

NOT TO BE USED FOR BIDDING

FORM OF PROPOSAL

Nassau County Department of Public Works

**Removal of Underground Storage Tanks
NCDPW Road Maintenance Facility
12 Morris Avenue, Glen Cove, NY 11542**

**GENERAL CONSTRUCTION
CONTRACT NO. B81060-15G**

Item No.	Type	Description		
1	LUMP SUM	LUMP SUM for furnishing all labor, materials, and equipment required for all General Demolition and restoration work required by the Contract drawings and Specifications for the NCDPW Road Maintenance Facility, 10 Morris Avenue, Glen Cove, NY, make complete and ready for operation.		
2	ALLOWANCE	Include in the bid the allowance of Seventy-Five Thousand Dollars (\$75,000.00) for labor, materials, and equipment that may be required for the removal of tank sediment not specified in the contract, or for furnishing all labor, materials and equipment as may be required for removal and disposal of contaminated soils, or for items unforeseen or not specifically characterized in the contract documents, encountered during the course of construction as directed by the County.		

BASIS OF AWARD: Bids on Lump Sum Contracts will be compared on the basis of the total bid price, arrived at by taking the Sum of each Bid Item, including Allowance Item(s), if any, and plus or minus the cost difference of the Alternate(s), if any, as may be selected by the Architect and/or Owner. The sum of all "Amounts Bid" will determine the low bid and the subsequent award of this Contract.

BID SECURITY: Prospective bidders are cautioned to carefully review the requirements of Paragraph H, Bid Security, of The Instructions to Bidders.

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GC-1 APPLICATION OF GENERAL CONDITIONS

The Provisions of the General Conditions as hereinafter stipulated shall form a part of each Prime Contract and/or separate trade specification except insofar as any such provision or provisions maybe manifestly not applicable to any such trade specification.

It shall be the duty of the Contractors to fully familiarize themselves with all of the provisions of the Contract Documents.

GC-2 CORRELATION AND INTENT OF DOCUMENTS

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all.

The intent of the Contract Documents is to include everything necessary for the proper execution of the complete finished Work.

GC-3 ORAL MODIFICATIONS

No oral statement of any person shall be allowed in any manner or degree to modify or otherwise affect the terms of the Contract.

GC-4 KNOWLEDGE OF CONDITIONS

(See Instructions to Bidders, Section II, Bidder's Responsibility.)

GC-5 DRAWINGS AND SPECIFICATIONS

- A. The Drawings and Specifications prepared by the Engineer are intended to agree and anything shown or called for on the Drawings and not mentioned in the Specifications, or vice versa, or any Work or materials necessary to, and usually included in the complete finish of the Work and/or materials of the character to be furnished by the Contractors, shall be considered to be included herein and shall be performed and furnished by the Contractors without any extra charge, as though the same were both shown and specified. In the case of a conflict, the specifications shall take precedence over the Contract Drawings.

The Engineer will furnish in addition to the Drawings listed in the Contract Documents, such other and additional Drawings and such explanations in writing that may, in the Engineer's opinion, be necessary for the performance of the Work by the Contractors, and all such details and explanations shall be binding upon and shall be strictly followed and complied with by the Contractors. All such Drawings shall be consistent with the Contract Documents, true developments thereof, and reasonably inferable there from.

- B. All Drawings, and such notes, interlineations, figures and details, as may be noted thereon, shall be considered as a part of and complementary to the Specifications. Full size Drawings and large scale details shall, in General, govern and take precedence over the small scale Drawings which they are intended to amplify. Figure dimensions shall govern in laying out the Work, and no Work shall be executed from dimensions obtained by scaling the drawings.

While the Specifications are subdivided into divisions and sections, (but only for the purpose of facilitating the Work) Contractors shall, nevertheless, furnish all labor and materials necessary to complete all the Work in accordance with the Contract despite the fact that it may not appear under the Work specified for the particular division and section under which it would be normally classified.

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- C. The Contractors shall check all supplementary information furnished them immediately upon their receipt. The supplementary information shall not be altered by the Contractors, but should any error or inconsistency appear, or in the event of any doubt or question arising in respect to the true meaning and intent of the Drawings or Specifications, or should anything be omitted from the Drawings or Specifications which is necessary to a clear understanding of the Work, they shall report same in writing within five (5) days to the Engineer who will make any necessary rectification and decisions.
- D. If, at any time, the County shall fail to supply sufficient or clear information to enable the Contractor to proceed with the Work, the Contractor shall immediately notify the Engineer in writing, and in no case, will the lack of such information, or failure to understand the Drawings or Specifications, or ignorance of the contents of either, be considered or received as an excuse for improper or inferior construction, workmanship or materials, or for any delay in performing the Work, or as justification for any claim for Extra Work or materials.

Should any question or disagreement arise concerning the meaning of Drawings or Specifications, such question or disagreement shall be settled by the Engineer, whose decision in writing shall be final.

- E. The Contractors will be furnished by the County, without charge, the following number of copies of the Contract Drawings and Specifications:

<u>Contract</u>	<u>No. of Copies</u>
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All Construction Work	6
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Any sets of contract Drawings and Specification which the contractors may require in addition to these will be furnished at cost of reproduction and handling.

- F. The Contractor shall keep at least one copy of all Drawings and Specifications at the Site in good order and available to the County, the Engineer, or their representatives. These Drawings and Specifications shall be kept up to date at all times and show all changes.

GC-6 OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All Drawings and Specifications are and shall remain the property of the County. These are furnished to the Contractors as instruments of service. They are not to be used on any other work.

GC-7 COORDINATION WITH OTHER CONTRACTORS

- A. During progress of the Work on this Contract, other contractors may be engaged in performing Work within the Contract area and in areas adjacent to this contract area.
1. The Contractor's attention is specifically directed to the fact that because of the work on other contracts within and adjacent to the limits of this Contract he may not have exclusive occupancy of the territory within or adjacent to the limits of this contract.
 2. The Contractor will be required to cooperate with other Contractors and the owners of the various utilities and to coordinate and arrange the sequence of this Work in such a manner that all work, proposed or in progress within or adjacent to the limits of the Contract, can be progressed with as little interference as possible.
 3. In case of interference between the operations of a Contractor and / or utility owners and / or other Contractors, the Commissioner shall be the sole judge of the rights of each party

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and the sequence for Work necessary to expedite the completion of all the work progressed or about to be progressed within or adjacent to the contract limits.

- B. The direction or the Commissioner on the order and sequence of the Work shall not in itself constitute a basis for extra compensation or an Extension of Time.

GC-8 MEETINGS

A. Pre-Construction Meeting

1. After the Contract has been awarded, but prior to the start of actual construction, a Pre-Construction Meeting will be scheduled by the County.
2. The meeting shall be attended by representatives of the Nassau County Department of Public Works, the Contractor, Subcontractors as requested, and the Engineer. The purpose of this Meeting will be generally administrative and will include but not necessarily be limited to discussion of County requirements, use of Subcontractors, submissions required from the Contractor prior to start of Work, major equipment deliveries and priorities, construction procedures, payment criteria, time for completions and any specific or unique criteria to be followed.

B. Progress Meetings

1. Regular Meetings will be held twice a month at the Construction Manager's Field Office during the performance of the Work of this Contract. Additional Meetings may be called as progress of the Work dictates.
2. Responsible representation from major equipment manufacturers will be the Contractors' responsibility at Progress Meetings on demand from the County. Refer to all Divisions of the Technical Specification for other requirements.
3. Attendance:
 - a. County
 - b. Engineer
 - c. Contractor
 - d. Subcontractors, only with Engineer's approval or request, as pertinent to the agenda.
4. Minimum Agenda
 - a. Review minutes of previous meetings.
 - b. Review progress of Work since last meeting.
 - c. Note and identify problems which impede planned progress.
 - d. Develop corrective measures and procedures to regain planned schedule.
 - e. Revise construction Schedule as indicated and plan progress during next Work period.
 - f. Plan to maintain quality and work standards.
 - g. Complete other current business.

GC-9 BID BREAKDOWN

(See Agreement, Article XXXIII, "Submission of Bid Breakdown".)

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GC-10 SUPERINTENDENCE AND WORKMEN

(See Agreement, Articles XXVIII, "Character and Competency" and XXIX, "Superintendence".)

GC-11 LAWS AND ORDINANCES

The Contractors accept the Drawings and Specifications and other Contract documents, submitted by the Engineer. On the basis that such Drawings, Specifications and other Contract Documents do not constitute a release of responsibility on the part of the Contractors to know and supervise the actual construction in all its parts so that such construction complies with all legal regulation. The Contractors shall be held to be both responsible and accountable for any damage which the County may suffer as a result of non-compliance with any or all legal regulation.

The Work shall be performed by the Contractors, in all respects, in strict conformity to all laws, rules, regulations, requirements and ordinances of the federal, state and local governments and all departments and bureaus thereof, and of the National Fire Protection Association. Should the Drawings or the Specifications conflict with the law, the contractors shall immediately notify the Engineer in writing of such conflict, and shall thereafter follow the written instruction of the Engineer in respect thereto; or should the Drawings or Specifications require more than the law requires, the Drawings and Specifications shall be followed nevertheless.

Each prime Contractor shall obtain and pay for all permits and fees required by Compliance with the foregoing requirement the Work performed under his Contract. Notwithstanding the requirements of the preceding paragraphs, all Contractors shall be additionally governed by OSHA requirements. All electrical Work shall comply with the N.E.C. and the respective Contractor will be required to furnish for his Work, Under-writers certificates issued by Underwriters Laboratories for compliance.

Compliance with the foregoing requirements shall not relieve the contractors of any other of their obligation under this Contract (See Agreement Articles III, "Contractor's Responsibility" and IV, "Compliance with Laws".)

GC-12 PERMITS

(See Agreement, Article IV, "Compliance with Laws".)

GC-13 ACCIDENTS

- A. If death, serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Commissioner and the Engineer.
- B. Contractor shall promptly report in writing to the Engineer all accidents whatsoever arising out of, or connection with, the performance of the Work, which cause death, personal injury or property damage, giving full details and statements of witnesses.
- C. If any claim is made by anyone against the contractor or Subcontractor on account of any accidents, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

GC-14 CONTRACTOR SUBMISSIONS

In accordance with the requirements of the contract Documents, the Contractor shall furnish all required submittals which shall include, but not be limited to, the following tabulation of contractor submissions.

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A. Materials and Equipment

1. Suppliers and manufactures:

Within fifteen (15) days after Notice to Proceed, the Contractor shall submit to the Commissioner and the Engineer a list of materials and equipment suppliers and manufacturers for approval in accordance with the requirements of the General Conditions, Article GC-17. "Materials and Equipment Approvals, Substitutions, and Deviations".

2. Material and Equipment Orders Schedule:

- a. Within fifteen (15) days after Notice to Proceed, Contractor shall prepare and submit his tabulation and schedule of principal items and equipment and materials to be purchased to the Engineer for review and approval. The Schedule shall be revised until approved by Engineer.
- b. The Schedule shall be updated biweekly and one copy submitted to the Engineer.
- c. Five (5) updated copies of the schedule shall be submitted to the Engineer with the application for partial payment.
- d. Schedule shall be submitted until all of the data is incorporated into the construction schedule for the project.

3. Form of Schedule: Schedule shall be in tabular form with appropriate spaces to insert the following information for principal items of equipment and materials:

- a. Date on which shop drawings are requested and received from the manufacturer.
- b. Dates on which certification is received from the manufacturer and transmitted to the Engineer.
- c. Date on which shop drawings are submitted to the Engineer and returned by the Engineer for revision.
- d. Dates on which shop drawings are revised by manufacturer and resubmitted to the Engineer.
- e. Date on which shop drawings are returned by Engineer annotated either "Approved" or "Approved as Noted".
- f. Date on which accepted shop drawings are transmitted to manufacturer.
- g. Date of manufacturer's scheduled delivery.
- h. Date on which delivery is actually made.

B. Substitutions:

1. Within a ten (10) day period from the Notice to Proceed, Request for substitutes may be proposed to the Commissioner. This Period for submitting requests will be strictly

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enforced. Such requests shall conform to the requirements of General Conditions, Article GC-17, "Materials and Equipment, Approvals, Substitutions and Deviations".

2. Requests for substitutions will be received and considered from Prime Contractors only and not from manufacturers, suppliers, subcontractors, or other parties.

C. Shop Drawings:

1. Within fifteen (15) days after the Notice to Proceed, the Contractor shall prepare and submit three (3) copies of his schedule of shop drawings submissions to the Engineer for review and approval.
2. In order to maintain the construction schedule for this project the Contractor shall submit all shop drawings within forty-five (45) days after the Notice to Proceed. The Contractor's schedule of shop drawing submissions shall conform to these requirements.
3. Shop drawings shall be submitted without fail in time to permit correction, resubmission and final approval, as hereinafter specified, without causing any delay in the construction of any work. Formal submission of shop drawings will begin after execution of the Contract by the County Executive and the Notice to Proceed.

D. Coordination Drawings:

1. Coordination drawings shall be completed by all Contractors within sixty (60) days from the notice to proceed.
2. Coordination Drawings shall be initiated, completed and submitted for distribution so as not to delay the construction.

E. Layout and Installation Drawings:

1. Layout and installation drawings shall be completed by all Contractors within ninety (90) days from the Notice to Proceed.
2. Layout and installation, drawings submitted for review by the Engineer shall include all equipment, pipes, valves, fitting, drains, ventilation ducts, all electrical, heating ventilating and other conduits, electrical cable trays, lighting fixture layouts, and circuiting, instrumentation, power supply, alarm circuits, etc., under this Contract.

F. Operations and Maintenance Manuals:

1. Two (2) copies of Preliminary Operations and Maintenance Manuals shall be submitted with the shop drawings for each major item of equipment.

