

SECTION 5.00

CONTROL OF WORK

5.01 Authority of the Engineer.

The Engineer shall decide all questions which may arise as to the interpretation of the plans and specifications, and the Engineer may alter, adjust and approve same when necessary; all questions which may arise as to the quality, quantity, value and acceptability of materials furnished or to be furnished and work performed or to be performed; all questions which may arise as to the progress of the work and need for and manner of correcting same, and also the need for and terms of delays and suspensions; all questions relating to the need for and terms of extra work; all questions relating to the supervision, control and direction of work on the site and the use thereof; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor.

5.02 Plans and Detail Drawings.

Approved plans, profiles and sections on file in the office of the Department will show the location, details and dimensions of the highway, bridges and other work contemplated, and all work shall be in conformity therewith and with the specifications.

Supplemental plans and detail drawings as required in the specifications and furnished by the Contractor or the Department shall upon approval, become part of the complete plans. Supplemental plans for temporary structures, steel sheeting, cofferdams, sign and traffic supports, etc., the original design for which is the responsibility of the Contractor, shall bear the seal of a Professional Engineer registered in Massachusetts.

Such approval by the Engineer of supplemental plans or detail drawings, however, shall not operate to relieve the Contractor of any of his/her responsibility under the Contract nor for errors in dimensions, details or quantities or for nonconformance with details of the original approved design. Any work done or materials ordered for the structures involved prior to the approval of supplemental plans and detail drawings shall be at the Contractor's own risk.

Nothing in the above shall be construed to hold the Contractor liable for the design of any of the permanent structures.

When submitting detail drawings for approval, complete sets of prints as directed shall be furnished the Engineer who will return one set either approved or with corrections marked thereon. Finally, the Contractor shall furnish the Engineer with complete sets of prints as directed of the corrected and approved detail drawings. No changes shall be made in the approved drawing without the written consent of the Engineer.

All computations, shop drawings, design plans and other criteria submitted to the Department for review and approval shall be stamped by a Professional Engineer registered in Massachusetts.

The shop drawings, other than Department Standards, which do not contain original design shall be stamped by a Professional Engineer registered in Massachusetts as an indication of compliance with the design or appropriate standards, but shall not be construed as indicating any responsibility for the original design.

Detail drawings will not be accepted from other than approved suppliers as noted in Subsection 6.01.

The Contractor, upon completion of the work shall submit to the Engineer a 35 mm microfilm copy of each structural steel detail drawing, which shall become the property of the Department. For all overhead and cantilever sign structures and all steel mast arm assemblies, the Contractor shall submit to the Engineer one (1) silver master aperture card and one (1) diazo duplicate of each shop drawing. All microfilm shall be prepared in accordance with the instructions of the Department's Microfilm section.

The contract prices shall include the cost of furnishing all detail drawings and microfilms and the Contractor will be allowed no extra compensation therefor.

5.03 Conformity with Plans and Specifications.

Attention is directed to Chapter 30, Section 39I which provides that no wilful and substantial deviation from plans and specifications shall be made unless authorized in writing by the awarding authority or by the Engineer in charge of the work who is duly authorized by the awarding authority to approve such deviation. This act further provides that in order to avoid delays in the prosecution of the work, such deviation may be authorized by a written order of the awarding authority, or such Engineer as is authorized to approve such deviation, and that within 30 days thereafter such written order shall be confirmed by a certificate of the awarding authority.

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, details, gradations, physical and chemical characteristics of materials and other specific requirements of the Contract. Where the terms "in conformity with", "in agreement with", "in compliance with" or terms of like exactness occur in these specifications they shall be construed to mean "in reasonably close conformity with".

Where definite tolerances are specified in the Contract, such tolerances shall fix the limits of reasonably close conformity. Where tolerances are not specified in the Contract, the Engineer will determine the limits of reasonably close conformity in each individual case and his/her decision shall be final and conclusive and mutually accepted by all parties.

In the event the Engineer finds the materials or the finished product in which the materials are used not within reasonably close conformity with the plans and specifications but that reasonably acceptable work has been produced, the Engineer shall then make a determination if the work shall be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as the Engineer deems necessary to conform to his/her determination based on engineering judgment, and in accordance with current construction practices.

In the event the Engineer finds the materials or the finished product in which the materials are used or the work performed are not in reasonably close conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

Deviations from the approved plans and working drawings, that may be required by the need of the construction, will be determined by the Engineer and authorized by the Engineer in writing.

