) or Unpaved Areas: Plus or minus 1-inch.
  3. Walkways: Plus or minus 1/4-inch.
  4. Recreation Fields: Plus or minus 1/4-inch.
- C. Grading for recreation fields shall be performed by a compact laser guided grading machine with a maximum weight of 3,500 pounds.

### 3.7 COMPACTION

- A. **Compaction Requirements:** The degree of compaction is expressed as a percentage of the maximum dry density at optimum moisture content as determined by ASTM Test D1557, Method C unless otherwise noted. The compaction requirements are as follows:

Area	ASTM Density Degree of Compaction
Below footings	95%
Below slabs	95%
Wearing and base course pavement	95% *
Aggregate and reclaim base course below pavement	95% *
Subgrade below aggregate/reclaim base course	92%
Trench backfill - below pavements	95%
- below landscaped areas	90%
- below structures	95%
Other areas	90%

\* The criteria for degree of compaction and density testing methodology shall be as specified in NHDOT Standard Specifications.

B. **Moisture Control:**

1. Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill.
2. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.

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C. Unfavorable Conditions:

1. In no case shall fill be placed over material that is frozen. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.
2. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of the day's operations. Prior to terminating work for the day, the final layer of compacted fill shall be rolled with a smooth wheeled roller to eliminate ridges of soil left by compaction equipment.

D. Compaction Control:

1. In-place density tests shall be made in accordance with ASTM D1556, D2922, D2167 or NHDOT Standard Specifications (roadway construction only) as the work progresses, to determine the degree of compaction being attained by the Contractor. Any corrective work required as a result of such tests shall be performed by the Contractor at no additional expense to the Owner. In-place density tests shall be made a Contractor's expense by a testing laboratory experienced and certified to complete required testing.
2. The Engineer's duties do not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Engineer nor any observation and testing performed by Engineer shall excuse the Contractor from defects discovered in his work at that time or subsequent to the testing.
3. In-place density tests shall be performed as a minimum according to the following or as directed by the Engineer:
  - a. Two tests per lift under spread footings and slabs.
  - b. A minimum of every 10 cubic yards of backfill in trenches or around structures.
  - c. In accordance with NHDOT Standard Specifications for roadway construction.

END OF SECTION

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## **SECTION 02700**

### **BASES AND PAVEMENTS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. This Section includes furnishing all labor, equipment, and materials, and performing all operations in connection with constructing base courses and pavements for roadways, drives, curbs and waterways and installing pavement markings, complete in place, in accordance with the Drawings and Specifications and as directed by the Engineer.

##### **1.2 RELATED DOCUMENTS**

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.
- B. The State of New Hampshire Department of Transportation (NHDOT) Standard Specifications for Road and Bridge Construction (hereinafter referred to as NHDOT Standard Specifications), latest edition.
  - 1. All references to Method of Measurement, Basis of Payment and Payment Items in the NHDOT Standard Specifications are hereby deleted. References made to particular sections or paragraphs in the NHDOT Standard Specifications shall include all related articles mentioned therein.

##### **1.3 SUBMITTALS**

- A. Submit in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Submit a statement of qualifications for the paving contractor. The information shall include the name of the paving contractor, key personnel resumes, equipment lists and list of prior experience.
- C. Submit certificates of compliance that the proposed materials to be used for the work comply with the Specifications.
  - 1. Certificate of compliance for mix design for the various types of bituminous pavement materials shall be issued by the NHDOT.
  - 2. The mix design shall state the source, gradation, and percentage of each fraction of the aggregate and filler (if required). It shall state the name of the refiner and supplier of the particular bituminous material to be used and the plant location.
- D. No paving shall be placed until submittals have been reviewed by the Engineer.

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#### 1.4 QUALITY ASSURANCE

- A. All work to be performed under this Contract is under the control of the Owner.
- B. All permits required by the Owner and NHDOT shall be obtained and paid for by the Contractor.
- C. The paving contractor completing the work shall have a minimum of 5 years experience in municipal and state paving operations. The Owner reserves the right to reject paving contractors who, in the judgment of the Engineer, lacks the necessary experience or equipment to perform the work as specified, or who displays a lack of ability based on the actual performance of the work completed. There shall be no change in the contract price for paving or claim for delay resulting from the dismissal of the paving contractor.
- D. The paving plant used by the Contractor for the preparation of the bituminous concrete shall be acceptable to the Engineer. The Engineer reserves the right to inspect the plant and the making of the material.

### **PART 2 - PRODUCTS**

#### 2.1 BASE COURSES

- A. Aggregate base course material shall be as specified in Section 02300.

#### 2.2 PAVEMENT

- A. Pavement shall meet the requirements of NHDOT Standard Specifications, Section 401.
- B. Mix design for bituminous pavement materials for binder course shall be as follows:
  - 1. Aggregate Size: 3/4-inch (19 mm) in accordance with NHDOT Standard Specifications, Section 401, Table 1.
  - 2. Mix Design: 50 gyration N.
  - 3. Grade of Asphalt Binder: PG 58-28.
- C. Mix design for bituminous pavement materials for wearing course shall be as follows:
  - 1. Aggregate Size: 3/8-inch (9.5 mm) in accordance with NHDOT Standard Specifications, Section 401, Table 1.
  - 2. Mix Design: 75 gyration N.

### BASES AND PAVEMENTS 02700-2

3. Grade of Asphalt Binder: PG 58-28.

D. Mix design for bituminous pavement materials for leveling course pavement shall be as specified in NHDOT Standard Specifications, Section 411, Table 1, Type H.

1. Grade of Asphalt Binder: PG 58-28.

E. Mix design for temporary pavement material shall be binder course pavement as herein specified.

F. Mix design for bituminous waterway material shall be wearing course pavement as herein specified.

G. Mix design for bituminous curb shall be as specified in NHDOT Standard Specifications, Section 609.

### 2.3 TACK COAT

A. Tack coat materials shall be as specified in NHDOT Standard Specifications, Section 410.

### 2.4 PAVEMENT MARKINGS

Not Used

## **PART 3 - EXECUTION**

### 3.1 GENERAL

A. Owner reserves the right to delete any paving items of work from the Contract without penalty.

B. Contractor shall replace all pavement, curbs, waterways and drives which have been removed or damaged during construction operations. Pavement replacement shall include satisfactory repair by the Contractor of roadways, curbs, sidewalks, drives and any other surface disturbed by his operations by the same materials as removed or as specified herein. Care shall be taken to minimize trench widths in paved areas.