G. Maintenance and Lubrication Schedules:

1. A maintenance and lubrication schedule for each piece of equipment shall be submitted with the shop drawings. Submission shall be seven (7) copies.

H. Samples:

1. Samples and Shop drawings which are related to the same unit of work or Specification Section shall be submitted at the same time. If related shop drawings and samples are

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submitted different times, they cannot be reviewed until both are furnished to the Engineer.

2. Shop drawings include, but are not limited to, shop drawings, layout and installation drawings in plan and elevation, certified wiring diagrams, inter connecting wiring diagrams, manufacturer's data, etc. The Contractor shall be responsible for securing all of the information, details, dimensions, drawings, etc., necessary to prepare the shop drawings required as necessary under this Contract and to fulfill all other requirements of his Contract. The Contractor shall secure such information, details drawings, etc., from all possible sources including the Contract Drawings, drawing prepared by subcontractors, suppliers, etc.
3. All shop drawings submitted by the Contractors which involve a change at variance with the contract drawings shall be noted by the Contractors by advising the Engineer in writing as to the recommended change and the reason therefore.
4. Contract drawings are for engineering and general arrangement purposes only and are not to be used as shop drawings.
5. Shop drawings shall accurately and clearly present the following:
 - a. All working and installation dimensions.
 - b. Arrangement and sectional views.
 - c. Units of equipment in the proposed positions for installation, details of required attachments and connections, and dimensioned locations between units and in relation to the structures.
 - d. Necessary details and information for making connection between the various trades including, but not limited to, power supplies an interconnecting wiring between units, accessories appurtenances, etc.
6. Structural and all other layout drawings prepared specifically for the Project shall have a plan scale of not less than 1/4-inch equal to 1 foot and they shall be not larger than the size of the Contract Drawings.
7. Where manufacturer's publications in the form of catalogs, brochures, illustrations, compliance certificates, or other data sheets are submitted in lieu of prepared shop drawings, such submissions shall specifically indicate the item for which approval is requested. Identification of items shall be made in ink, and submissions showing only general information are not acceptable.
8. The Contractor shall provide all required copies for the use of the various trades at the site, and one (1) copy of approved shop drawings shall be provided by the Contractor to the other Prime Contractors.
9. A submittal record form shall accompany each submittal. A facsimile copy of the record form will be provided by the County. This is the only form to be used by the Contractor for submittals.
10. Contractor Responsibilities

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- a. Before submitting shop drawings to the Engineer, all submittals from subcontractors, manufacturers or suppliers shall be sent directly to the Contractor for preliminary review, coordination and checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of material or equipment. The Contractor shall thoroughly check all drawings for accuracy and conformance to the intent of the Contract Documents. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors, manufacturers, or suppliers by the Contractor for correction.
- b. All submittals, including shop drawings prepared by or under the direction of the various Contractors, shall be thoroughly checked by the Contractor for accuracy and conformance to the intent of the Contract Documents before being submitted to the Engineer and shall bear the contractor's signature of approval certifying that they have been so checked. Submittals without the Contractor's signature of approval will not be reviewed by the Engineer and will be returned to the Contractor stamped "Rejected". Before submitting them to the Engineer, all submittals shall be bound, properly labeled and consecutively numbered. In a clear space above the title block, or on the back, the Contractor shall hand stamp the following, and enter the required information:

"NASSAU COUNTY

NAME OF PROJECT

Date: _____
Contract No.: _____
Equipment Identification No.: _____
Contract Drawing No.: _____
Specification Section: _____

The document has been reviewed, coordinated and checked in detail for accuracy of content and for compliance with the Contract Documents and is hereby approved. The information contained herein has been coordinated with all involved contractors.

Contractor: _____
Signed: _____."

- c. Shop Drawings shall be submitted as a single package including all associated drawings for any operating system and shall include all items of equipment and any mechanical units involved or necessary for the functioning of such system. Where applicable, the submittal shall include elementary wiring diagrams showing circuit functioning and necessary interconnecting wiring diagrams for construction.
- d. If the submittals contain any departures from the Contract Documents, specific mention thereof shall be made in the Contractor's letter of transmittal. Otherwise, the review of such submittals shall not constitute approval of the departure. The Contractor shall call the Engineer's attention to any changes by the use of large rubber stamp, or larger letters on shop drawings. If this is not done, even if the work is incorporated in the construction, it will not be accepted by the Engineer even if shop drawings are "Approved".

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- e. No materials or equipment shall be ordered, fabricated or shipped or any work performed until the Engineer returns to the Contractor the submittals herein required, annotated "Approved".
 - f. Where errors, deviations, and / or omissions are discovered at a later date in any of the submittals, the Engineer's prior review of the submittals does not relieve the Contractor of the responsibility for correcting all errors deviations and / or omissions.

11. Procedure for Review by the Engineer:

- a. Shop Drawings will be checked for design conformance with the Contract Documents and general arrangement only.
- b. Submittals shall be transmitted in sufficient time to allow the Engineer adequate time for review and processing so as not to delay the Project.
- c. For all drawings greater than 8-1/2 inches by 11 inches in size, the contractor shall transmit one (1) reproducible transparency and one (1) print of each submittal directly to the Engineer for review. Concurrently a copy of the transmittal letter and one (1) print shall be sent by the Contractor to the County. For submittals of the 8-1/2 inches by 11 inches in size, the Contractor shall submit two (2) copies to the Engineer and a copy of the transmittal letter and one copy of the shop drawing to the County. Prints from the reproducible transparencies shall be legible with a sharp, clear definition of all line work and lettering. Reproducible transparencies and resultant prints which in the opinion of the Engineer are not legible will not be reviewed and will be returned to the Contractor annotated "Rejected".

When a submittal is "Disapproved" or "Rejected", the Engineer will make the necessary copies required to permit the following distribution:

County – Transmittal only
Contractor – 2 copies
Engineer – 2 copies

When a submittal reaches "Approved" or "Approved as Noted", the Engineer will make the additional copies required to permit the following distribution:

County – 6 copies
Contractor – 2 copies
Engineer – 2 copies

- d. Submittals shall be accompanied by a submittal record from hereinbefore specified and shall be accompanied with any notification of departures and any pertinent data to facilitate review. If data for more than one Section of the specification is submitted, a separate transmittal letter shall accompany the data submitted for each Section. A number shall be assigned to each submittal by the Contractor starting with the Number 1 and thence numbered consecutively. Resubmittals shall be identified by the same number followed by the suffix "A" for the first resubmittal and the suffix "B" for the second resubmittal, etc.
- e. Submittals will be annotated by the Engineer in one of the following ways:

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“Approved” – no exceptions are taken.

“Approved as Noted” – minor corrections are noted and shall be made and resubmittal is required.

“Disapproved” – minor corrections are noted and shall be made and resubmittal is required.

“Rejected” – based on the information submitted, the submission is not in conformance with the Contract Documents. The deviations from the Contract Documents are too numerous to list and a completely revised submission of the proposed equipment for a submission of other equipment is required.

Or

Reproducible transparencies and resultant prints are not legible and will not be reviewed and resubmittal is required.

- f. If a submittal is satisfactory to the Engineer, the Engineer will annotate the submittal “Approved” and return three (3) copies to the Contractor. If reproducible transparencies are submitted, the Engineer will retain the copies and return the reproducible transparencies to the Contractor, plus two (2) prints.
- g. If a resubmittal is required the Engineer will annotate the submittal “Approved as Noted” or “Disapproved” or “Rejected” and return three (3) copies to the Contractor for appropriate action. If reproducible transparencies are submitted, the Engineer will retain the copies and return the reproducible transparencies to the Contractor, plus two (2) prints. The Contractor shall resubmit in accordance with paragraph C.3, hereof.
- h. Contractor shall revise and resubmit submittals as required by the Engineer until submittals are “Approved” by the Engineer.
- i. Approval of a Shop Drawing by the Engineer will constitute approval of the subject matter for which the drawing was submitted and not for any other structure, material, and equipment for appurtenances shown.
- j. Coordination Drawings Requirements:
 - 1. The General Construction Contractor shall initiate coordinating the installations of all the contracts (HVAC, Electrical and General Construction) by means of Coordination Drawings, as specified herein. The Coordination Drawings may lack complete data in certain instances pending receipt of shop drawings, but sufficient space shall be allotted for the items affected. When final information is received, such data shall be promptly inserted on the Coordination Drawings.
 - 2. The General Construction Contractor shall prepare a set of Mylar transparencies indicating equipment and appurtenances, at not less than 3/8 inch scale. The Drawings shall also show beams, ceiling heights, walls, floor to floor dimensions, floors, partitions, columns, windows, door and other major architectural and structural features shown on the General Construction Drawings. Site coordination drawings shall be at

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not less than 1" = 20'-0" scale. Two sets of prints from the transparencies shall be furnished to the County's review for conformance with the intent of this Section. Correction, if required, shall be made to the transparencies.

3. The General Construction Contractor shall deliver the set of Mylar to the HVAC Contractor who will draw his work to scale on these drawings. Then the HVAC Contractor shall deliver the set of Mylar to the Electrical contractor, who will superimpose his work on the Coordination Drawings. Then the Electrical Contractor shall return the set of Mylar to the General contractor.
4. In the preparation of all the coordination drawings, composite drawings, and large scale details as well as cross and longitudinal sections shall be made as required, or as directed by the Engineer, to fully delineate all conditions. Particular attention shall be given to the locations, size and clearance dimensions of equipment items, shafts and similar features. In preparing the Coordination Drawings, minor changes in duct, pipe or conduit routings that do not affect the intended function may be made as required to avoid space conflicts, when mutually agreed, but items may not be resized or exposed items relocated without the County's approval. No changes shall be made in any wall or chase locations, ceiling height, door swings or shall be made in any wall or chase location, ceiling heights, door swings or locations, windows or other openings, or other features affecting the function or aesthetic effect of the work among themselves. If conflicts or interferences cannot be satisfactorily resolved, the County shall be notified and its decision obtained.
5. No preference or advantage shall be given to any contractor in considering resolution of conflicts, or grant priority to any one Contractor in the allocation of space. If the Contractors are unable to reach agreement on matter of interference, the matter shall be submitted to the County for its binding decision. At the completion of this phase of the Coordination Drawings preparation, the County shall hold coordination meetings with the Prime Contractors to eliminate any interference among the trades that the drawings indicate and to avoid any conflicts during the installation of the work.
6. At the completion of these meetings, and after the General Construction Contractor's set of Mylar has been coordinated and all necessary changes have been made, the County shall hold a final coordination meeting where these Drawings shall then be signed off by each of the Contractors, indicating their awareness of, and agreement with, the indicated routings and layouts and their interrelationship with the adjoining or contiguous work of all contracts. Thereafter no unauthorized deviations will be permitted and if made without the knowledge or agreement of the County or other affected contractors, will be subject to removal and correction at no additional cost to the County.
7. After the final Coordination Drawings have been agreed upon and signed by all Contractors, the General Construction Contractor shall provide and distribute four (4) copies of each to the Contractor and

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fifteen (15) copies to the County, for reference and record purposes. Contractors desiring additional copies of such drawings, beyond the basic distribution indicated above, shall arrange and pay for cost of same.

8. The record copies of final Coordination Drawings shall be retained by each Contractor as a working reference. All shop drawings, prior to their submittal to the County, shall be compared with the Coordination Drawings and developed accordingly by the Contractor responsible. Any revisions to the Coordination Drawings which may become necessary during the progress of the work shall be noted by all Contractors and shall be neatly and accurately recorded on the copies. Each Contractor shall be responsible for the up-to-date maintenance of his own record copies of the Coordination Drawings and to keep one (1) copy available at the Site. The Coordination Drawings and any subsequent changes thereto, shall be utilized by each Contractor in the development of his as-built drawings.
 9. No extra compensation will be paid by the County to any Contractor for relocating any duct, pipe, conduit or other material that has been installed without proper coordination among all the contractors and the trades involved. If any improperly coordinated work, or work installed that is not in accordance with the approved Coordination Drawings, necessitates additional work by the other Contractors, the cost of such additional work shall be assessed to the Contractor responsible, as determined the County.
 10. All changes in the work on any Contract, whether a change in price is given or not, shall be shown on the Coordination Drawings.
 11. All work on the Coordination Drawings shall be performed by competent draftsmen, in clear, legible manner. The County shall be the sole judge of the acceptability of the Coordination Drawings.
 12. Coordination Drawings shall not be used for "as built" drawings.
- k. Layout and Installation Drawings Requirements:
1. Layout and installation drawings are to be submitted in accordance with the requirements hereinbefore specified under Paragraph I, Shop Drawing Requirements.
 2. Layout and installation drawings are required for both interior and exterior piping valves, fittings, sewers, drains, heating and ventilation duct, conduits, plumbing lines, electrical cable trays, etc. The final dimensions, elevations, locations, etc. of various items may depend upon the dimensions of equipment, valves, etc. to be furnished by the Contractor.
 3. Layout and installation drawings shall show connections to structures, equipment sleeves, valves, fittings, etc.

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4. Drawings shall show the location and type of all supports, hangers, foundations etc., and the required clearances to operate valves, equipment, etc.
5. The drawings for pipe, ducts, conduits, etc. shall show all electrical conduits and pressure piping, electrical cable trays, heating and ventilation ducts or pipes structures, manholes or any other feature within four (4) feet (measured as the clear dimension) from the pipe, duct, conduit, etc. for which the profile is drawn.