5.04 Coordination of Special Provisions, Plans, Supplemental Specifications and Standard Specifications.

The Special Provisions, Plans (including Departmental Standards), Supplemental Specifications, Standard Specifications and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In the event of any discrepancy between the drawing and figures written thereon, the figures, unless obviously incorrect, are to govern over scaled dimensions. In the case of any discrepancy between the plans and the specifications, the plans are to govern. If there is a discrepancy between these Standard Specifications and Supplemental Specifications, the Supplemental Specifications are to govern. Special Provisions shall govern over Supplemental Specifications, plans and Standard Specifications.

The Contractor shall take no advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, the Contractor shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Contract.

5.05 Cooperation by Contractor.

The Contractor will be given three copies of full size approved contract drawings, detail sheets and contract specifications (except Standard Specifications).

The Contractor shall purchase any required Standard Specifications from the Department. The Contractor may request and the Engineer may approve furnishing additional copies of contract drawings either full or half-size at the Contractor's expense. The Contractor shall have one copy of all such information and a copy of the Standard Specifications on the work site and available for reference at all times during the prosecution of the work. The Contractor shall have on the work at all times, as his/her agent, a competent superintendent or foreman capable of

reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, authorized to receive orders and to act for him/her.

Whenever the Contractor is not present on any part of the work, if it is necessary or desirable that directions be given, such directions or orders will be given by the Engineer and they shall be received and executed by the foreman or superintendent who is in charge of the particular work with reference to which the orders are given.

The Contractor shall provide all reasonable facilities to enable the Engineer to make necessary measurements and to inspect the workmanship and materials entering into the work. The Contractor shall cooperate in the matter of setting and preserving stakes, bench marks, etc., for controlling the work.

The Contractor shall so carry on his/her work under the direction of the Engineer that Public Service Corporations, or Municipal Departments may enter on the work to make changes in their structures or to place new structures and connections therewith without interference, and the Contractor shall have no claim for, or on account of any delay which may be due to or result from said work of Public Service Corporations or Municipal Departments. No allowance of any kind will be made except as provided in Subsection 8.10. Nothing contained herein shall be construed to hold the Contractor responsible for any acts or omissions by such Public Service Corporations, Municipal Departments or their Contractors.

5.06 Adjacent Contracts.

The Department reserves the right at any time to contract for and perform other or additional work on or near the work covered by the Contract. The intent of this section is to provide for the cooperation of Contractors in cases where the Department deems it expedient or necessary and in the best interest of the Commonwealth to let a separate Contract for the performance of other work on or near the same project location as the work being performed under the Contract, but it is not intended to indicate any intention on the part of the Department to let a separate Contract for any work within the scope of or necessary for the successful completion of the Contract.

When separate Contracts are let within the limits of any one project (either prior to award of Contract, or as specified in project proposal, or as specified above), each Contractor shall conduct his/her work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her Contract and shall protect and save harmless the Department from any and all damage or claims that may arise because of inconvenience, delay, or loss experienced by him/her because of the presence and operations of other Contractors working within the limits of the same project. No allowance of any kind will be made except as provided in Subsection 8.10.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

5.07 Construction (Stakes) Stakings.

The Department will furnish the following survey work:

A. Establishment of base lines or centerlines of construction for main roadways, ramps, service roads, side streets and other major dry land items. Reproduction of base lines and centerlines, or lines offset to them when roadway cuts and fills have been completed. Levels may be taken on the points marking these lines.

B. General bench mark control for the project.

C. Original grade stakes at 20 meter intervals.

D. Preliminary and final surveys of pits (if borrow is paid by pit measure) and dredging areas, semifinal cross sections on ledge, peat, loam, etc.

E. Control for structure, which shall consist of range lines on centerline of bearings or centerline of piers, face of abutments and wingwalls, horizontal and vertical control for beam seats, along with bench marks close to structures for vertical control. Structures shall include but shall not be limited to bridges, culverts, dams, buildings and walls.

F. Control for alignment of curbing or edging on ramps and at other complicated locations.

G. Bound points and sideline stakes.

H. All necessary stakes for pipes and head walls, and establish all catch basin and manhole locations as to line and grade.

The Contractor shall employ qualified engineering personnel to insure adequate control and shall furnish and set stakes of the quality used by the Department for control staking. Rough stakes may be used to denote top and bottom of slopes, edge of pavement, gutter lines, etc.

The Contractor shall furnish and set, at his/her own expense, all remaining stakes (such as batter boards, slope stakes, pins, offset stakes, etc.) required for the construction operations and the Contractor shall be solely responsible for the accuracy of the line and grade of all features of his/his/her work.

The Contractor shall be held responsible for the preservation of all stakes and marks placed by the Engineer. If any of such stakes or marks are disturbed or destroyed by the Contractor the cost of replacing them shall be deducted from the payment for the work as stipulated in Subsection 9.05.