### 3.2 BASE COURSES AND SUBGRADE

A. Subgrade shall be shaped to line, grade and cross section and shall be thoroughly compacted. This operation shall include any required reshaping and wetting to obtain proper compaction. All soft or otherwise unsuitable material shall be removed and replaced with suitable material from excavation or borrow. The resulting area, and all low sections, holes, or depressions shall be brought to the required grade with approved material and thoroughly compacted.

## **BASES AND PAVEMENTS**

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- B. Base courses shall be constructed to the line, grade and cross section and to the depths and areas shown on the Drawings. Base courses shall be maintained in a smooth condition free of holes and ruts.
- C. Aggregate base courses shall be constructed in accordance with NHDOT Standard Specifications, Section 304, except as herein modified:
  - 1. Gravel and crushed gravel base courses shall be placed in 6-inch lifts and compacted as specified in Section 02300.
  - 2. Crushed gravel shall be fine graded with a power grader or other approved equipment. Tolerances shall be as specified in Section 02300.
  - 3. No pavement shall be placed until fine grading has been checked by the Engineer.
- E. Contractor shall regrade and recompact the base course for installation of permanent binder and wearing course pavement in areas which are disturbed during construction, and in areas as directed by the Engineer.
- F. Unless otherwise specified, after the base course has been rolled to the required grade, any broken or irregular edges of the existing pavement shall be saw cut in straight lines leaving a sound vertical face a minimum of 12-inches back from the edge of the trench or other excavations to accept placement of a 12-inch minimum overlap of bituminous binder course pavement on undisturbed material.
- G. Tack coat shall be applied to the edges of existing pavement so that the new pavement material may be properly bonded to the existing.

### 3.3 PAVEMENT

- A. Bituminous binder course and wearing course pavement shall be constructed in accordance with NHDOT Standard Specifications, Section 401 and Section 403 except as herein modified:
  - 1. The pavement shall be placed and compacted only at such times as to permit the proper checking by the Engineer.
  - 2. The Contractor shall place all bituminous pavement by machine method only unless otherwise permitted by the Engineer. Placing bituminous pavement by hand method will be permitted only for particular locations in the work where because of irregularity, inaccessibility or other unavoidable obstacles mechanical spreading and finishing cannot be performed.
  - 3. The equipment for spreading and finishing shall be mechanical, self-powered pavers, capable of spreading and finishing the pavement true to the established line, grade, width and crown. Paving boxes shall be of proper size for the intended purpose.
  - 4. Pavement shall only be placed when the underlying surface is dry, frost-free and

## BASES AND PAVEMENTS

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the surface temperature is above 50 degrees F, unless otherwise directed by the Engineer.

5. Pavement shall only be placed during daylight hours.
  6. All utility structures (frames, grates, covers, valve boxes, etc.) within the limits of pavement shall be adjusted by the Contractor prior to placing wearing course pavement.
  7. All catch basins and manholes shall be covered with acceptable cover before paver passes over structure.
  8. Castings shall be sprayed with kerosene or other product before the paver passes over casting. The casting shall be clean of asphalt at the completion of the paving.
  9. Contractor shall do the required work around catch basins to provide a downward slope to catch basin grates.
  10. Contractor shall allow a minimum 30-day settlement period to transpire prior to placing permanent binder course pavement and prior to placing permanent wearing course pavement, unless otherwise directed by Engineer or Owner.
- B. Leveling course pavement shall be constructed in accordance with NHDOT Standard Specifications, Section 411.

#### 3.4 CURBS AND WATERWAYS

- A. Bituminous curb shall be replaced as required and installed as indicated on the Drawings and directed by the Engineer.
- B. Bituminous curb shall be constructed in accordance with NHDOT Standard Specifications, Section 609, except as herein modified:
1. Bituminous curb shall be placed on the permanent binder course pavement. The wearing course pavement shall be constructed after placement of the bituminous curbs.
  2. Prior to placing the bituminous curb, the permanent binder course pavement shall be cleaned and painted with a tack coat of bituminous material.
  3. Bituminous curb shall not be placed within 24 hours of last rainfall.
  4. Bituminous curb shall be placed by extruding curb paver and compacted to 95% maximum density.
- C. Curb shall conform to the grade of pavement and adjacent curb sections.
- D. When replacing damaged sections of curb, replacement sections shall match existing

#### BASES AND PAVEMENTS

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sections in material, dimension and alignment.

- E. Areas behind curb shall be graded smooth. Areas shall receive loam and seed, gravel or pavement replacement as required.
- F. Contractor shall be responsible for damage to curbs until final completion.
- G. Bituminous waterways shall be replaced as required and installed as indicated on the Drawings and directed by the Engineer. Waterways shall be placed in two 1-inch thick bituminous courses on a 12-inch compacted crushed gravel base unless otherwise indicated on the Drawings. Material shall be compacted by tamping or rolling. The Contractor shall be responsible for damage to the waterway until final completion.

### 3.5 TACK COAT

- A. Install tack coat as specified in NHDOT Standard Specifications, Section 410.

### 3.6 PAVEMENT MARKINGS

Not Used

### 3.7 COLD PLANING

- A. Complete cold planing as specified in NHDOT Standard Specifications, Section 417.

### 3.8 INFRARED HEATER REPAIRS

- A. Infrared heater repairs shall be performed by an experienced infrared operator.
- B. Areas to be repaired shall be swept clean to remove all loose and foreign materials.
- C. An approved infrared heater shall be positioned over the area to be repaired for a period of time required to soften the existing pavement to a depth of two or more inches. Oxidation of the pavement, caused by improper heating techniques, must be avoided. Unsuitable material must be discarded, if this condition occurs.
- D. The softened area shall be scarified and raked to a workable condition.
- E. Any necessary additional bituminous concrete mix must be obtained from a suitable infrared heated storage unit required to keep asphalt mix at near constant temperature throughout the working day. The minimum temperature of asphalt mix shall be 200°F.
- F. After the paving mixture has been properly admixed and raked to grade, compaction shall be obtained by use of a steel wheeled roller of sufficient weight to establish a uniform density comparable to that of the adjacent surface within the working area. The finished patch shall be level with no depression retaining water on any of its surface.

## BASES AND PAVEMENTS

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- G. Edges of the rolled area shall be sealed with suitable asphalt emulsion, and sand spread over the entire area that has been patched.

### 3.9 FIELD QUALITY CONTROL

#### A. Thickness and Surface Tolerances:

1. Bituminous pavement courses shall be tested in-place for compliance with compacted thickness and surface tolerance requirements.
2. Contractor shall repair or remove and replace unacceptable pavement and retest as directed by the Engineer, all at no additional cost to the Owner.
3. Testing, tolerances and replacement shall be as specified in NHDOT Standard Specifications, Section 401.
4. In-place density tests shall be completed at Contractor's expense by a testing laboratory experienced and certified to complete the testing required.