GC-15 SAMPLES

A. General:

1. Where required in the specification for the various trades or otherwise requested by the County or Engineer, samples of any materials to be used and of the finish to be applied in the work, shall be submitted by the Contractor for approval in accordance with the General Conditions, Article GC-14, "Contractor Submission". Samples shall be of such a nature to fully illustrate the character of the finished work or as maybe more fully described in the trade specifications.
2. Samples shall be furnished so as no to delay fabrication, allowing the Engineer reasonable time for the consideration of the samples submitted.
3. Contractor shall store and protect large samples and mock-ups until the Project is complete or until a time approved by the Engineer.
4. Accepted samples will establish the standards by which the completed work will be judged.

B. Samples:

1. Samples shall be of sufficient size or quantity to clearly illustrate the quality, type, range of color, finish or texture and shall be properly identified.
2. Samples shall be checked by the Contractor for conformance to the Contract Documents before being submitted to the Engineer and shall bear the Contractor's stamp of approval certifying that they have been checked.
3. Samples shall be submitted in triplicate and each sample shall be identified with the name and number of the project, reference to Specification Section, Contact drawing number, nature of the material, trade name of manufacturer and the locations of its intended placement. Written approval shall be obtained, and the work furnished shall conform strictly to the samples approve by the engineer. No approval of a sample shall be taken in itself to change or modify any of the requirements of the contract.
4. Transportation charges or samples submitted to the Engineer shall be prepaid by the Contractor. Samples shall be delivered to the Engineer's field office. If the Contactor required a sample for his use, he shall notify the Engineer in writing.
5. If samples are disapproved, the Contractor shall make all corrections required and shall resubmit the require number of new samples until approval is received.

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C. Job Mock-Ups:

1. Job mock-ups (sample panels shall be constructed on Site by the Contractor and only one (1) of each type will be required. Mock-ups shall be constructed only after the individual samples and components used in the mock-up have been approved by the Engineer. If a mock-up is not approved, the Contractor shall construct additional ones until approval is received.

D. Samples for Tests:

1. Contractor shall furnish such samples of material as may be required for examination and test. All samples of materials for tests shall be taken according to standard methods and as required by the Contract drawings.

GC-16 TEMPLATES AND PATTERNS

Templates and patterns shall be prepared and provided as required for the proper execution of the Work under the various Prime Contracts, by the various trades.

GC-17 MATERIALS AND EQUIPMENT, APPROVALS, SUBSTITUTIONS AND DEVIATIONS.

A. Approval of Materials and Equipment Suppliers and Manufacturers:

1. The Contractor shall submit to the Commissioner and the Engineer for approval a list of materials and equipment suppliers and manufacturers who are to furnish items of materials or equipment. This submission is to be made in accordance with the time conditions stipulated in General Conditions, Article GC-14, and "Contractor Submissions".
2. Where the acceptability of any equipment or material specified herein is conditioned upon that item having a record of satisfactory operation for a specified period of time, such acceptability may be considered lacking such record, only if the manufacturer and or supplier can provide a bond or cash deposit which will guarantee replacement at no cost to the County in the event of failure occurring prior to the expiration of the experience record term specified. The item proposed must meet all other technical requirements stipulated in the Specifications.
3. If the materials and equipment submitted are offered as substitutes to the Contract Documents the contractor shall advise the County and the Engineer of the substitution and comply with the requirements hereinafter specified in the Article.

B. Storage and Protection of Equipment and Materials:

The Contractor shall make every effort to minimize extended storage periods for materials and equipment at the site by judiciously scheduling deliveries to coincide with construction needs. The Contractor shall store his material and equipment in accordance with the requirements of Division 1, Special conditions of the Technical Specifications. The Contractor shall not store unnecessary materials or equipment at the site and shall take care to prevent any structure from being loaded with a weight which will endanger its integrity or the safety of persons. The Contractor shall follow the instructions of the Engineer, regarding the posting of regulatory signs for loading on structures and other safety precautions. The contractor shall obtain from the equipment manufacturers a letter detailing their method of storage and the maintenance of the stored equipment for the Engineers review. All storage and methods of protection for material and equipment at the site shall be subject to the prior approval of the Engineer. Any costs associated

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with the storage and protection of materials and equipment shall be deemed to be included under the contract and no additional payment will be made.

1. Materials:
 - a. Materials may be stored out of doors if supported on wood runners above ground surface and protected with approved, effective durable covers.
 - b. Materials shall not be placed within ten (10) feet of fire hydrants.
 - c. Avenues for personnel and vehicular movement, gutters, drainage channels and inlet shall be kept unobstructed at all times.
2. Major Equipment:
 - a. No major Equipment item shall be brought to the site until the following conditions are met:
 - (1) The County must have received the manufacturer's recommendations for on site storage in writing.
 - (2) The structure in which the equipment is to be installed is roofed (roofing must be watertight) and has such protection of doorways, windows and other openings that will provide reasonable protection from the weather.
3. Special Equipment:
 - a. The Storage of special equipment shall be in accordance with the requirements specified in Division 1 of the Technical Specifications.
4. Equipment other than Major Equipment:
 - a. The contractor shall not ship any equipment to the site until approval is received from the County. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the County.
 - b. Storage of any mechanical or electrical equipment out of doors at any time is absolutely prohibited regardless of the protection furnished. Storage of mechanical and electrical equipment within structures at the Site will not be permitted until all structural work has been completed and the structure is made weather tight.
 - c. All mechanical and electrical equipment shall be coated , wrapped and otherwise protected from snow, rain, drippings of any sort, dust, dirt, condensed water vapor, etc. during shipment, storage, and subsequent to installation and until placed in service.
 - d. Should storage of mechanical and electrical equipment become necessary before it can be stored at the Site, the contractor shall provide storage in a weather proof warehouse.

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- e. All costs for equipment protection including warehousing or other work to meet the scheduled completion date shall be deemed to be included under the Contract and no additional payment will be made.
 - f. All equipment having moving parts such as gears, electric motors, etc. and /or instruments shall be stored in a temperature and humidity controlled building approved by the County, until such time as the equipment is to be installed.
 - g. All equipment shall be stored fully lubricated with oil, grease, etc., unless otherwise instructed by the manufacturer.
 - h. Manufacturer's storage instruction shall be carefully studied by the Contractor and reviewed with the County by him. These instructions shall be carefully followed and a written record of this kept by the Contractor.
 - i. Moving parts shall be rotated a minimum once weekly to insure proper lubrication and to avoid metal to metal "welding". Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.
 - j. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
 - k. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that is a condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.
 - l. Where equipment must be installed before the erection of adequate protective structures, the Contractor, without additional compensation shall provide approved, effective, and durable covers and provide such other protection as required for fully protecting such equipment from damage from the elements or other causes.

C. Installation of Equipment:

1. General

- a. Contractor shall have on hand sufficient personnel, proper equipment, and machinery of ample capacity to facilitate the work.
- b. Contractor shall be responsible for locating, aligning and leveling all equipment to the accuracy required.
- c. Complete manufacturer's installation instructions, including permissible tolerances, shall be furnished in duplicate with each unit of equipment or set of identical units before installation.

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- d. All equipment shall be installed in accordance with the approved shop drawings: inclusive of manufacturer's specification, drawings and tolerances.
- e. Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the drawings unless directed otherwise by the engineer during installation.

2. Installation

- a. Special care shall be used in locating, aligning and leveling all equipment and parts thereof to insure that each item is in the proper position relative to other equipment, and that all parts are aligned within allowable tolerances. The Contractor shall be responsible for this accuracy, and shall notify the Engineer of any conditions in prior work which would prevent this alignment before proceeding with the work.
- b. Concrete foundations for equipment shall be approved design and shall be adequate in size, suitable for the equipment erected thereon.

D. Name Plates:

- 1. Each unit of equipment shall bear the manufacturer's name or trademark on a corrosion resistant nameplate securely affixed in a conspicuous place. The manufacturer's name or trademark may be cast integrally, stamped, or otherwise permanently marked upon the item of equipment.
- 2. Such other information as the manufacturer may consider necessary to complete identification, or as specified, shall be shown on the nameplate.

E. Painting:

- 1. Except as otherwise specified or required, equipment shall be primed and finish painted at the factory, in accordance with the recommendations of the approved manufacturer.
- 2. All field painting is included under the individual Prime Contract.
- 3. Any damage to shop coating shall be corrected to the satisfaction of the Engineer by the Prime Contractor responsible for the installation and protection of the shop coated item.

F. Damage during Tests and Instruction Periods:

Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and he shall neither have nor make any claim for damage which may occur to equipment prior to the time when the County formally takes over the operation thereof.

G. Services of Manufacturer's Engineers:

The contract price shall include the cost of furnishing competent engineers or superintendents from each company manufacturing equipment for the Project to:

- 1. Assist the Contractor to adjust and test the equipment in conformity with the Contract Documents.

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2. Supervise start up operations and adequately instruct designated employees of the County in the proper operation and maintenance procedures of equipment installed.
 3. The manufacturer's engineers shall devote, as a minimum, the full time specified in the installation and operation shall be at the expense of the Contractor. The manufacturer's representatives shall sign in and out in a book kept by the Engineer on every occasion they are on the site and shall indicate time of arrival and departure.
 4. Be available to check equipment operation and maintenance procedures, when required by the County, throughout the guarantee period of the equipment.

H. Equipment Manufacturers Certification:

As a condition precedent to acceptance of equipment installed and operating, the Contractor will provide the County with written certification obtained from each company's manufacturing equipment for the Project that the equipment is installed and does operate in accordance with the specifications and manufacturer's recommendations.

I. Substitutions:

1. Unless otherwise specified, all materials and equipment incorporated in the work under these Contracts shall be new.
2. Whenever specific references are made in the Specifications, to manufacturer's or brand names, the intent is to establish a standard of type, quality and function of the required material or equipment, at least one will include a specific catalog number or other identifying designation. The products of the other listed manufacturers must in the opinion of the Commissioner, be equivalent to the product material essentially meeting the standards of the referenced manufacturer or other Specification requirements shall not relieve the Contractor of responsibility for providing materials complying with such requirements. The fact that manufacturer's name are specified for any item shall not be construed as implying that such item need not comply with any additional performance, construction or other requirements specified for the item. In all cases, the Specifications requirements shall take precedence over the manufacturer's standard.
3. Requests for substitutions of equipment or materials shall be made in accordance with the time conditions stipulated in General conditions, Article GC-14, "Contractor Submission". This period for submitting requests will be strictly enforced. Such requests shall conform to the following requirements:
 - a. Contractor shall submit for each proposed substitution sufficient details, complete descriptive literature and performance data together with samples of the materials, where feasible, to enable the Commissioner to determine if the proposed substitution is equal.
 - b. Contractor shall submit certified test, where applicable, by an independent laboratory attesting that the proposed substitution is equal.
 - c. A list of installation where the proposed substitution is equal to the specified piece of equipment or materials.
 - d. Requests for substitutions shall include full information concerning differences in cost, and any savings in cost resulting from such substitutions shall be passed on to the County.

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4. Request for substitutions after the period stipulated in General Conditions, Article GC-14, "Contractor Submissions", will not be accepted for evaluation except in case of strikes, discontinuance of manufacturer or other reason deemed valid by the Commissioner whereby the specified products or those approved are unobtainable. In such case the Contractor shall provide substantial proof that the acceptable products are unavailable.
 5. Where the approval of a substitution requires revisions or redesign of any part of work including that of other contracts, all such revision and redesign and all new drawings and details required therefore, shall be provided by the Contractor at his own cost and expense, and shall be subject to the approval of the Commissioner.
 6. In the event that the Engineer is required to provide additional engineering services, then the Engineer's charges for such additional services shall be charged to the Contractor by the County in accordance with the requirements of the General Conditions, Article GC-18, "Contractor Costs for Engineering Services".
 7. Any modification in the work required under other contract to accommodate the changed design will be incorporated in the appropriate Contracts and any resulting increases in contract prices will be deducted by the County from payments otherwise due the Contractor who initiates the changed design. In all cases the Commissioner shall be the judge as to whether a proposed substitution is to be approved. The Contractor shall abide by his decision when proposed substitute items are judged to be unacceptable and shall in such instances furnish the item specified or indicated. No substitute items shall be used in the work without written approval of the Commissioner.
 8. In making request for substitution, contractor represents that:
 - a. Contractor has investigated proposed substitution, and determined that is equal to or superior in all respects to the product, manufacturer or method specified.
 - b. Contractor will provide the same or better warranties or bonds for proposed substitution as for product, manufacturer or method specified.
 - c. Contractor waives all claims for additional costs or extension of time related to proposed substitution that subsequently may become apparent.
 - d. Contractor shall have and made no claim for any extension of time or for damages by reason of the time taken by the County and Engineer in considering a substitution proposed by the Contractor or by reason of the failure of the County and Engineer to approve a substitution proposed by the Contractor. Any delays arising out of consideration for an approval of a substitution shall be the sole responsibility of the Contractor requesting that substitution and he shall arrange his operations to make up the time lost.
 9. Proposed substitutions will not be accepted if:
 - a. Acceptance will require substantial revision of contract Documents.
 - b. They will change design concepts or Technical Specifications.
 - c. They will delay completion of the work, or the work of other Contractors.