5.08 Authority and Duties of Engineer's Assistants.

The Engineer may appoint such assistants and representatives as desired and they shall be authorized to inspect work and materials, to give directions pertaining to the work or to the safety and convenience of the public, to approve or reject materials, to make measurements of quantities and to perform such other duties as may be designated by the Engineer.

In case of any dispute arising between the Contractor and the Engineer's assistants, as to materials furnished or the manner of performing the work, the Engineer's assistants shall have the authority to reject the materials or to suspend the work until the question at issue can be referred to and decided by the Engineer.

Engineer's assistants are not authorized to revoke, alter, enlarge, relax or release any requirements of these specifications nor to issue instructions contrary to the plans and specifications.

In no case shall the Engineer's assistants act as foremen or perform other duties for the Contractor.

5.09 Inspection of Work.

All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection, (such assistance may include furnishing labor, boats, tools, equipment, etc., at no expense to the Department).

If the Engineer so requests, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, will be at the Contractor's expense.

Any work done or materials used without authorization by the Engineer may be ordered removed and replaced at the Contractor's expense.

The Contractor shall furnish written information to the Engineer stating the original sources of supply of all materials manufactured away from the actual site of the work. In order to insure a proper time sequence for required inspection and approval this information shall be furnished at least two weeks (or as otherwise directed by the Engineer) in advance of the incorporation in the work of any such materials. The Department strongly encourages the use of recycled products, provided the manufacturer of the product stipulates that such product meets or exceeds the performance standards for the intended use of said product. The Contractor must identify wherever recycled products are to be used.

For the purpose of observing work that affects their respective properties, inspectors for the municipalities, public agencies and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

Such inspection shall in no sense make any unit of government or political subdivision a party to this Contract, and shall in no way interfere with the rights of either party hereunder.

The inspection of the work shall not relieve the Contractor of any of his/her obligations to fulfill the terms of the Contract as herein prescribed by the plans and specifications.

Failure to reject any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor obligate the Department to make final acceptance.

The Contractor shall give prior notice to the Engineer when work on the various items is to be performed by him/her or his/her Subcontractors. If work is suspended on any item, prior notice shall be given to the Engineer before resumption of such work. Except in case of an unforeseen emergency, neither the Contractor nor any Subcontractor shall perform any work requiring inspection at hours other than during the normal work day without prior approval of the Engineer.

5.10 Removal of Defective or Unauthorized Work.

All defective work shall be removed, repaired or made good, notwithstanding that such work has previously been inspected and approved or estimated for payment. If the work or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall at his/her own expense make good such defect in a satisfactory manner.

Any work done beyond the lines and grades shown on the plans or as given, except as herein provided, or any extra work done without authority, shall be considered as unauthorized and at the expense of the Contractor. Such work will not be measured nor compensation allowed therefor. Work so done may be ordered removed at the Contractor's expense.

Upon failure of the Contractor to remove and satisfactorily dispose of any or all defective or unauthorized work, and to remedy the same after being so notified, the Engineer may cause such defective work to be remedied, removed and replaced; and such unauthorized work to be removed, and to deduct the costs therefor from any moneys due or to become due the Contractor.

5.11 Final Acceptance (Also see Subsections 7.20 and 9.05)

Upon due notice from the Contractor by certified mail of presumptive completion of the entire project, the Engineer will make an inspection. If all construction provided for and contemplated by the Contract is found completed to his/her satisfaction, that inspection shall constitute the final inspection and the Chief Engineer shall in writing make acceptance of the physical work, which acceptance shall relieve the Contractor from further responsibility only with respect to the physical work. Subsequent to the final acceptance of the physical work and upon compliance with the terms of the Contract relating to submission of contractually required reports or other documents, the Engineer will recommend final acceptance of the Contract to the Board of Commissioners (see Subsection 9.05).

If the work or any part thereof is not acceptable to the Engineer at the time of the inspection, the Contractor will be notified in writing of the particular defects or parts to be remedied before final acceptance. If the Contractor has not arranged within a period of five days after the date of transmittal of such notice of nonacceptability, to complete the work speedily as described by the Engineer, the Engineer may without further notice and without in any way affecting the Contract make such other arrangements as may be considered necessary to insure the satisfactory completion of the project. The cost of so completing the work shall be deducted from any moneys due or which may become due the Contractor under the Contract.

After the Contractor has finished installing the controller and all other associated traffic signal control equipment and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. During this period, the Contractor, under the direction of the Engineer and with the cooperation of the local community representatives, if applicable, will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall not last for more than 30 days, and the contract completion date has taken this testing period into consideration. No request for final acceptance will be considered until successful completion of the testing period.