#### B. Compaction: Refer to Section 02300

- C. Guarantee: During the guarantee period, the Contractor shall maintain the integrity of the pavement surface and shall promptly fill any depressions and holes that may occur. Fill material shall be in compliance with these Specifications and as directed by the Engineer or Owner. Contractor shall commence work within 24 hours of being notified by the Engineer or Owner of deficiencies. All work shall be completed at no additional cost to the Owner.

END OF SECTION

## BASES AND PAVEMENTS

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## SECTION 02920

### LAWNS AND GRASSES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes furnishing all labor, equipment, and materials and performing all operations in connection with the application of loam, fertilizer, lime, mulch, seed and maintenance and protection of lawns and grasses in accordance with the Drawings and Specifications and as directed by the Engineer.

##### 1.2 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract and Division 1 Specification Sections apply to this Section.

##### 1.3 SUBMITTALS

- A. Submit in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Submit samples of all materials requested by the Engineer.
- C. Submit certificates of compliance with these Specifications. Analyses shall be certified by the manufacturer, dealer or testing laboratory, whichever is appropriate.
- D. Submit manufacturer's literature and data.

##### 1.4 QUALITY ASSURANCE

- A. Testing:
  - 1. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.
  - 2. The Engineer reserves the right to test and reject any material not meeting these Specifications. Costs for these tests shall be paid by the Contractor
- B. For the duration of the guarantee period, the Contractor shall insure that the soil remains free from erosion and that the grass cover remains in good condition. In addition, for the duration of the guarantee period, the Contractor shall maintain the slopes and grass cover at the Contractor's own expense when notified by the Engineer or the Owner to do so. All repair work shall be done to the satisfaction of the Engineer and Owner.

### LAWNS AND GRASSES

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## PART 2 - PRODUCTS

### 2.1 MATERIALS

#### A. Loam:

1. Loam shall be fertile, natural soil, typical of the locality, free from large stones, roots, sticks, boards, clods, clay, hardpan, peat, weeds, sod, lime, cement, bricks, ash, cinders, slag, concrete, tar, toxic materials that harmful to plants, and other deleterious material. Loam shall be obtained from naturally well-drained areas.
2. Loam shall not be excessively acid or alkaline and shall have a pH value within the range of 6 to 7.
3. Loam shall not contain less than 4 percent or more than 20 percent decayed organic matter in that portion of the sample which passes a 1/4-inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.
4. One hundred percent of loam weight shall pass a 1-inch opening sieve and 97 to 100 percent shall pass a 1/4-inch sieve. In the latter material there shall be not less than 20 percent or more than 65 percent passing a 200 mesh sieve as determined by a wash test made in accordance with the standard test ASTM D1140.
5. Before any loam is delivered, the Contractor shall submit a sample of 1 cubic foot of product from each source of supply including on-site stockpiles for the Engineer's review and approval. Delivery may begin upon such approval. The approved sample shall be stored on the site until the supply from its source is exhausted or until no more loam is required.
6. Samples of loam from each source shall be provided and tested by a testing laboratory approved by the Engineer. Test analysis shall be accompanied by the laboratory's recommendations for amending the loam. Loam shall be tested in conformance with the Standards of the Association of Official Agricultural Chemists. All testing shall be done at the Contractor's expense. The analysis shall include the following chemical parameters:
  - a. Ph \*
  - b. Nitrate Nppm
  - c. Organic Matter %
  - d. Phosphorous (Olson) ppm
  - e. Potassium ppm
  - f. Sodium MEQ/100g
  - g. Sulfate ppm
  - h. Conductivity MMHGS/CM

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7. No loam shall be delivered in a frozen or muddy condition.
8. Topsoil stockpiled as a result of Contractor operations may be used when approved by the Engineer. Additional topsoil furnished by the Contractor shall be subject to the Engineer's approval.

B. Fertilizer/Soil Amendments:

1. Commercial fertilizer shall be complete fertilizer and shall be a standard product complying with state and federal fertilizer laws. At least 40 percent by weight of the nitrogen content of the fertilizer shall be derived from organic materials. Fertilizer for lawn areas shall contain not less than 8 percent nitrogen, 6 percent phosphorus and 4 percent potash by weight of ingredients or as otherwise indicated by loam test results. Fertilizer analysis is baseline for bidding and shall be modified as required by findings of loam test results.
2. Superphosphate shall be finely ground phosphate rock as commonly used for agricultural purposes and shall contain not less than 18 percent available phosphoric acid.
3. Ground limestone shall contain not less than 95 percent total carbonates and shall be ground to such fineness that 50 percent will pass through a 100 mesh sieve and 90 percent will pass through a 20 mesh sieve. Coarser material will be accepted provided the specified rates of application are increased proportionately on the basis of quantities passing the 100 mesh sieve.

C. Pre-Emergent Herbicide:

1. Pre-emergent herbicide shall be a pre-emergent control, during Spring seeding, of listed weeds in newly seeded or established plantings of blue-grass, fescue, redtop, perennial ryegrass and shall be "Tupersan" or approved equal. It should be applied at the time of seeding without causing injury to germinating seedlings of most cool-season grasses. It shall be a wettable powder that is mixed with water, to allow spot treatment of areas that may be difficult to treat with granular pre-emergents. It is only required for Spring seeding to control weed growth during the summer.

D. Seed:

1. Lawn seed mixture shall be a fresh, clean, Park Seed Type 15. Seed shall test to minimum percentages of purity and germination specified. This seed mixture shall conform to the following:

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Kind of Seed	Minimum Purity (%)	Minimum Germination (%)	Kilograms/Hectare (Lbs / Acre)
Creeping Red Fescue	96	85	45 (40)
Perennial Ryegrass	98	90	55 (50)
Kentucky Bluegrass	97	85	30 (25)
Redtop	95	80	5 (5)

2. Seed mixture shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures, purity, germination, weed seed content, and inert material. Seed shall be labeled in conformance with the U.S. Department of Agricultural rules and regulations and applicable State seed laws.
3. Lawn seed shall be purchased from a recognized distributor.

E. Mulch:

1. Fiber mulch shall be composed of virgin wood cellulose fiber manufactured from whole wood chips containing no germination or growth inhibiting factors. The fiber shall be colored green to allow visual metering during application, have the properties of even dispersal and suspension when agitated in water and, when uniformly sprayed on soil surface, form an absorbent cover allowing percolation of water to underlying soil.