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- d. They are indicated or implied on a Shop Drawing and are not accompanied by a formal request for substitution from Contractor.
10. Only those products originally specified and/or added by approved requests for substitutions submitted in accordance with the preceding paragraphs may be use in the work. Whenever requests for substitutions are approved, it shall be understood that such approval is conditional upon strict conformance with all requirements of the Contract and further subject to the following.
- a. Any materials or article submitted for approval in accordance with the above procedure must be equal, in the sole opinion of the Commissioner, to the material or article specified. It must be readily available in sufficient quantity to prevent delay of any work, inspection or tests; it must be available in a reasonable equivalent range of colors, textures, dimensions, gauges, types and finishes as the material or article specified; it must be equal to the specified item in strength, durability, efficiency, serviceability, compatibility with the design and not necessitate design modifications by the Engineer; its use must not impose additional work, or require changes in the work of any other Contractor without the written agreement of such Contractor. Availability of spare parts shall be assured for the useful life of the Project.
 - b. Request for all substitutions shall be accompanied by all information needed for the Commissioner to make an evaluation, including manufacturer's brand or trade names, model numbers, description of specification of item, performance data, test reports, samples, history of service, and other data as applicable.
 - c. The Commissioner reserves the right to disapprove, for aesthetic reasons any material or equipment on the basis of design or color considerations alone, without prejudice to the quality of the material or equipment, if the manufacturer cannot meet the required colors or design.
 - d. All requests for substitutions of materials or other changes from the Contract requirements shall be accompanied by an itemized list of all other items affected by such substitution or change. The Commissioner shall have the right, if such is not done, to rescind any approval for substitutes or changes and to order such work removed an replaced with work conforming to requirements of the Contract, all at the Contractor's expense, or to assess all additional costs resulting from the substitution to the Contractor.
11. Approval of a substitution will not relieve contractor from the requirement for submission of Shop Drawings or any of the provisions of the Contract Documents.
- J. Deviations:
- 1. Within ten (10) days after the Notice to Proceed, requests for deviations from the contract Documents and the reasons therefore may be proposed to the Commissioner. This period fro submitting requests will be strictly enforced. The Contractor waives all claims for additional costs or extension of time related to proposed deviations that subsequently may become apparent.
 - 2. Deviations shall mean the departure by the Contractor from the performance of his work in accordance with the Contract Documents.

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3. In all cases the Commissioner shall be the judge as to whether a proposed deviation is to be approved. The Contractor shall abide by his decision when proposed deviations are rejected and shall in such instances perform the work in accordance with the meaning and intent of the Contract Documents.
 4. Any delays arising out of consideration for an approval of a deviation shall be the sole responsibility of the Contractor, and he shall arrange his operations to make up the time lost.

GC-18 CONTRACTOR COSTS FOR ENGINEERING SERVICES

- A. In the event that the Engineer is required to provide additional engineering services as a result of substitution of materials or equipment which are not "or equal" by the Contractor, or changes by the Contractor in dimension, weight, power requirements, etc., of the equipment and accessories furnished, or as a result of Contractor's errors, omissions or failure to conform to the requirements of the Contract Documents or if the Engineer is required to examine and evaluate any changes proposed by the Contractor solely for the convenience of the Contractor, then the Engineer's charges in connection with such additional services shall be charged to the Contractor by the County.
- B. Structural design shown on the Drawings is based upon the configuration of and maximum loading for major items of equipment as indicated on the Drawings and specified. If the equipment furnished differs from said features, the Contractor shall assume the responsibility for all costs of redesign and for any construction changes required to accommodate the equipment furnished, including the Engineer's charges in connection therewith.
- C. The Contractor shall respond to required submittals with complete information and accuracy to achieve required approvals within three (3) submissions. All costs to the Engineer involved with subsequent submissions of Shop Drawings, Samples or other items requiring approval, will be back charged to the Contractor, at the rate by deducting such costs from payments due for Work completed. In the event an approved item is requested by the contractor to be changed or substituted for, all involved costs in the reviewing and approval process will likewise be back charged to the Contractor unless judged by the Engineer that the need for such deviation from previously approved data is beyond the control of the Contractor.

GC-19 INSPECTION AND TESTING

Inspection shall be as specified in the Agreement, Article V, "Inspection", and as hereinafter stipulated.

- A. Testing Laboratory Services:
 1. General
 - a. The County will perform all tests including but no limited to: Concrete slump, concrete cylinder, concrete materials, concrete air content, soils density test, and paving materials. The Contractor shall plan and conduct his operations to permit taking of field samples and test specimens, as required, and allow adequate time for laboratory tests by the County. The collection, field preparation and storage of field samples and test specimens shall be as directed by the County and Engineer, and shall be the responsibility of the Contractor.

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- b. Test performed by the County shall not relieve the Contractor from the responsibility of supplying certificates from manufacturers or suppliers to demonstrate conformance with the Specifications.
- c. The County reserves the right to test any and all materials being manufactured expressly for this Project, offered to be furnished or delivered at the Site, or installed in place.

2. Test Reports:

- a. During the progress of the Work, two (2) copies of all test reports shall be submitted directly to the Engineer from the testing laboratory, as they are completed, with a copy sent to the Contractor.
- b. Each test report shall be signed and certified by a responsible officer of the testing laboratory.

3. Significance of Tests:

Test results shall be binding on both the Contractor and the County, and shall be considered irrefutable evidence of compliance or noncompliance with the Specification requirements, unless supplementary testing shall prove, to the satisfaction of the County, that the initial samples were not representative of actual conditions.

4. Supplementary and Other Testing:

The Contractor may conduct additional tests as he may require. Should the Contractor at any time request the County to consider such test results, the test reports shall be certified by an independent testing laboratory acceptable to the County. Testing of this nature shall be conducted at the Contractor's expense.

B. Water tightness of Structures

1. General

- a. It is the intent of these Specifications that all concrete Work, sealing Work around built-in items and penetrations be performed as required to insure that:
 - (1) Groundwater, surface water and water or liquids in liquid retainment structures will not intrude into any structures, chambers, manholes, equipment rooms, pipe galleries, habitable areas or other generally dry areas.
 - (2) Leakage in process tankage or other liquid retainment structures do not exfiltrate through to the exterior.
- b. The required water tightness shall be achieved by quality construction, proper sealing of all joints and penetrations and repair of existing joints and penetrations.
- c. Each unit shall be tested separately and the leakage tests shall be made prior to backfilling and before equipment is installed. Only potable water shall be used for the tests unless specified otherwise.

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- d. The Contractor shall provide at his own expense all labor materials, temporary bulkheads, pumps, water measuring devices, etc. necessary to perform the required tests unless specified otherwise.

2. Built-in Items and Penetrations

- a. All pipe sleeves, built-in items and penetrations shall be sealed as detailed and as required to insure a continuous water tight seal.
- b. Penetration through built-up roofing areas shall be made prior to application of the built-up roofing utilizing suitable sleeves and flashings as required. If roofing surfaces are penetrated after roofing has been applied, the waterproofing integrity shall be restored by the roofer and paid by the Contractor responsible for the penetration.

3. Enclosing structure

- a. All underground structures enclosing operational and other dry areas to be constructed under this Contract shall be repaired by the Contractor where there are visible internal signs of leakage. Particular attention to this matter is required when dewatering activities are terminated and the groundwater table returns to natural levels.
- b. If required, such Work shall be performed on exterior surfaces of the structures and shall include the necessary excavation, sheeting, dewatering, repair, backfill, etc., associated with the repair.

4. Leak Repair

The Contractor shall perform remedial work required to eliminate or reduce leaks to allowable amounts per the Specifications, if the Contractor fails to comply, the County shall have the authority to have these leaks repaired by other. The cost of repairs, by others, shall be deducted from monies due or to become due to the Contractor.

C. Filed Testing of Equipment:

1. General

All equipment shall be set, aligned, assembled and tested in conformance with the approved Shop Drawings, manufacturer's drawings and instructions, and as indicated in the Specifications.

2. Field Tests

- a. Upon completion of the installation, and at a time approved by the Engineer equipment shall be tested by operating it as a unit with all related piping, ducting electrical control and mechanical operations.
- b. All costs in connection with such test including all materials, equipment instruments, labor, etc. shall be borne by the Contractor.

GC-20 (NOT USED)

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GC-21 PROTECTION REQUIREMENTS

The Contractor shall be responsible for protection against vandalism, theft or malicious mischief of all of this Work, materials and equipment at all times from the start to Final Acceptance of the Work.

A. Protection of Property:

1. The Contractor shall be responsible for the preservation and protection of property on or adjacent to the Work Site against damage or injury a result of this operation under this Contract. Any damage or injury occurring on account of any act, omission or neglect on the part of the Contractor shall be restored in a proper and satisfactory manner or replaced by and at the expense of the Contractor to an equal or superior condition than previously existed.
2. In the event of any claims for damage or alleged damage to property as a result of Work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims. Prior to commencement of Work in the vicinity of property adjacent to the Work Site, the Contractor at his own expense shall take such surveys as may be necessary to establish the existing condition of the property. Before Final Payment can be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled or sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.
3. The Contractor shall not, except after written consent from proper parties, enter or occupy with men, tools, materials or equipment, privately-owned land except on easements provided herein. In the event that the Contractor has trespassed upon private property in the prosecution of the Work of this Contractor, the County may withhold payment for the value of the claim, but in any case no less than a sum of five hundred dollars (\$500) for each incident, until the Contractor has secured a release from the property owner upon whose property the trespass was committed.
4. The Contractor expressly undertakes to place upon the Work, or any part thereof, only such loads as are consistent with the safety of that portion of the Work.

B. Open Excavations:

1. 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. The Contractor shall, at his own expense, provide suitable and safe bridge and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the County. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the County may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.
2. The Contractor shall take precautions to prevent injury to the public and County personnel due to open trenches. All trenches, excavated material, equipment or other obstacles which could be dangerous to the public and County personnel shall be well lighted at night.

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C. Fire Protection:

1. Contractor shall take all necessary precautions to prevent fires at or adjacent to the Work, buildings etc., and shall provide adequate facilities for extinguishing fire which do occur. No burning of trash or debris will be permitted.
2. When fire or explosion hazards are created in the vicinity of the Work as result of the locations of fuel tanks, or similar hazardous utilities or devices, the Contractor shall immediately alert the Nassau County Fire Marshall and the Engineer of such hazards. The Contractor shall exercise all safety precautions and shall comply with all instructions issued by the Fire Marshall and the Engineer to prevent the occurrence of fire or explosion.

D. Chemicals:

All chemicals used during Project construction or furnished for Project operation, whether herbicide, pesticide, disinfectant, polymer, or reactant of other classification, must show approval of the EPA and other recognized certifying Agencies. Use of all such chemicals and disposal of residues shall be in strict conformance with regulatory requirements.

E. Explosives:

Use of explosives is prohibited unless approved by the County

F. Protection of Persons:

The Contractor shall take all necessary precautions for the safety of employees on the Work and shall comply with all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to person on, about or adjacent to the premises where the Work is being performed. He shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workman and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hoists, well holes, elevator hatchways, scaffolding, window openings, stairways, trenches, and other excavations, and falling materials and he shall designate a responsible member of his organization on the Work, whose duty shall be the prevention of accident. The name and position of any person so designated shall be reported to the Engineer by the Contractor. The person so designated shall be available by phone during non-working hours.

G. Contractor's Right to Act:

1. In case of an emergency which threatens loss or injury of property and / or safety of life, the Contractor will be allowed to act, without previous instruction from the County, in a diligent manner. He shall notify the County immediately thereafter.
2. The amount of reimbursement claimed by the Contractor on the account of any emergency action shall be determined in the manner provided in the Agreement, Article XXII, "Extra Work."

GC-22 ACCESS ROADS AND PARKING AREAS

A. Access Roads:

1. Not applicable.

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B. Maintenance of Traffic:

1. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the County.
2. Detours around construction will be subject to the approval of the County. Periods when traffic is being detoured will be subject to approval of the County.
3. Request for road closings or detours shall be submitted to the County for approval a minimum of seven (7) days prior to the proposed closing or detour. Requests shall be accompanied by a schedule indicating the duration of closing or detour.

C. Parking Areas:

Parking of vehicles shall be in accordance with local parking laws in the area of each work site. Overnight parking of equipment on local streets is prohibited unless permission is granted by the County. Park only in area which will not create a nuisance to traffic or local residences and businesses.

D. Restoration:

At the completion of the Work, the surfaces of land used for access roads and parking areas shall be restored by the General Construction Contractor as per the requirements of the Contract Documents. In the absence of specific requirements, the general Construction Contractor shall restore the surfaces to their original condition.

GC-23 TRAFFIC REGULATIONS

- A. The Contractor shall obey all traffic laws and comply with all requirements, rules and regulations of the New York Department of Transportation and local authorities having jurisdiction to maintain adequate warning signs, lights, barriers, etc. for the protection of traffic on public roadways.
- B. The Contractor's vehicles and mobile equipment shall adhere to the speed limits posted in the Project area. The General Construction Contractor shall post the necessary speed limit signs.
- C. The Contractor shall provide flagmen at junctions of public traffic and Contractor vehicles and equipment.

GC-24 BARRICADES, WARNING SIGNS AND LIGHTS

- A. Each Contractor shall provide, erect and maintain as necessary for his Work, storing and suitable barricades, danger signs and warning lights along all roads accessible to the public, as required by the authority having jurisdiction, to insure safety to the public. All barricades and obstructions along public roads shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise. Sufficient barricades shall be erected and maintained to keep vehicles from being driven on or into Work under construction.
- B. Each Contractor shall provide and maintain such other warning signs and barricades in other areas and around their respective Work as may be required for the safety of all those employed in the Work, operation personnel, or those visiting the site.

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GC-25 DUST CONTROL AND SPILLAGE

- A. Each Contractor shall take all necessary measures to control dust from his operations and to prevent spillage of excavated materials on roads:
- B. Each Contractor shall remove all spillage of excavated materials, debris or dust from roads by methods as approved by the Engineer.
- C. The General Construction Contractor shall sprinkle calcium chloride at locations and in such quantities and at such frequencies as may be required to control dust as directed by the Engineer.

GC-26 VERMIN CONTROL

All piping duct, conduit, etc., passing through walls, floors, ceiling and / or other solid construction, shall be sealed to prevent the passage of vermin. Seals shall be made by means of rock wool or other approved inert materials, packed sleeves or other approved construction.

GC-27 FIRST AID FACILITIES

The Contractor shall provide at the Site such equipment and facilities as are necessary to supply first aid to any of his personnel who may be injured in connection with the Work.

GC-28 LAYOUT AND LEVELS

- A. The location of the work is shown on the plans.
 - 1. The Contractor for General Construction Work shall layout the proposed work correctly and shall be responsible for any damage caused to the County due to incorrect laying out of the Work.
 - 2. The Contractor for General construction Work shall verify all grades, lines, levels, and dimensions as shown on the Drawings and he shall report any errors or inconsistencies in them to the Engineer before commencing Work.
 - 3. The Contractor shall use the bench marks furnished to him by the County.
 - 4. The Contractor for General Construction Work shall employ a licensed surveyor to layout work and give levels to which all measurement shall be referred.
 - 5. Each Prime Contractor shall have the responsibility to carefully preserve the bench marks, reference points and stakes, and in the case of destruction thereof by the Contractor or resulting from his negligence the Contractor shall be charged with the expense an damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.
 - 6. Existing or new control points, property markers, and monuments that will be or are destroyed during the normal course of construction shall be reestablished by the General Construction Contractor and all reference ties recorded therefore shall be furnished to the Engineer. All computations necessary to establish the exact position of the Work shall be made and preserved by the General Construction Contractor.
 - 7. The Engineer may check all or any portion of the Work and the General Construction Contractor shall afford all necessary assistance to the Engineer in carrying out such

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checks. Any necessary corrections to the Work shall be immediately made by the General Construction Contractor. Such checking by the Engineer shall not relieve the General Construction Contractor of any responsibilities for the accuracy or completeness of his Work.

B. All other Work:

Each Contractor is responsible for layout of his Work including but not limited to substructures, foundations, manholes, utility lines, equipment pads based upon the reference lines and grades established herein.

1. Contractor shall keep neat legible notes of all measurements and calculations made by him while surveying and laying out the Work.
2. Two copies of all notes and other records shall be furnished to the County monthly. Furnish complete notes upon final completion.

GC-29 CUTTING AND PATCHING

A. Contractor Requirements

1. The Contractors shall perform all cutting and patching necessary for the Work of the Contract in accordance with the requirements of the Drawings and Specifications. Work performed by another contractor shall not be cut or altered without the approval of the Engineer.
2. Before doing any cutting, the Contractor shall obtain the approval of the Engineer as to the location, size and method of making such openings.
3. All cutting, rough patching and finish patching as defined by the Engineer will be performed by each respective Prime Contractor.
4. All cutting shall be performed in such a manner as to limit the extent of patching.
5. All patching shall be done in a manner to match the surrounding existing surfaces as closely as possible.
6. All painted surfaces which are patched shall have the patch painted to match the existing wall surfaces as closely as possible. The Engineer shall be the sole judge of the color/texture match of finish.
7. All holes cut through concrete walls or slabs shall be core drilled unless otherwise specified or shown. Prior to core drilling, Contractor shall drill sufficient number of small exploratory holes to establish that the areas to be core drilled is free of existing embedded conduits. No structural members shall be cut without approval of the Engineer and all such cutting shall be done in a manner directed by him. No holes, except for small screws, may be drilled in beams or other structural members without obtaining prior approval. All work shall be done in a neat manner by mechanics skilled in their trades and as approved.
8. Contractors shall install sleeves for their Work for all pipes and conduits passing through any wall or floor slabs.

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B. Errors and Omissions

Details and procedures are as stipulated in Paragraph A of this Article. Contractor responsible for error or omission will be responsible for all costs associated with cutting and patching.

GC-30 OPENINGS AND CHASES

- A. Each respective Contractor shall provide all openings and chases in his Work to fit his own Work. All such openings or chases shown on the Contract Drawings, or reasonably implied thereby, or as confirmed or modified by Shop Drawings approved by the Engineer, shall be provided by the Prime Contractor who requires the work.
- B. Where equipment frames or supports are to be installed as integral parts of an opening, the opening frames or supports shall be furnished and installed by the Contractors installing the equipment.
- C. When required by the Progress Schedule or requested by the General Construction Contractor, the Contractor installing the equipment frames and supports and Contractors who require openings or chases in slabs and walls for passage of ducts, mounting of equipment, etc. shall furnish all necessary information and instruction of the required openings, chases, frames, etc. When such items are secured in position by the installing Contractor and just prior to construction of the surrounding slab or wall, the installing Contractor shall ascertain the proper number, locations and settings thereof; and the General Construction Contractor shall schedule his operations so as to provide a reasonable opportunity and time interval for such inspection.
- D. Any cost resulting from correction of defective, ill- timed, or mislocated Work, or for subsequent Work which becomes necessary because of omitted openings, chases, frames etc., shall be borne by the Contractor responsible therefore. To this end, no Contractor shall arbitrarily cut, drill, alter, damage, or otherwise endanger the Work of another Contractor. The nature and extent of any corrective or additional Work shall be subject to the approval of the Engineer following consultation with the Contractor involved.

GC-31 SLEEVES, INSERTS AND WALL CASTINGS

Each Contractor shall furnish and install in place, conduits, outlets, piping sleeves, boxes, inserts, other materials and equipment necessary to be built into Work to be performed by the Contractor for General construction as soon as the requirements of the Progress Schedule require them. All Contractors shall cooperate fully in connection with the performance of the above Work, as cutting into new Work is neither contemplated nor will it be tolerated.

In the event timely delivery of sleeves or other materials cannot be made, if approved by the Engineer, and to avoid delay, the affected Contractor shall arrange to have boxes or forms set at location where piping or other material is to pass through or in slabs, walls or other Work. Upon subsequent installation of sleeves or other material, the General Construction Contractor shall fill around them with materials as required by Contract or by the Engineer. Necessary expenditure incurred for boxing out or filing shall be borne without extra costs to the County by Contractor or Contractors responsible therefore.

GC-32 SCAFFOLDING, RIGGING AND HOISTING

Each Contractor shall furnish all adequately designed scaffolding, rigging, hoisting and services necessary for erection and delivery or removal of any equipment and apparatus under his Contract.

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The Contractor shall remove same for Work involved when no longer required. Each Contractor involved in this type of activity shall take all precautions to prevent accidents or damage to persons or property about the Work involved and shall erect and maintain proper warning signs and guard rails.

GC-33 CLEANING

A. Rubbish Removal and Cleaning:

The General Construction Contractor shall remove from the Project, and dispose of, all debris and rubbish resulting from the Work of all Contractors, at least once a week and more often if same interferes with the Work under any contract, plant operations or presents a fire hazard. All debris and rubbish shall be removed from the County property and legally disposed of. Each Contractor shall be responsible for consolidating all debris and rubbish resulting from his Work to one location in his work area. During course of demolition or new construction, the General Construction Contractor shall maintain and keep free of debris or building material all required egress in accord with Fire Safety Regulations and the Nassau County Fire Commission.

B. County's Right to Clean:

Should the Contractor fail, refuse or neglect to remove rubbish and waste materials and temporary Work or clean the building and premises as required herein, then the County may or shall, without obligation to do so, remove and dispose of the said rubbish, waste materials and temporary work, clean the building and premises and deduct the cost thereof from any money due, or to become due, the Contractor under this Contract.

GC-34 (NOT USED)

GC-35 OPERATION AND MAINTENANCE MANUALS

County requirements stipulate time limitations for submittals and approval of operations and maintenance manuals. See Division 1, Special Conditions of the Technical Specifications, for specific requirements.

GC-36 RECORDING DRAWINGS

The County shall furnish to each Prime contractor a set of Mylar reproducible of the Contract Drawings for his Contract.

Each Prime Contractor shall maintain in the construction office at the job a set of prints of the Contract Drawings. A daily record in red pencil shall be kept on these prints of the Work installed and all modifications or changes therein. This set of prints shall be available at all times to the Engineer for inspection.

During the progress of the construction, each Contractor shall transfer once each month all information from field prints to the tracings and submit to the Engineer with his monthly payment request, two (2) prints of the tracings showing the Work completed and highlighting the change made. When roughing is completed, it must be shown. The use of approved shop drawings for record drawings is not acceptable.

Upon completion of all Work each Contractor shall complete the Mylar reproducible and sign them indicating that the Work was installed as shown. One set of paper print shall be submitted to the Engineer for review and acceptance. Upon receipt of the Engineer's acceptance, the Contractor shall submit the Mylar reproducible and one set of paper prints stamped "Record Drawings of

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Work as Built", stamped and certified and also provide on CD, format as required by the County, computer files of the Record Drawings.

The submittal of Record Drawings acceptable to the Engineer as specified herein, shall be a condition precedent to payments to the Contractor that may otherwise be then due.

GC-37 PHOTOGRAPHS

A. The General Construction Contractor shall engage the Services of an experienced photographer, approved by the Commissioner, to take job photographs. The photographer will be required to take preliminary photographs of the site prior to the commencement of work as directed by the Engineer. Subsequent photographs as determined by the Engineer shall be taken during the construction phase. The price bid shall be based on the following:

1. The Photographer shall visit the site and take photographs as directed by the Engineer as the work progresses.
2. Taking of a total of one hundred fifty (150) color photographs, on a monthly frequency basis; for the purpose of this section, a photograph shall be defined as one exposure. The Engineer shall have the right to reject any photograph that is not clear or definitive. Any photograph so rejected shall be subtracted from the total exposure before computations for payment for credit under this section.
3. Supplying three (3) prints and one (1) negative of each photograph. In the event that less than one hundred fifty photographs are required, the Contractor shall credit the County Fifteen Dollars (\$15.00) for each photograph under one hundred fifty photographs.

Should more than one hundred fifty photographs be required, the Contractor will be paid Twenty Dollars (\$20.00) for each photograph over one hundred fifty photographs.

Three 8" x 10" glossy prints and 4" x 5" negatives of the photograph shall be submitted to the Engineer with the Contractor's monthly estimate. The prints shall be mounted on cloth with a flap for binding and shall have indelibly printed on their reverse side of the following:

Project Name: _____

Photo Number: _____

View and description, indicating location of camera, general description of what photograph represents and whether this is a preliminary or construction photograph.

The Contractor shall also furnish three hard-back binders to hold all three sets of prints.

No separate payment will be made for job photographs; payment shall be included in the lump sum bid for the General Construction Contract.

GC-38 PROJECT CLOSEOUT

Division 1, Special Conditions, and other provisions of the Technical Specification stipulate requirements for Project closeout. Items such as final cleaning, lubrication survey, spare parts and special tools, equipment start-up services and other items specified are included. Final Payment will be contingent on each Contractor complying with these requirements.

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GC-39 (NOT USED)

GC-40 (NOT USED)

GC-41 NOTIFICATION OF SUBCONTRACTOR

Each Prime Contractor and Subcontractor shall include by reference the EEO clause and applicable bid Conditions in all advertisements or other solicitations for bids, and shall include the EEO clause and applicable Bid Conditions in all contracts.

GC-42 JURISDICTIONAL DISPUTES

It shall be the responsibility of the contractor to pay all costs that may be required to perform any of the Work shown on the Drawings or specified herein in order to avoid any Work stoppages due to jurisdictional disputes. The basis for subletting Work in question, if any, shall conform to precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, date June 1973 including any amendments thereto.

END OF SECTION

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Removal of Bulk Petroleum Storage Tanks
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SECTION 01100

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: The Project consists of the removal of existing, out of service, underground bulk petroleum fuel storage tanks, dispensing equipment, and all related appurtenances at this County facility. No installation of replacement tanks, new tanks, or new appurtenances is included in the Scope of Work.
- B. Engineer Identification: The Contract Documents, dated August 12, 2019, were prepared for the Project by the Nassau County Department of Public Works, 1194 Prospect Avenue, Westbury, NY 11590.
- C. In general, the Work consists of the removal, replacement, and/or decommissioning of underground and above ground storage tanks and appurtenance for waste oil, kerosene, diesel fuel, and gasoline. Tank quantities and capacities are indicated on the Project drawings.
- D. The Project will be constructed under a general construction contract.

1.2 WORK SEQUENCE

- A. Any work sequencing anticipated by the Contractor shall be implemented with the assurance that critical facility operations will remain in effect during construction activities. Detailed work sequencing requirements shall be reviewed and coordinated with the County and the on-site facility manager to ensure that facility operations are not interrupted.

1.3 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.1 USE OF PREMISES

- A. Use of Site: Limit use of site to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Limits: Confine constructions operations to limits as indicated on the plans.
 - 2. Owner Occupancy: Allow Owner full occupancy of site.
 - 3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to County, County employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Use of Existing Buildings: Maintain existing buildings in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.2 OCCUPANCY REQUIREMENTS

- A. Full Occupancy: County will occupy site and existing buildings during entire construction period. Cooperate with County site manager during construction operations to minimize conflicts and facilitate County usage. Perform the Work so as not to interfere with County operations.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01230

ALTERNATES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01260

CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications. In case of any conflicts or inconsistencies between this Section and Sections entitled "Notice to Bidders", "Instructions to Bidders", "Proposal Forms", "Conditions of Contract", "General Conditions" or "Form of Contract", the above-named sections shall govern.
- B. See Division 1 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

- A. Engineer will issue written supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 5 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time. 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities. 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time. 5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Engineer may issue a written Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

CONTRACT MODIFICATION PROCEDURES 01260 - 2 Nassau County DPW 331 of 500 Contract No. B81060-19G Rem & Install-Undergr Stor Tanks-NICE-TRANSDEV

NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS NICE BUS MAINTENANCE GARAGES
GARDEN CITY & ROCKVILLE CENTRE

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01290

PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment. In case of any conflicts or inconsistencies between this Section and Sections entitled “Notice to Bidders”, “Instructions to Bidders”, “Proposal Forms”, “Conditions of Contract”, “General Conditions” or “Form of Contract”, the above-named sections shall govern.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.
 - 2. Submit the Schedule of Values to Engineer at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content:
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Engineer's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use forms provided by Owner.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 2 signed and notarized original copies, plus an amount requested by the Owner, of each Application for Payment to Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.