F. Erosion Control Blanket:

1. Application: Erosion control blanket may be required as an additional measure to prevent erosion on slopes greater than 2:1 and in drainage swales.
2. The engineered biodegradable erosion fiber that comprises the erosion blanket shall be made from Great Lakes Aspen Excelsior with no weed seeds. The erosion blanket shall have a consistent mat appearance and be free of voids. The fiber shall be curled, interlocking fibers with barbed edges, with 80% of the excelsior fibers to be a minimum of 6" in length and .038" ± .010" wide by .018" ± .003" thick. The erosion blanket should weigh .73 lbs ± 10% per square yard. Water absorption shall be 250% ± 25%. The erosion control blanket shall meet ASTM D-6459. Erosion control blanket shall be Curlex Erosion Control Blanket as manufactured by American Excelsior Co., Arlington, Texas or approved equal.

G. Water shall be furnished by the Contractor and shall be suitable for irrigation and free from ingredients harmful to plant life. All watering equipment required for the work shall be furnished by the Contractor.

H. All materials shall be delivered to the site in original unopened packages, showing weight, percentage of mixtures, purity, manufacturer's name and guaranteed analysis. Materials shall be stored in such a manner that their effectiveness and usability will not be diminished or destroyed and shall be uniform in composition, dry, unfrozen and free flowing.

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## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. All work shall be performed by workmen experienced in lawn installation under the full-time supervision of a qualified foreman.
- B. Subgrade Preparation:
  - 1. Prior to placement of loam, prepare the subgrade to accept loam as shown on the Drawings and as herein specified.
  - 2. Perform required grading to bring the subgrade to a true and smooth slope that is parallel to a minimum compacted depth of 6 inches (unless otherwise indicated on the Drawings) below grade of all areas to receive loam.
  - 3. The subgrade shall be hand or machine raked so as to remove all debris, clods, stones, or other foreign material larger than 1 inch, to a depth of 4 inches. Dispose materials off-site in accordance with all federal, state and local regulations.
  - 4. The subgrade shall be scarified to a minimum depth of 4 inches to facilitate bonding of loam to subgrade soil. Where subgrades have been severely compacted, scarify subgrade to a minimum depth of 8 inches
- C. Spreading Loam:
  - 1. Place and spread loam to a depth sufficiently greater than the depth required for lawn areas so that after natural settlement and compaction, the complete work will conform to the lines, grades and elevations indicated.
  - 2. After loam has been spread, prepare it carefully by scarifying or harrowing and hand raking. Remove all large stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over 1-inch in diameter and dispose of legally off site.
  - 3. Placement and spreading of loam shall not be done when the ground is frozen or excessively wet.
- D. Fertilizer/Soil Amendments:
  - 1. Apply commercial fertilizer and work thoroughly into the loam in two applications. The first application shall be within one week before seeding at the rate of 30 lbs per 1000 square feet or at the rate determined from soil tests. Harrow fertilizer into the top 2-inches of loam. The second application shall be as determined by the test results. Fertilizer shall be applied in strict accordance with manufacturer instructions and recommendations.
  - 2. Apply superphosphate into the loam with the first application of commercial fertilizer at the rate of 20 lbs per 1000 square feet or at the rate determined from soil tests.

## **LAWNS AND GRASSES**

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3. Apply ground limestone into the loam after it has been spread and graded at a rate of 50 pounds per 1000 square feet or at a rate determined from soil tests. Achieve a pH of 6.0 to 6.5. Apply limestone at least 7 days prior to applying fertilizer.

E. Seeding:

1. Seeding shall consist of soil preparation, seeding, raking, rolling, weeding, watering and otherwise providing all labor and materials necessary to secure the establishment of acceptable turf.
2. The season for the seeding shall in the Spring (April 1 to May 31) or Fall (August 15 to October 15). The actual planting of lawns shall be completed only during periods within this season which are normal for such work as determined by weather conditions and by accepted practice in the local area. At the option of the Contractor, planting of grass may be done under unseasonable conditions without additional compensation, subject to Owner or Engineer approval as to time of work and methods of operation. Such operations and results shall be the responsibility of the Contractor and shall be completed at no additional cost to the Owner.
  - a. The Fall seeding period is preferred to avoid the impact of expected weed growth that occurs during the summer after a Spring seeding. If a Spring seeding is selected then a pre-emergent herbicide shall be applied prior to Spring seeding to control weed growth. The pre-emergent herbicide, "Tupersan" shall be applied per manufacturer's recommendations and instructions and by a New Hampshire licensed applicator.
3. Immediately before any seed is sown, the ground shall be scarified, harrowed, raked and broomed until the surface is smooth, friable and of uniform fine texture. If soil is too loose or dry for good handling, it shall be moistened and lightly rolled. No seeding shall be done during windy weather. Seed shall be sown in two directions at right angles to each other. Sow the seed evenly by hand or with an approved seeding device in the proportions and at the rate of 5 lbs per 1,000 square feet of area. Seed shall be applied to the conditioned seed bed not more than 48 hours after the seed bed has been prepared. The seed shall be covered with a thin layer of loam by light raking or other approved method, rolled in both directions with a hand roller weighing not more than 100 lbs per foot of width, and watered with a fine spray. Necessary precautions shall be taken to keep the area undisturbed until the grass comes up.
4. All slopes 3:1 or steeper shall be overseeded with Annual Ryegrass, 98 percent purity, 90 percent germination, at the rate of 1 lb per 1,000 square feet, in addition to the specified seed mix. This shall be a separate sowing executed after the sowing of the regular mixture and before the raking and rolling operations.
5. Hydroseeding: At his option, the Contractor may accomplish seeding by use of approved hydroseeding equipment designed specifically for this work. Mix seed, fertilizer, wood cellulose fiber mulch and non asphaltic-fiber binder in required amount of water to produce a homogeneous slurry. Add fiber mulch after seed, water, and fertilizer have been thoroughly mixed and apply at the rate of 200 pounds per acre dry weight. The

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slurry shall be applied within 30 minutes of mixing to prevent burning of the seed by fertilizer. Immediately following the application of the slurry mix, make separate application of fiber mulch and fiber binder at the rate of 1,000 pounds dry weight per acre except where erosion control blanket is applied immediately. When hydraulically sprayed on the ground, material shall form a blotter like cover impregnated uniformly with grass seed. Cover shall allow rainfall or applied water to percolate to underlying soil. Exercise care to prevent any slurry from being sprayed onto any hardscape areas and structures. Remove all slurry sprayed onto these surfaces immediately.

6. All areas disturbed by the work of this contract and not required to be developed otherwise shall be seeded except as otherwise noted on the Drawings.