- a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Submittals Schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of building permits.
 7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 8. Certificates of insurance and insurance policies.
 9. Performance and payment bonds.
 10. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.

4. Evidence that claims have been settled.
5. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01310

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on the Project. In case of any conflicts or inconsistencies between this Section and Sections entitled “Notice to Bidders”, “Instructions to Bidders”, “Proposal Forms”, “Conditions of Contract”, “General Conditions” or “Form of Contract”, the above-named sections shall govern. This Section includes, but is not limited to, the following:
 - 1. General Project coordination procedures.
 - 2. Coordination Drawings.
 - 3. Project meetings.

1.2 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Make adequate provisions to accommodate items scheduled for later installation.
 - 3. Coordinate inspections by authorities having jurisdiction over installed components as required.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and utilities surveyors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress Meetings.
 6. Pre-installation conferences.
 7. Project closeout activities.
- D. The Contractor shall employ a competent full-time superintendent who shall be in attendance at the job site whenever work is being performed under the contract, for the entire duration of the project and who shall be responsible for securing the site and buildings on a daily basis.
- E. All construction work on this project must be performed in compliance with the Occupational Safety and Health Act of 1970 or with Local or State occupational safety and health regulations enforced by an agency of the locality of state under a plan approved by the U.S. Department of Labor Occupation Safety and Health Administration (OSHA).
- F. The Contractor must layout its work from benchmarks established at the project site and is responsible for all measurements based on them. The contractor must furnish, at his/her own expense, all equipment, tools, materials, and labor as may be required in the layout of any part of the work.
- G. The contractor must cooperate fully and must schedule his/her work accordingly in making connections to utilities during the construction period. The contractor must contact, coordinate, and make the necessary arrangements with the respective authorities for the connections to the utilities required under the contract.

1.3 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Refer to individual specifications for coordination drawings as required.

1.4 PROJECT MEETINGS

- A. General: Attend meetings and conferences at Project site, unless otherwise indicated.
- B. Preconstruction Conference: Attend a preconstruction conference before starting construction, no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of County, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.

- r. Working hours.
- C. Progress Meetings: Attend progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
 - 1. Attendees: In addition to representatives of County and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.

- 12) Quality and work standards.
- 13) Change Orders.
- 14) Documentation of information for payment requests.

1.5 SECURITY

- A. Contractor shall be responsible for securing all equipment, supplies, etc. stored on site for the duration of the project.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01320

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work. In case of any conflicts or inconsistencies between this Section and Sections entitled “Notice to Bidders”, “Instructions to Bidders”, “Proposal Forms”, “Conditions of Contract”, “General Conditions” or “Form of Contract”, the above-named sections shall govern. This Section includes, but is not limited to, the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Daily construction reports.
 - 4. Field condition reports.
 - 5. Construction photographs.

1.2 DEFINITIONS

- A. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- B. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
- C. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- D. Major Area: A significant construction element.

1.3 SUBMITTALS

- A. Submittals Schedule: Submit six copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
 2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor.
 5. Description of the Work covered.
 6. Scheduled date for Engineer's final release or approval.
- B. Contractor's Construction Schedule: Submit six printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
- C. CPM Reports: Concurrent with CPM schedule, submit six printed copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.
1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 3. Total Float Report: List of all activities sorted in ascending order of total float.
- D. Construction Photographs: Submit digital photographs to the Engineer within seven days of taking photographs. Submit two binders including printed photographs upon completion of the project.
1. Digital Format: Digital photographs taken with a min. 3.0 MP camera, with time and date stamp.
 2. Printed Format: Digital photographs printed on 8"x10" photographic paper. Photographs shall be punched and mounted in a three-ring binder.
 3. Digital Photograph Identification: In the transmittal for the photographs, provide the following for each photograph:
 - a. Project Site.
 - b. Date and time photograph was taken.
 - c. Description of vantage point, indicating location, direction (by compass

point), and elevation or story of construction.

4. Printed Photograph Identification: On back of each print, provide an applied label or rubber-stamped impression with the following:
 - a. Project Site.
 - b. Date and time photograph was taken.
 - c. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
- E. Daily Construction Reports: Submit two copies at weekly intervals.
- F. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording events at Project site, including the following:
 - 1. List of subcontractors.
 - 2. High and low temperatures and general weather conditions.
 - 3. Accidents.
 - 4. Stoppages, delays, shortages, and losses.
 - 5. Meter readings and similar recordings.
 - 6. Orders and requests of authorities having jurisdiction.
 - 7. Services connected and disconnected.
 - 8. Equipment or system tests and startups.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

3.2 CONSTRUCTION PHOTOGRAPHS

- A. Periodic Construction Photographs: Take photographs periodically during the removal and installation of tanks, dispensers, piping, and appurtenances. Photographer shall select vantage points to best show status of construction and progress since last photographs were taken.
 1. Field Prints: Retain one set of prints of periodic photographs in field at Project site, available at all times for reference. Identify photographs the same as for those submitted to Engineer.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals. In case of any conflicts or inconsistencies between this Section and Sections entitled "Notice to Bidders", "Instructions to Bidders", "Proposal Forms", "Conditions of Contract", "General Conditions" or "Form of Contract", the above-named sections shall govern.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
 - 1. Initial Review: Allow five days for initial review of each submittal. Allow additional time if processing must be delayed permitting coordination with

- subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Allow five days for processing each resubmittal.
 4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.
 1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

PART 2 PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 1. Number of Copies: Submit six copies of each submittal, unless otherwise indicated. Engineer will return three copies. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.

- e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with recognized trade association standards.
 - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
- 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shop-work manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 - 2. Wiring Diagrams: Differentiate between manufacturer-installed and field installed wiring.
 - 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.

- F. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
- G. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements in Division 1 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements in Division 1 Section "Payment Procedures."
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit six copies of each submittal, unless otherwise indicated. Engineer will not return copies.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

- Q. Manufacturer's Field Reports: Prepare written information documenting factory authorized service representative's tests and inspections.
- R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

PART 3 EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SECTION 01356

SAFE AND HEALTHFUL WORKING CONDITIONS

PART 1 GENERAL

1.1 SUMMARY

- A. This section describes the requirements for safe and healthful working conditions as an integral part of the project construction.

1.2 DEFINITION

- A. Safety staff shall mean the safety professional and his/her safety representative(s) or the safety person.

1.3 GENERAL REQUIREMENTS

- A. In prosecuting the work of this Contract, the Contractor shall provide working conditions on each operation that shall be as safe and healthful as the nature of that operation permits. The various operations connected with the work shall be so conducted that they will not be unsafe or injurious to health; and the Contractor shall comply with all regulations and published recommendations of the New York State Department of Labor and all provisions, regulations and recommendations issued pursuant to the Federal Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, as amended, and with laws, rules, and regulations of other authorities having jurisdiction, with regard to all matters relating to safe and healthful working conditions.
 - 1. Compliance with governmental requirements is mandated by law and considered only a minimum level of safety performance.
 - 2. All work shall also be performed in accordance with safe work practice, and contractor's Health and Safety Plan, as approved by the Construction Manager in writing.
- B. The Contractor shall be responsible for the safety of the Contractor's employees, the public, and all other persons at or about the site of the work. The Contractor shall be solely responsible for the adequacy and safety of all construction methods, materials, equipment, and the safe prosecution of the work.
- C. The Contractor shall employ a properly qualified safety professional familiar with all work under this contract whose duties shall be to initiate, review, and cause implementation of measures for the protection of health and prevention of accidents.
- D. The safety staff shall be provided with an appropriate office on the job site to maintain and keep available safety records, up-to-date copies of all pertinent safety rules, regulations and governing legislation, material safety data sheets, and the site safety plan including

information concerning foreseeable emergency conditions, location of emergency and telephone contacts for supportive actions.

- E. The Contractor shall stop work whenever a work procedure or a condition at a work site is deemed unsafe by the safety staff.

1.5 SUBMITTALS

- A. The Contractor shall submit a Health and Safety Plan (HASP), prepared prior to the start of any construction for acceptance by the CM, in writing.
 - 1. The HASP shall be available to workers on site and be submitted to the Engineer and Owner at least two (2) weeks before the beginning of any field work.
 - 2. Copies of the plan shall be provided to the Contractors' insurers and their risk managers, if any, by the Contractor.
- B. Within thirty (30) days of receiving a "Notice to Proceed", the Contractor shall submit the name of a safety professional, employed by the Contractor, responsible for project safety management, and of the safety representative(s) who will work under his/her direction.
- C. Documentation and/or personal references confirming the qualifications may also be required.
 - 1. The persons proposed as a safety person, safety professional, or safety representative(s), may be rejected by the Engineer for failure to have adequate qualifications or other cause.
- D. In addition, the Contractor shall submit the names, addresses, and telephone numbers of three (3) supervisory personnel who may be contacted in the event of an emergency occurring during non-working hours.

1.6 QUALIFICATIONS

- A. Safety Professional:
 - 1. Certification by the Board of Certified Safety Professional as a Certified Safety Professional.
 - 2. Minimum of five (5) years of professional safety management experience in the types of construction and conditions expected to be encountered on the site.
- B. Safety Person:
 - 1. Qualifications of the safety person must include a minimum of five (5) years of relevant construction experience, two (2) years of which are related to safety management.

- C. The Safety staff shall be completely experienced with OSHA requirements and knowledgeable of all applicable health and safety requirements of all governing laws, rules and regulations as well as of good safety practice. The safety staff shall not include the project manager, engineer, or superintendent, or anyone else working on the project. The safety staff shall have no other duties except those directly related to safety.

PART 2 PRODUCTS

2.1 HEALTH AND SAFETY PLAN

- A. The Contractor shall commit to writing a specific site Health and Safety Plan before the start of any construction for acceptance by the Construction Manager.

2.2 ACCIDENT REPORTS

- A. The Contractor shall promptly (within the hour of the incident) report to the Construction Manager all accidents involving injury to personnel or damage to equipment and structures, investigate these accidents and prepare a preliminary report and submit within twenty-four (24) hours of the accident. The Contractor must submit a final accident report to the Construction Manager as follows:
 - 1. The summary report, due by the tenth (10th) day of the incident, shall include descriptions of corrective actions to reduce the probability of similar accidents.
 - 2. In addition, the Contractor shall furnish to the Engineer, a copy of all accident and health or safety hazard reports received from OSHA or any other government agency, within one (1) day of receipt, and attach the final plan.
- B. In addition to the reports which the Contractor is required to file under the provisions of the Workman's Compensation Law, he/she shall submit to the Engineer on or before the tenth (10th) day of each month, a report giving the total force employed on his/her Contract in man-days during the previous calendar month, the number and character of all accidents resulting in loss of time or considered reportable by OSHA, and any other information on classification of employees, injuries received on the work, and disabilities arising therefrom, that may be required by the Engineer.
 - 1. The submittal shall also contain an audit report for the prior month, including the safety training conducted, the above equipment logs, records of the condition of the work areas, safety and health records, OSHA and ANSI Z16.1 incidence rates for frequency and severity of recordable accidents, and an evaluation of the effectiveness of the HASP with any changes necessary.
 - 2. The safety professional or safety person and the Contractor shall sign this audit report. The Engineer will review these reports for Contractor's compliance with the safety provisions of the Contract.

2.3 SAFETY AND RESCUE EQUIPMENT

- A. The Contractor shall have proper safety and rescue equipment, adequately maintained and readily available, for any foreseeable contingency. This equipment shall include such applicable items as: proper fire extinguishers, first aid supplies, safety ropes and harness, stretchers, water safety devices, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, combustible gas detectors, etc.
- B. This equipment shall be kept in a protected area and checked at scheduled intervals. A log shall be maintained indicating who checked the equipment, when it was checked, and that it was acceptable. This equipment log shall be updated monthly and be submitted with the monthly report. Equipment that requires calibration shall have copies of dated calibration certificates on site.
- C. Substitute safety and rescue equipment must be provided while primary equipment is being serviced or calibrated.

2.4 PROTECTIVE EQUIPMENT

- A. All personnel employed by the Contractor or his subcontractors or any visitors whenever entering the job site shall be required to wear appropriate personal protection equipment required for that area. The Contractor shall provide all necessary personal protective equipment as requested by the Engineer for his/her designated representatives.

PART 3 EXECUTION

3.1 SAFETY STAFF DUTIES

- A. The safety professional shall visit and audit all work areas as frequently as necessary (a minimum of once a week) and shall be available for consultation whenever necessary. The safety staff shall have full authority to implement and enforce the Health and Safety Plan to take immediate action to correct unsafe, hazardous, or unhealthful conditions.
- B. A member of the safety staff must be at the job site full time (a minimum of eight (8) hours per working day) whenever work is in progress. When multiple shift work is in progress, more than one (1) safety representative may be required. The safety staff shall as a minimum:
 - 1. Schedule safety training programs as required by law, the safety plan, and good safety practice. An outline of materials to be covered shall be provided with the safety plan. All employees shall be instructed on the recognition of hazards, observance of precautions, of the contents of the safety plan and the use of protective and emergency equipment.
 - 2. Determine that operators of specific equipment are qualified by training and/or experience before they are allowed to operate such equipment.

3. Develop and implement emergency response procedures. Post the name, address, and hours of the nearest medical doctor; name and address of nearby clinics and hospitals, and the telephone numbers of the appropriate ambulance service, fire, and the police department.
4. Post all appropriate notices regarding safety and health regulations at locations which afford maximum exposure to all personnel at the job site.
5. Post appropriate instructions and warning signs in regard to all hazardous areas or conditions which cannot be eliminated. Identification of these areas shall be based on experience, on site surveillance, and severity of hazard. Such signs shall not be used in place of appropriate workplace controls. In order to alert the workers "Safety First" signs should be posted, as ordered by the Engineer at no extra cost.
6. Ascertain by personal inspection that all safety rules and regulations are enforced. Make inspections at least once a shift to ensure that all machines, tools, and equipment are in a safe operating condition, and that all work areas are free of hazards. Take necessary and timely corrective actions to eliminate all unsafe acts and/or conditions, and submit to the Engineer each day, a copy of his/her findings on the inspection check list report forms established in the safety plan.
7. Submit to the Engineer, copies of all safety inspection reports and citations from regulating agencies and insurance companies within one (1) work day of receipt of such reports.
8. Provide safety training and orientation to authorized visitors to ensure their safety while occupying the job site.
9. Perform all related tasks necessary to achieve the highest degree of safety that the nature of the work permits.

3.2 MEASUREMENT OF PAYMENT

- A. No separate payment for the article "Safe and Healthful Working Conditions" will be made. The costs of same will be included in the Lump Sum Bid.

END OF SECTION

SECTION 01400

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's quality control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 2 through 16 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Dry chemical fire suppression system design services and certifications by a design professional are specifically required of Contractor by the Contract Documents. Provide products and systems complying with all authorities having jurisdiction (AHJ).

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for fire suppression systems designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria required by the AHJ. Include list of codes, loads, and other factors used in performing these services.
- C. Reports: Prepare and submit certified written reports that include the following:
 1. Date of issue.
 2. Project title and number
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Ambient conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and re-inspecting.

- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

1.6 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
- B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

- a. Contractor shall not employ the same entity engaged by County, unless agreed to in writing by County.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- D. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including re-testing and re-inspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 5. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
 2. Comply with the Contract Document requirements for Division Sections.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01420

REFERENCES

PART 1 GENERAL

1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project;

being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.
- E. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list:

ADAAG	Americans with Disabilities Act (ADA)
CFR	Code of Federal Regulations
CRD	Handbook for Concrete and Cement
DOD	Department of Defense Specifications and Standards

FED-STD	Federal Standard (See FS) FS Federal Specification
FTMS	Federal Test Method Standard (See FS)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

AA	Aluminum Association, Inc.(The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AAN	American Association of Nurserymen (See ANLA)
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABMA	American Bearing Manufacturers Association
ACI	American Concrete Institute/ACI International
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AFPA	American Forest & Paper Association (See AF&PA)
AF&PA	American Forest & Paper Association

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AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALA	American Laminators Association (See LMA)
ALCA	Associated Landscape Contractors of America
ALSC	American Lumber Standard Committee
AMCA	Air Movement and Control Association International, Inc.
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen)
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ASCA	Architectural Spray Coaters Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers

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ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWCI	AWCI International (Association of the Wall and Ceiling Industries International)
AWCMA	American Window Covering Manufacturers Association (See WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
CCC	Carpet Cushion Council
CCFSS	Center for Cold-Formed Steel Structures
CDA	Copper Development Association Inc.
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CGSB	Canadian General Standards Board
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute

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CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association (Formerly: National Particleboard Association)
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association
EIMA	EIFS Industry Members Association
EJMA	Expansion Joint Manufacturers Association, Inc.
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association (See GANA)
FM	Factory Mutual System (See FMG)
FMG	FM Global (Formerly: FM - Factory Mutual System)
GA	Gypsum Association
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association)
GRI	Geosynthetic Research Institute
GTA	Glass Tempering Division of Glass Association of North America (See GANA)

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HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (See NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (See CSA International)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute (The)
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
ILI	Indiana Limestone Institute of America, Inc.
IRI	Industrial Risk Insurers
ITS	Intertek Testing Services
IWS	Insect Screening Weavers Association (Now defunct)
KCMA	Kitchen Cabinet Manufacturers Association
LGSI	Light Gage Structural Institute
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association)
LPI	Lightning Protection Institute
LSGA	Laminated Safety Glass Association (See GANA)
MBMA	Metal Building Manufacturers Association
MCA	Metal Construction Association
MFMA	Maple Flooring Manufacturers Association

MFMA	Metal Framing Manufacturers Association
MGPHO	Medical Gas Professional Healthcare Organization, Inc.
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NAAMM	North American Association of Mirror Manufacturers (See GANA)
NACE	NACE International (National Association of Corrosion Engineers International)
NAIMA	North American Insulation Manufacturers Association (The)
NAMI	National Accreditation and Management Institute, Inc.
NAPM	National Association of Photographic Manufacturers (See PIMA)
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable Television Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	Inter-National Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council

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NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	National Oak Flooring Manufacturers Association
NPA	National Particleboard Association (See CPA)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSA	National Stone Association
NSF	NSF International (National Sanitation Foundation International)
NTMA	National Terrazzo and Mosaic Association, Inc.
NWWDA	National Wood Window and Door Association (See WDMA)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting and Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers)
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RMA	Rubber Manufacturers Association
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute

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SEFA	Scientific Equipment and Furniture Association
SGCC	Safety Glazing Certification Council
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPI	The Society of the Plastics Industry
SPIB	Southern Pine Inspection Bureau (The)
SPI/SPFD	The Society of the Plastics Industry Spray Polyurethane Foam Division (See SPFA)
SPRI	SPRI (Single Ply Roofing Institute)
SSINA	Specialty Steel Industry of North America
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association)
SSPC	The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, and Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TPI	Truss Plate Institute
TPI	Turfgrass Producers International
UFAC	Upholstered Furniture Action Council

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UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USITT	United States Institute for Theatre Technology, Inc.
USP	U.S. Pharmacopeia
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA - American Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WIC	Woodwork Institute of California
WMMPA	Wood Molding & Millwork Producers Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

BOCA	BOCA International, Inc.
CABO	Council of American Building Officials (See ICC)
IAPMO	International Association of Plumbing and Mechanical Officials (The)
ICBO	International Conference of Building Officials
ICC	International Code Council (Formerly: CABO - Council of American Building Officials)
SBCCI	Southern Building Code Congress International, Inc.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

CE	Army Corps of Engineers
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CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley Laboratory (See LBNL)
LBNL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
RUS	Rural Utilities Service (See USDA)
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

- E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

CAPU C	(See CPUC)
CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CPUC	California Public Utilities Commission

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TFS Texas Forest Service
 Forest Products Laboratory

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01495

SPILL PREVENTION AND CONTROL

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. This section covers the Contractor's responsibilities with respect for spill prevention and control.

1.2 APPLICABLE REFERENCES

- A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to by basic designation only and shall be the latest published versions.
 - 1. United States Environmental Protection Agency (USEPA): EPA/625/6-B5/006, Remedial Action at Waste Disposal sites
 - 2. Code of Federal Regulations (CFR): 40 CFR Part 300, National Oil and Hazardous Substances Pollution Contingency Plan 40 CFR, Protection of Environment
 - 3. American Society for Testing and Materials (ASTM): ASTM E119, Fire Resistance Directory

1.3 SUBMITTALS

- A. Spill Prevention and Control Plan shall be provided to the Construction Manager, upon request, in accordance with Section 01330: SUBMITTALS

1.4 GENERAL REQUIREMENTS

- A. The Contractor shall prepare and implement a Spill Prevention and Control Plan and maintain appropriate containment and/or diversionary structure, materials and equipment to prevent and control the maximum spillage of any specific item within the Scope of Work. All materials and equipment used in connection with this project shall be included. The plan shall include inspection and test procedure performed to ensure compliance.
- B. Laws and Regulations: The Contractor shall not pollute any area with any manmade or natural harmful materials. It is the sole responsibility of the Contractor to investigate and comply with all applicable federal, State, County, and municipal laws and regulations concerning the Spill Prevention and Control Plan.
- C. A Project Telephone Directory shall be incorporated into the plan.

- D. Written Discussions: In addition to the minimal prevention standards listed, the Plan shall include a complete discussion of conformance with the following applicable guidelines, other effective spill prevention and containment procedures, or if more stringent, with the State rules, regulations and guidelines.
1. Facility drainage
 2. Bulk storage
 3. Facility transfer operations, pumping, and conveying materials
 4. Truck loading/unloading rack
- E. Design and Specifications: The Contractor shall provide a Spill Prevention and Control Plan with the following designs and specifications:
1. Appropriate containment and/or diversionary structures or equipment to prevent discharge of materials to the environment
 2. Dikes sufficiently impervious to contain spill materials
 3. Curbing
 4. Culverts, gutters, or other drainage systems
 5. Weirs, booms, or other barriers
 6. Sorbent materials
 7. Curbing drip pans
 8. Sumps and collection systems
- F. Inspections and Records: Inspections required by this "Scope of Work" shall be in accordance with written procedures developed for the facility by the Contractor. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, shall be part of the Spill Control and Prevention Plan, and shall be maintained during the project and submitted to the Construction Manager for final closeout.
- G. Facility Lighting: Facility lighting shall be commensurate with the type and location of the facility. Consideration shall be given to:
1. Discovery of spills occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel such as security personnel, the general public, local police, etc.
 2. Prevention of spills occurring through acts of vandalism.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 GENERAL

- A. If materials are released, the Contractor shall provide a written description of the event, corrective action taken, and plans for preventing a recurrence, as well as a written commitment of manpower, equipment, and materials required to expedite control and removal of any harmful quantity of materials released.
- B. The Contractor shall notify the NYSDEC within two (2) hours of the release or spill. The Contractor shall notify the DEC hotline at 1-800-457-7362.

3.2 TRAINING

- A. Personnel Training and Spill Prevention Procedures: The Contractor shall be responsible for properly instructing his/her personnel regarding applicable pollution control laws, rules, and regulations; and in the operation and maintenance of equipment to prevent the discharge of materials.
- B. Briefings: The Contractor shall schedule and conduct Spill Prevention Briefings for its operating personnel at intervals frequent enough to assure adequate understanding of the Spill Prevention and Control Plan for this project. Such briefings shall highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.
- C. Evacuation Routes: Evacuation Routes shall be marked on the project site.

3.3 TESTING

- A. Facility communication or alarm systems and spill control equipment must be tested and maintained by the Contractor as necessary to assure proper operation in time of emergency.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 GENERAL

- A. Contractor is responsible for installing and maintaining all temporary facilities and controls required to perform all work.

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, County forces, testing and inspecting agencies and personnel of authorities having jurisdiction.

1.4 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Utilities: At earliest feasible time, when acceptable to County, change over from use of temporary service to use of permanent service.
 - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each

permanent service during its use as a construction facility before County acceptance, regardless of previously assigned responsibilities.

- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.
- B. Pavement: Comply with Division 2 pavement Sections.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.

2.2 EQUIPMENT

- A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- C. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities as directed by the County where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate sanitary facilities, and other temporary construction and support facilities for easy access, and as indicated by the Owners.
 - 2. Provide non-combustible construction for items located within construction area or within 30 feet (9 m) of building lines, if approved by the Owner. Comply with NFPA 241.
 - 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use owners' facilities, under conditions acceptable to Owner.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

3.4 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with other division requirements.

END OF SECTION

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for selecting products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to the County.

- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.3 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 9. Protect stored products from damage.

1.5 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations

on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Engineer will make selection.
 - 5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
 - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
- B. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
 - a. Substitutions may be considered, unless otherwise indicated.
2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
7. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Substitutions may be considered, unless otherwise indicated.
8. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with

requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches satisfactorily.

- a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
9. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01731

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. See other Divisions Sections for other requirements and limitations applicable to cutting and patching.

1.2 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
 - 6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
 - 7. Engineer's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Miscellaneous Elements: Do not cut and patch elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize or avoid interruption of services to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete, Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing-up, and similar operations following performance of other Work. Patch with durable seams that are as

invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION

SECTION 01732

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes demolition and removal of the following:
 - 1. Selected site elements.
 - 2. Repair procedures for selective demolition operations.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to County ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain County's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with Authorities Having Jurisdiction notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.5 PROJECT CONDITIONS

- A. County assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by County as far as practical.

- B. Hazardous Materials: Hazardous materials including contaminated soils may be present in areas to be selectively demolished.
- C. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.
 - 2. If utility services are required to be removed, relocated, or abandoned, provide temporary utilities before proceeding with selective demolition that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- D. Utility Requirements: Refer to Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Protect existing site improvements, appurtenances, and landscaping to remain.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent facilities to remain.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
- D. Temporary Shoring: Provide and maintain exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations.
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting structures.
- B. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to County.
 - 4. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.

3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off County property and legally dispose of them.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout. In case of any conflicts or inconsistencies between this Section and Sections entitled “Notice to Bidders”, “Instructions to Bidders”, “Proposal Forms”, “Conditions of Contract”, “General Conditions” or “Form of Contract”, the above-named sections shall govern. This Section includes, but is not limited to, the following:
1. Inspection procedures.
 2. Project Record Documents
 3. Operation and maintenance manuals.
 4. Warranties.
 5. Instruction of Owner's personnel.
 6. Final cleaning.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise County of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Obtain and submit releases permitting County unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs damage or settlement surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by County. Label with manufacturer's name and model number where applicable.
 7. Deliver keys to County. Advise County personnel of changeover in security provisions.
 8. Complete startup testing of systems.
 9. Submit testing records, and certificates of approval by Authorities having jurisdiction.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 11. Advise County of changeover in utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 13. Complete final cleaning requirements.
 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment.
 2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The

certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit six copies of list. Include name and identification of each area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. List shall be approved by Engineer.