### 3.2 MAINTENANCE

- A. Maintenance shall begin immediately after each portion of lawn is planted.
- B. Contractor shall be responsible for lawn maintenance including watering, weeding, fertilization, mowing and replanting as necessary to establish a uniform, thick, well developed stand of the specified grass that may be occupied by the Owner for the intended use, as determined by the Engineer or Owner.
  1. At time of first cutting, keep mower blades not less than 2-1/2 inches high.
  2. All maintenance shall be completed at no additional cost to the Owner.
- C. After the grass has started, all areas and parts of areas which fail to show a uniform, thick, well developed stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be reseeded repeatedly until all areas are covered with a satisfactory growth of grass as determined by the Engineer.
- D. Prior to acceptance, any damage resulting from erosion, gulleys, washouts or other causes shall be repaired by filling with loam, tamping, re-fertilizing and re-sodding or reseeded.
- E. Lawn areas shall be protected against trespassing and damage as required to insure satisfactory growth acceptable to the Engineer. Any means of protection shall require the approval of the Engineer prior to its erection.

### 3.3 ACCEPTANCE

- A. Upon written request by the Contractor, the Engineer will inspect all lawn areas to determine completion of contract work. This request must be submitted at least 10 days prior to the anticipated date. The lawns will become acceptable if they show a uniform, thick well developed stand of grass that may be occupied by the Owner for their intended use. When acceptance is made in writing to the Contractor, the Contractor's responsibility for maintenance shall terminate as herein specified. Acceptance will be as determined by the Engineer or Owner.
  1. Scattered bare spots, none of which are larger than 4 inches in diameter will be allowed

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in seeded areas up to a maximum of 2 percent of any lawn area.

- B. No lawn areas shall exhibit signs of damage from erosion, washouts, gullies or other causes.
- C. Building and pavement surfaces adjacent to lawn areas shall be clean and free of spills or overspray from placing or handling of topsoil and seeding operations.
- D. Contractor shall furnish to the Owner complete written instructions for maintenance of all lawn areas at time of acceptance.
- E. Acceptance of lawns shall be granted for the work in its entirety. No partial acceptance shall be given.
- F. Acceptance of the lawn area shall not occur before acceptance of the entire Project.

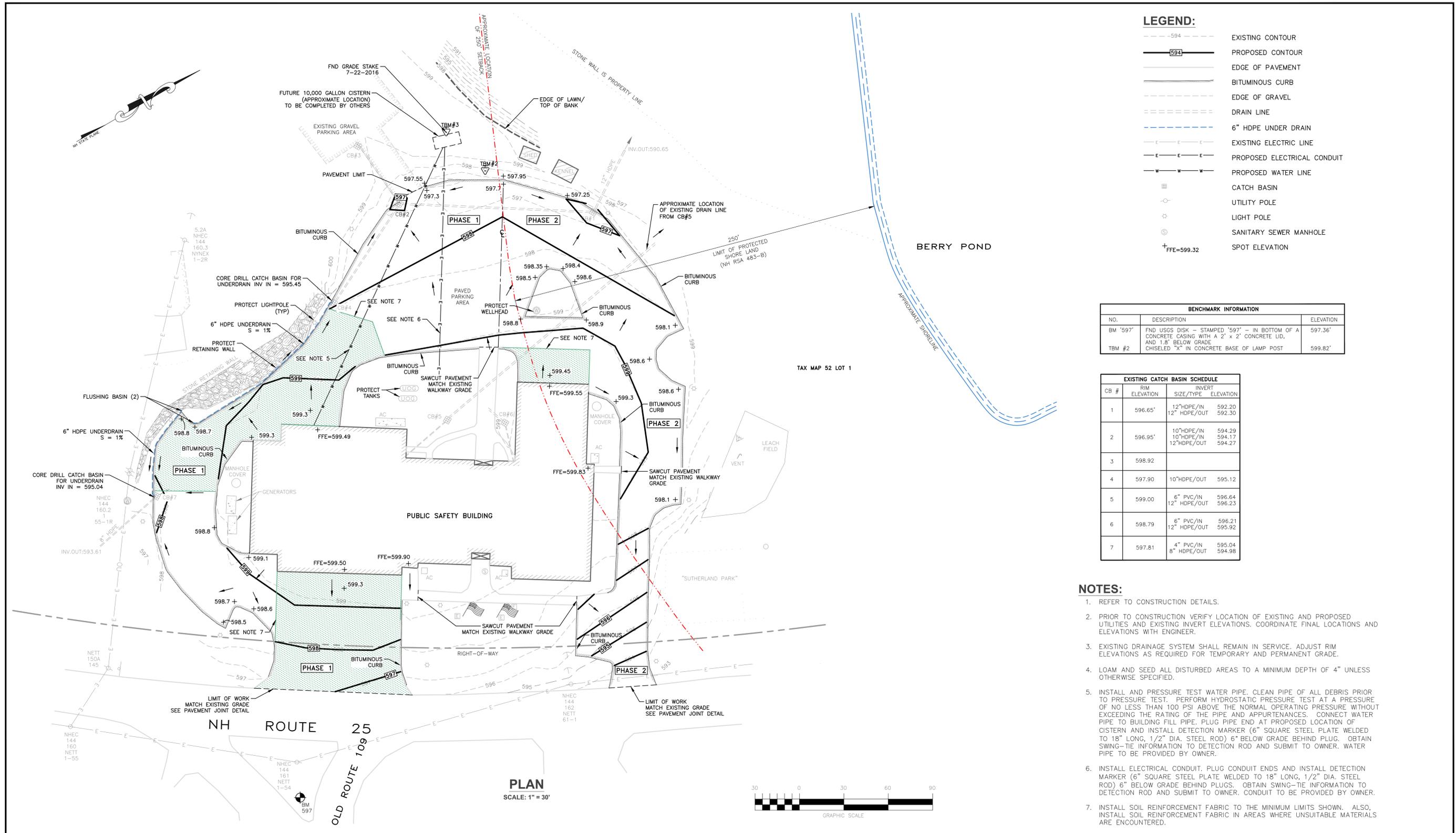
### 3.3 CLEANUP

- A. After completion of the work, the Contractor shall remove all debris, materials, rubbish, etc. from the site and shall dispose of same in accordance with all federal, state and local regulations. The premises shall be left clean as determined by the Engineer or Owner.

END OF SECTION

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**APPENDIX E**  
**DRAWINGS**



**LEGEND:**

- - - - -594- - - - - EXISTING CONTOUR
- 594 — PROPOSED CONTOUR
- — — — — EDGE OF PAVEMENT
- — — — — BITUMINOUS CURB
- - - - - EDGE OF GRAVEL
- - - - - DRAIN LINE
- - - - - 6" HDPE UNDER DRAIN
- - - - - EXISTING ELECTRIC LINE
- - - - - PROPOSED ELECTRICAL CONDUIT
- - - - - PROPOSED WATER LINE
- ▣ CATCH BASIN
- UTILITY POLE
- ⊙ LIGHT POLE
- ⊙ SANITARY SEWER MANHOLE
- + FFE=599.32 SPOT ELEVATION

BENCHMARK INFORMATION		
NO.	DESCRIPTION	ELEVATION
BM '597'	FND USGS DISK - STAMPED '597' - IN BOTTOM OF A CONCRETE CASING WITH A 2" x 2" CONCRETE LID, AND 1.8" BELOW GRADE	597.36'
TBM #2	CHISELED "X" IN CONCRETE BASE OF LAMP POST	599.82'

EXISTING CATCH BASIN SCHEDULE			
CB #	RIM ELEVATION	INVERT SIZE/TYPE	ELEVATION
1	596.65'	12" HDPE/IN 12" HDPE/OUT	592.20 592.30
2	596.95'	10" HDPE/IN 10" HDPE/IN 12" HDPE/OUT	594.29 594.17 594.27
3	598.92		
4	597.90	10" HDPE/OUT	595.12
5	599.00	6" PVC/IN 12" HDPE/OUT	596.64 596.23
6	598.79	6" PVC/IN 12" HDPE/OUT	596.21 595.92
7	597.81	4" PVC/IN 8" HDPE/OUT	595.04 594.98

- NOTES:**
- REFER TO CONSTRUCTION DETAILS.
  - PRIOR TO CONSTRUCTION VERIFY LOCATION OF EXISTING AND PROPOSED UTILITIES AND EXISTING INVERT ELEVATIONS. COORDINATE FINAL LOCATIONS AND ELEVATIONS WITH ENGINEER.
  - EXISTING DRAINAGE SYSTEM SHALL REMAIN IN SERVICE. ADJUST RIM ELEVATIONS AS REQUIRED FOR TEMPORARY AND PERMANENT GRADE.
  - LOAM AND SEED ALL DISTURBED AREAS TO A MINIMUM DEPTH OF 4" UNLESS OTHERWISE SPECIFIED.
  - INSTALL AND PRESSURE TEST WATER PIPE. CLEAN PIPE OF ALL DEBRIS PRIOR TO PRESSURE TEST. PERFORM HYDROSTATIC PRESSURE TEST AT A PRESSURE OF NO LESS THAN 100 PSI ABOVE THE NORMAL OPERATING PRESSURE WITHOUT EXCEEDING THE RATING OF THE PIPE AND APPURTENANCES. CONNECT WATER PIPE TO BUILDING FILL PIPE. PLUG PIPE END AT PROPOSED LOCATION OF CISTERN AND INSTALL DETECTION MARKER (6" SQUARE STEEL PLATE WELDED TO 18" LONG, 1/2" DIA. STEEL ROD) 6" BELOW GRADE BEHIND PLUG. OBTAIN SWING-TIE INFORMATION TO DETECTION ROD AND SUBMIT TO OWNER. WATER PIPE TO BE PROVIDED BY OWNER.
  - INSTALL ELECTRICAL CONDUIT. PLUG CONDUIT ENDS AND INSTALL DETECTION MARKER (6" SQUARE STEEL PLATE WELDED TO 18" LONG, 1/2" DIA. STEEL ROD) 6" BELOW GRADE BEHIND PLUGS. OBTAIN SWING-TIE INFORMATION TO DETECTION ROD AND SUBMIT TO OWNER. CONDUIT TO BE PROVIDED BY OWNER.
  - INSTALL SOIL REINFORCEMENT FABRIC TO THE MINIMUM LIMITS SHOWN. ALSO, INSTALL SOIL REINFORCEMENT FABRIC IN AREAS WHERE UNSUITABLE MATERIALS ARE ENCOUNTERED.

REVISIONS				
NUMBER	DATE	BY	DESCRIPTION	



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DATE:	07/26/16
SCALE:	AS SHOWN
DESIGNED BY:	RHK
DRAWN BY:	NMT
CHECKED BY:	RHK
APPROVED BY:	RHK

**PUBLIC SAFETY BUILDING  
PARKING LOT IMPROVEMENTS  
MOULTONBOROUGH, NEW HAMPSHIRE**

**SITE PLAN**

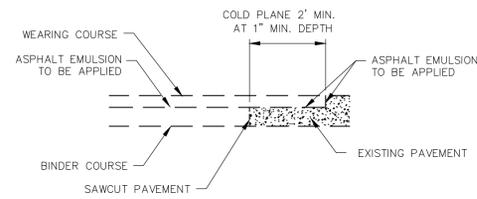
SHEET NO.  
**1**  
**SHEET 1 OF 2**

**GENERAL NOTES**

1. BASE MAP INFORMATION IS PROVIDED BY DAVID M. DOLAN ASSOCIATES P.C., MOUTONBOROUGH, NEW HAMPSHIRE. SURVEY COMPLETED IN APRIL 2016.
2. THE CONTRACTOR SHALL VERIFY ALL RELEVANT ANGLES, LENGTHS, ELEVATIONS, AND INVERTS PRIOR TO CONSTRUCTION.
3. THE LOCATION OF EXISTING UTILITIES AND SUBSURFACE STRUCTURES AS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND APPROPRIATE UTILITY AUTHORITY OF ANY DISCREPANCY WITH THE DRAWINGS. NEITHER THE ENGINEER NOR THE OWNER WARRANTS OR GUARANTEES THE CONDITIONS SHOWN ON THE DRAWINGS.
4. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL SUBSURFACE STRUCTURES AND UTILITIES THROUGH THE APPROPRIATE AGENCY. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY EXCAVATION. THE CONTRACTOR SHALL CALL THE DIG-SAFE CENTER (1-888-344-7233) AT LEAST 72 BUSINESS HOURS PRIOR TO ANY EXCAVATION.
5. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITY WITH THE VARIOUS AFFECTED UTILITY AUTHORITIES TO PREVENT UNNECESSARY DELAY OF WORK OR INTERRUPTION OF SERVICES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND SUPPORTING ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATING SUCH ACTIVITY WITH THE APPROPRIATE UTILITY AUTHORITY. UTILITIES DESTROYED OR DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE UTILITY AUTHORITY AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL MAINTAIN TRAFFIC IN A SAFE MANNER AT ALL TIMES DURING CONSTRUCTION AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
8. THE CONTRACTOR SHALL COMPLY WITH ALL PERMITS ISSUED FOR THE PROJECT.
9. THE CONTRACTOR SHALL CONFINE ALL OPERATIONS AND ACTIVITIES FOR CONSTRUCTION PURPOSES WITHIN THE LIMITS OF WORK SHOWN ON THE DRAWINGS.
10. DURING NON-WORKING HOURS, THE CONTRACTOR SHALL SECURE ALL EQUIPMENT AND MATERIALS WITHIN THE LIMITS OF WORK.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT, ROADWAYS, SIGNS, CURBS, SIDEWALKS, DRIVEWAYS, MAILBOXES, FENCES, PLANTINGS OR OTHER PHYSICAL FEATURES CAUSED BY THE CONTRACTOR'S ACTIVITIES AND SHALL REPAIR THEM AT NO ADDITIONAL COST TO THE OWNER. ALL AREAS BEYOND THE LIMITS OF CONSTRUCTION WHICH ARE DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
12. THE CONTRACTOR SHALL TAKE PRECAUTIONS DURING CONSTRUCTION TO MINIMIZE THE AMOUNT OF DEBRIS THAT COLLECTS IN CATCH BASINS, CULVERTS AND MANHOLES. THE CONTRACTOR SHALL CLEAN ALL CATCH BASINS, CULVERTS AND MANHOLES AFFECTED BY CONSTRUCTION IN ORDER TO MAINTAIN AN OPERATING SYSTEM.
13. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FROM APPLICABLE GOVERNMENTAL AGENCIES, INCLUDING THE OWNER, PRIOR TO THE START OF ANY CONSTRUCTION.
14. THE CONTRACTOR IS REQUIRED TO PROVIDE ADEQUATE SHORING FOR THE SOIL CONDITIONS AND DEPTHS ENCOUNTERED DURING CONSTRUCTION.
15. IN THE EVENT THE CONTRACTOR ENCOUNTERS EXISTING MATERIAL REASONABLY BELIEVED TO BE HAZARDOUS WHICH HAS NOT BEEN RENDERED HARMLESS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND REPORT THE CONDITION TO THE OWNER AND ENGINEER. WORK IN THE AFFECTED AREA SHALL NOT RESUME UNTIL WRITTEN VERIFICATION BY THE OWNER THAT THE MATERIAL HAS BEEN REMOVED OR OTHERWISE BEEN RENDERED HARMLESS.
16. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE CONTRACT DOCUMENTS. ALL DRAWINGS OF ANY PARTICULAR TRADE SHALL BE USED IN CONJUNCTION WITH DRAWINGS OF ALL OTHER TRADES TO COORDINATE THE CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED WORK. ANY PROPOSED CHANGES, VARIATIONS, OR SUBSTITUTIONS MUST BE REVIEWED AND ACCEPTED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

**CONSTRUCTION SEQUENCING PLAN:**

1. INSTALL TRAFFIC CONTROL MEASURES AND WARNING SIGNS AND DEVICES.
2. INSTALL EROSION AND SEDIMENT CONTROL MEASURES.
3. CONSTRUCT PHASE 1. IN GENERAL, THE WORK WILL INCLUDE:
  - A. EXCAVATE, FILL, BACKFILL AND COMPACT AGGREGATE BASE COURSE MATERIALS.
  - B. INSTALL UNDERDRAIN.
  - C. INSTALL BINDER COURSE PAVEMENT.
  - D. TEMPORARILY ADJUST CASTINGS TO ENSURE PROPER DRAINAGE DURING WINTER SHUTDOWN.
  - E. INSTALL TEMPORARY PAVEMENT TO MAKE GRADE TRANSITION FROM PHASE 1 TO PHASE 2 DURING WINTER SHUTDOWN.
  - F. RESTORE TRAFFIC TO NORMAL OPERATIONS FOR WINTER SHUTDOWN.
4. CONSTRUCT PHASE 2. IN GENERAL, THE WORK WILL INCLUDE:
  - A. EXCAVATE, FILL, BACKFILL AND COMPACT AGGREGATE BASE COURSE MATERIALS.
  - B. INSTALL BINDER COURSE PAVEMENT.
  - C. INSTALL BITUMINOUS CURB FOR PHASE 1 AND PHASE 2.
  - D. INSTALL WEARING COURSE PAVEMENT FOR PHASE 1 AND PHASE 2.
  - E. ADJUST CASTINGS TO FINAL GRADE.
5. LOAM AND SEED ALL DISTURBED AREAS, CLEAN ALL CATCH BASINS AND DRAIN LINES OF SILT AND OTHER DEBRIS AND COMPLETE FINAL RESTORATION AND CLEAN-UP.
6. REMOVE EROSION AND SEDIMENT CONTROL MEASURES UPON STABILIZATION OF DISTURBED AREAS.
7. REMOVE TRAFFIC CONTROL MEASURES AND WARNING SIGNS AND DEVICES UPON COMPLETION OF WORK.

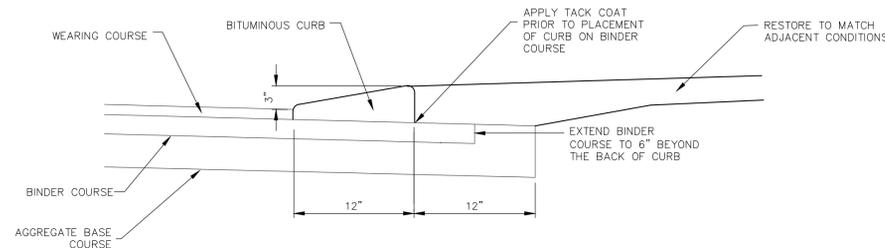


**NOTES:**

1. CONTRACTOR SHALL COORDINATE WITH ENGINEER PRIOR TO COMMENCEMENT OF WORK REGARDING JOINT LOCATION.

**PAVEMENT JOINT DETAIL**

NOT TO SCALE

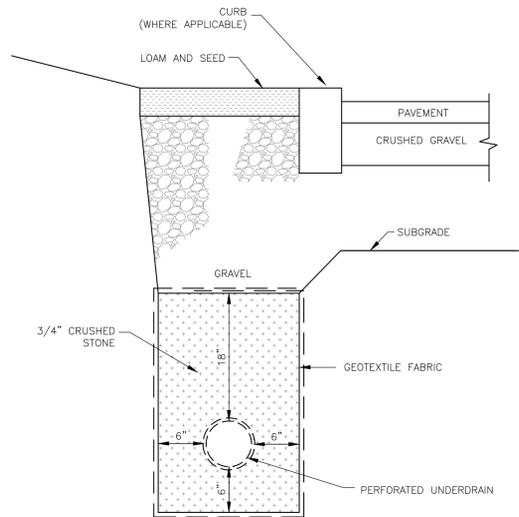


**NOTES:**

1. REFER TO TYPICAL PAVEMENT SECTION FOR DEPTHS OF PAVEMENT AND BASE COURSE MATERIALS.
2. REFER TO PLANS FOR LOCATIONS OF BITUMINOUS CURB.

**BITUMINOUS CURB DETAIL**

NOT TO SCALE

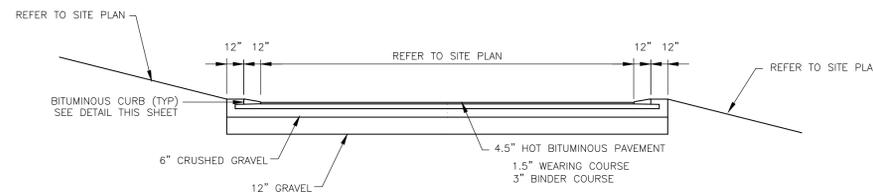


**NOTES:**

1. UNDERDRAIN SHALL BE FURNISHED AND INSTALLED AS SPECIFIED IN NHDOT STANDARD SPECIFICATIONS, SECTION 605.
2. INSTALL FLUSHING BASIN WHERE INDICATED ON PLANS. INSTALL AS SPECIFIED IN NHDOT STANDARD PLANS AND SPECIFICATIONS.

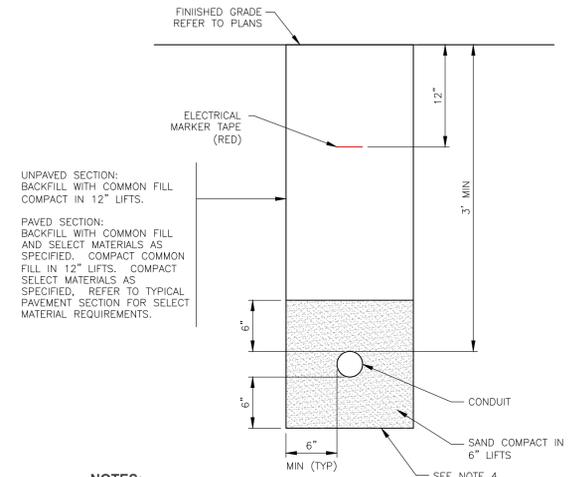
**UNDERDRAIN DETAIL**

NOT TO SCALE



**TYPICAL PAVEMENT SECTION**

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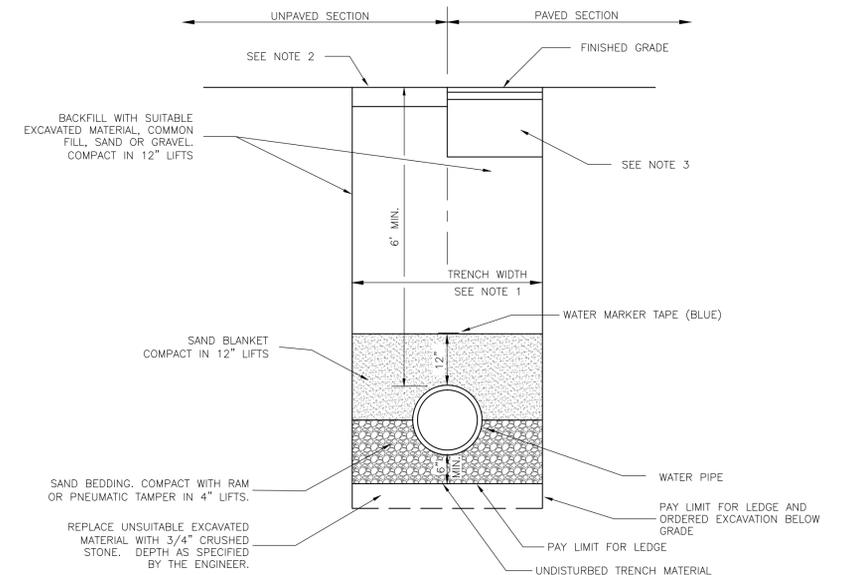


**NOTES:**

1. CONDUIT JOINTS SHALL BE CEMENTED.
2. INSTALL 1/4" NYLON PULL LINE WITH 10' OF SLACK. CONNECT TO PLUGS.
3. MAINTAIN 18" MINIMUM CLEARANCE IN ALL DIRECTIONS BETWEEN CONDUIT AND ADJACENT WATER, SEWER AND FUEL LINES AND BUILDING FOUNDATIONS.
4. TRENCH BOTTOM SHALL BE UNDISTURBED EARTH, SOLID, SMOOTH, WELL TAMPED AND FREE OF ANY DEBRIS THAT MAY BE DETRIMENTAL TO THE CONDUIT. EXCAVATION SHALL BE OF A SIZE AND EXTENT TO PERMIT PROPER INSTALLATION OF CONDUIT AS REQUIRED. WHERE EXCAVATION IS IN ROCK, IT SHALL BE REMOVED TO 4 INCHES BELOW THE TRENCH BOTTOM AND TO LIMITS OF TRENCH SIDEWALLS. THE OVER EXCAVATION SHALL BE REPLACED WITH A BEDDING OF COMPACTED 3/4" CRUSHED STONE OR SAND. ANY CONDITIONS NOT SUITABLE FOR A STABLE FOUNDATION SHALL BE REPORTED TO THE ENGINEER.

**CONDUIT TRENCH DETAIL**

NOT TO SCALE



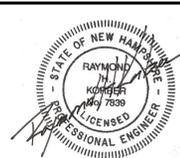
**NOTES:**

1. THE ALLOWABLE TRENCH WIDTH AT PLANE 12" ABOVE PIPE SHALL BE NO MORE THAN 36".
2. WHERE GRASS OCCURS, LOAM AND SEED ALL DISTURBED AREAS TO A MINIMUM DEPTH OF 4" UNLESS OTHERWISE NOTED. WHERE NO GRASS OCCURS, MATCH EXISTING MATERIALS AND DEPTHS OR PLACE A MINIMUM OF 6" OF GRAVEL, WHICHEVER IS GREATER.
3. REFER TO TYPICAL PAVEMENT SECTION.
4. BEDDING SHALL BE WRAPPED IN FILTER FABRIC IN LOCATIONS WHERE SOIL IS CONSIDERED UNSUITABLE BY THE ENGINEER.

**WATER TRENCH DETAIL**

NOT TO SCALE

REVISIONS			
NUMBER	DATE	BY	DESCRIPTION



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DATE:	07/26/16
SCALE:	AS SHOWN
DESIGNED BY:	RHK
DRAWN BY:	NMT
CHECKED BY:	RHK
APPROVED BY:	RHK

**PUBLIC SAFETY BUILDING  
PARKING LOT IMPROVEMENTS  
MOUTONBOROUGH, NEW HAMPSHIRE**

**GENERAL NOTES AND DETAILS**

SHEET NO.

**2**

**SHEET 2 OF 2**