1.5 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
- B. Record Drawings: Maintain and submit two sets of blue- or black-line white prints of Contract Drawings and Shop Drawings.
1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
 5. Indicate exact locations of features which were indicated schematically on the plans.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Note related Change Orders and Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
 2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title

"OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.7 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2-by-11-inch (115-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.

3. Schedule training with Owner, through Engineer, with at least seven days' advance notice.
 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline.
1. Include instruction for system design and operational philosophy, review of documentation, operations, adjustments, troubleshooting, maintenance, and repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Sweep concrete floors broom-clean in unoccupied spaces.
 - g. Remove labels that are not permanent.

- h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint, and other foreign substances.
 - j. Replace parts subject to unusual operating conditions.
 - k. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs.
 - l. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on County property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 02040

REMOVAL OF UNDERGROUND STORAGE TANKS

PART 1 GENERAL

1.1 SCOPE

- A. Provide labor, materials, equipment and appliances required for the complete and secure removal and disposal of all existing underground storage tanks, contents and accessories, as shown on the Contract Drawings. The Contractor shall notify and coordinate with the Nassau County Department of Health (NCDH), New York State Department of Environmental Conservation (NYSDEC) and Nassau County Department of Public Works (NCDPW) a minimum of 48 hours prior to commencement of work.
- B. Related Sections
 - 1. Dewatering: Section 02200
 - 2. Excavation: Section 02300

1.2 REFERENCES

- A. Work shall be in accordance with recommended practices of the Environmental Protection Agency (EPA) Regulations 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 280.11 and 40 CFR 280.22, Occupational Safety and Health Administration (OSHA) Regulations 40 CFR 260 and all applicable Federal, State and local regulations including, but not limited to, the New York State Building Code, and Nassau County Department of Health (NCDH) Code.

1.3 QUALITY ASSURANCE

- A. Obtain all necessary permits and certificates for the work and provide copies to the Owner. Workers shall be competent and experienced in work similar to that included in this Contract and shall be licensed or certified as required by regulatory agencies. B. Provide all manifests of disposal for the tank, accessories and contents to the Engineer. The associated work will not be accepted or approved by the Engineer until the necessary manifests are provided.

PART 2 EQUIPMENT

2.1 GENERAL

- A. The Contractor shall be required to furnish all equipment and materials necessary for the removal of underground storage tanks. All equipment shall operate in proper working order and shall ensure safety to all on-site personnel. The Engineer and his representatives reserve the right to dismiss the use of any equipment which proposes a safety hazard to any personnel or is in poor operational condition.

PART 3 EXECUTION

3.1 PROTECTION

- A. Conduct all work in a manner to ensure the safety of the public, Owner's employees and Contractor's employees. The Contractor shall be responsible for training its employees in safety and first aid procedures.

3.2 PREPARATION

- A. Identify required lines, levels, contours and datum. B. Identify known underground, above ground and aerial utilities. Stake and flag locations. C. Notify utility company to remove or relocate utilities, if required. D. Protect above and below grade utilities and features which are to remain. E. Protect plant life, lawns and other features remaining as a portion of final landscaping. F. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic. G. Notify the Engineer prior to commencement of excavation.

3.3 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage from the proposed work.
- B. Provide protection for plant life designated to remain. Replace damaged plant life.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- D. Provide warning lights to alert pedestrian of potential hazards.

3.4 FENCING

- A. Safety Fence shall be colored OSHA approved "Warning Orange".

3.5 EXCAVATION

- A. Site excavation and excavation for all structures and improvements shall include the removal of earth, rock less than once cubic yard, masonry and other materials of any nature whatsoever that may be encountered.

- B. All excavated soils shall be stockpiled on plastic sheets in areas designated by the Owner. At all times, stockpiled soil shall be protected to prevent possible contamination from reaching clean soils and groundwater.
- C. The Contractor shall excavate by hand-digging to the top centerline of the existing tank to verify location and orientation of the tank and to prevent damaging of existing underground utilities.
- D. Excavation lines shall be such as to provide sufficient clearance for the proper performance of the work, and unless otherwise required, such clearance shall not be less than one foot outside the tank edges.
- E. Subsurface rock excavation shall include the removal of boulders, concrete and other larger than one cubic yard in volume.
- F. When the excavations have been carried to the required depth for tank removal, the Contractor shall do no more work until after inspection by the NYSDEC or NCDH, who shall determine the quality of the surrounding soils and indicate if any further steps need to be taken as a result of possible soil contamination. No backfilling shall be done until the excavations have been approved by the NYSDEC or NCDH.
- G. Excavations shall be kept dry and free from frost.
- H. No excavations shall be made in frozen materials without written approval.
- I. No additional allowance or payment shall be made on account of any materials being wet or frozen or if any unauthorized excavation is performed. The contractor shall correct unauthorized excavation at no additional cost to the County.

3.6 REMOVAL OF TANK

- A. NYSDEC or NCDH must be present at the tank removal. Tank and surrounding soils must be accessible for inspection by the NYSDEC or NCDH.
- B. Drain product piping (suction, return and gauge) to tank and remove and dispose of piping from tank to end use point. Remove and dispose of fill and vent liens and accessories. Inaccessible lines and lines in slabs may be cut, capped and abandoned in place as determined and approved by the Engineer.
- C. Remove residue and liquids from tank prior to excavating to top of tank. Purging of the tank shall be performed in a manner consistent with the nature of the product stored in the tank. Tank shall be free from all fuel, water, sludge and other contaminating materials prior to removal.
- D. Accessible holes in tank shall be plugged after excavation but prior to removal. One plug should contain a 1/8-inch vent hole. Maintain tank positioned with vent hole at the top during subsequent operations. After removal from excavation, tank shall be labeled in

accordance with API RP1604 and removed from the site as promptly as possible. Transport and dispose of tank in accordance with applicable regulations.

3.7 BACKFILL

- A. No areas where tanks have been removed can be backfilled until area is deemed safe by NYSDEC or NCDH.
- B. After inspection and approval of work which is to be covered by backfill, all excavated areas shall be backfilled with clean selected material previously excavated or brought to the site, free from organic matter, frozen lumps and contaminated soil and approved by the Engineer. Material shall be backfilled in 12-inch layers and thoroughly tamped between layers. Mechanical tampers shall be used wherever possible. If directed by the Engineer, the backfill shall be thoroughly saturated with water as it is placed.

3.8 ADDITIONAL FILL

- A. Sand: Natural river or bank sand; washed, free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ANSI/ASTM C136, within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4 (4.75 mm)	100
No. 16 (1.18mm)	10-100
No. 50 (0.30 mm)	5-90
No. 100 (0.15mm)	4-30
No. 200 (0.075 mm)	0-1

- B. Subsoil: Reused, free of gravel larger than 3 inches (75mm) in size and debris.

3.9 ROUGH GRADING

- A. Fill areas to contours and elevations with unfrozen subsoil material with allowances made for topsoil, aggregate base course or paving.
- B. Place and compact subsoil fill material in continuous layers not exceeding 6 inches (150 mm) compacted depth, compacted to 95 percent maximum dry density in accordance with ANSI/ASTM D1557.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Make grade changes gradual. Blend slope into level areas.
- E. Remove surplus fill materials from site.

3.10 DISPOSAL OF CONTAMINATED MATERIALS

- A. Tank contents shall be disposed of by collection of waste fuels for recycling and collection of sludge and solids in drums. Leakage or spillage of such materials in the tank excavation

or on the ground shall be avoided. Any spillage or leakage shall be cleaned by the Contractor in a manner acceptable to the NYSDEC or NCDH.

- B. Remove contaminated soils as directed by the supervising regulatory authority. All quantities removed shall be documented to the satisfaction of the Engineer. Disposal of soils shall be in accordance with the requirements of the supervising regulatory authority.
- C. The Contractor shall load, contain and transport such materials in accordance with applicable Federal, State and local regulations. Disposal of soils contaminated due to leakage or spillage as a result of Contractor operations shall be the responsibility of the Contractor.

END OF SECTION

SECTION 02163

TEMPORARY SHEETING AND BRACING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wood and steel sheeting.
- B. Sheeting box.
- C. Related Sections
 - 1. Removal of Underground Storage Tanks: Section 02040
 - 2. Dewatering System: Section 02200
 - 3. Earthwork: Section 02300

1.2 REFERENCES

- A. Occupational Safety and Health Standards – Excavation; Final Rule (29 CFR Part 1926) – OSHA Standards.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate materials and methods to be used during excavation. Shop drawings shall bear the seal and signature at a registered Professional Engineer in the State of New York.

1.4 QUALITY ASSURANCE

- A. Perform all work of this section on accordance with OSHA Standards and approved shop drawings.
- B. Design sheeting under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of New York.

1.5 COORDINATION

- A. Coordinate work with all other sections requiring temporary sheeting and bracing.

PART 2 PRODUCTS

Temporary Sheeting and Bracing

02163 - 1

Contract No.: B81060-15G

2.1 MATERIALS

- A. Wood Sheeting: Hardwood species of size and dimensions capable of being driven to the required depths and capable of supporting excavation sides and soil pressures when braced; free from wormholes, wind shakes, loose knots, decayed or unsound portions or defects which would impair its strength or tightness; 2 inches (50 mm) thick minimum.
- B. Steel Sheeting: Corrugated “Z” shape cross-section; of size and dimensions capable of being driven to the required depths and capable of supporting excavation sides and soil pressures when braced; structurally sound; special shapes for corner construction and transition points.
- C. Sheeting Boxes: Steel, of size and dimensions capable of supporting excavation sides and soil pressures; structurally sound.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing substrate and site conditions.
- B. Verify elevations and grades are as indicated on the plans.
- C. Verify proposed locations of excavations are as indicated on the plans.

3.2 PREPARATION

- A. Excavate to a depth no greater than 4 feet (1.2 m) from existing grade.
- B. Assemble and drive the sheeting in accordance with approved shop drawings.

3.3 ERECTION, GENERAL

- A. Drive sheeting in place to thoroughly support both sides of the excavation using a sheeting hammer. Use a stream or pneumatic hammer for steel sheeting.
- B. Water jetting of sheeting will not be permitted. So not loosen adjacent ground which might result in collapse.
- C. Install wales and braces or shores tight and in accordance with approved shop drawings.

3.4 INSTALLATION – SHEETING BOX

- A. Place box in trench utilizing a means which will not damage structural integrity of the box.

- B. Excavate ahead of the sheeting box only enough to advance the sheeting box and only immediately prior to moving the sheeting box.
- C. Backfill of both sides of the sheeting box as it is moved.

3.5 REMOVAL OF SHEETING

- A. Remove sheeting only as backfilling progresses.
- B. Carefully remove sheeting such that compacted backfill is not displaced. Add additional backfill to the areas vacated by the sheeting.
- C. All sheeting is to be removed from the site once its use is no longer required.
- D. The contractor may request permission to leave sheeting or bracing in place. The Engineer may grant permission on the condition that the cost of sheeting and bracing be borne by the contractor.

3.6 CLEANING

- A. Clean site of any debris from work of this section.

END OF SECTION

SECTION 02200

DEWATERING SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. The Contractor shall furnish all labor, materials, tools and equipment, for the purpose of supplying, monitoring, maintaining and operating necessary dewatering systems required for the removal or installation of USTs.
- B. Related Sections
 - 1. Removal of Underground Storage Tanks: Section 02040
 - 2. Temporary Sheet piling and Bracing: Section 02163
 - 3. Earthwork: Section 02300

1.2 PROPOSED DEWATERING SYSTEM

- A. The Contractor shall conduct dewatering operations in accordance with this specification and the requirements as outlined in the Contract General Conditions.
- B. Design of the dewatering system shall be the responsibility of the Contractor. The proposed dewatering system shall prevent damage to adjacent property, sewers, pavement, utility installations, and other work. After the design is approved by the Engineer, it shall be submitted to all other agencies having jurisdiction in the areas involved. The Working Drawings shall show the arrangement, location and depths of the proposed system, a complete description of the equipment and materials to be used and the procedure to be followed, the standby equipment, standby power supply, and points of discharge of water, including connection to sewer system. The Contractor shall secure and pay for all connection permits and work.
- C. The Contractor shall assume that all water encountered in the excavation during the execution of work is petroleum contaminated. The Contractor shall be responsible for providing all required design services and water treatment equipment, including but not limited to, oil/water separators, filters, carbon treatment, pumps, hoses, etc., required for discharge of water to the discharge point. All costs for design services and water treatment equipment shall be included in the Contractor's lump sum bid price.

1.3 SUBMITTALS

- A. The Contractor shall submit for approval, a proposed method of dewatering for the project, including but not limited to, complete Working Drawings, related data and calculations of dewatering system.
- B. Working Drawings shall show, but not be limited to the proposed dewatering system, including general arrangement procedures to be used, method of installation of piping, manifolds, valves, fittings, pumps, gauges locations and depths for each well, materials, equipment, water service, procedures for deactivating the system, standby equipment, standby power supply, and points of water discharge including connection to existing sewer systems. All working drawings, calculations and data shall be signed by a Professional Engineer licensed by NYS.
- C. The Contractor shall prepare and submit for approval, contingency procedures for dewatering if settlement of adjacent structures is observed.

1.4 PERMITS

- A. Prior to start of work under this Contract, any permits or licenses required to perform the work shall be obtained by the Contractor at the Contractor's own expense. Determining license and permit requirements shall be the responsibility of the Contractor.

1.5 DEWATERING INSTRUMENTATION

- A. Instrumentation for monitoring the dewatering operation shall be approved by the Engineer.

1.6 QUALITY CONTROL

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering as to avoid objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.
- C. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement which may develop. Should significant settlement be observed, the Contractor shall immediately stop dewatering operations and implement contingency procedures.
- D. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Before operations begin, the Contractor shall have available on the site of work sufficient pumping equipment and/or machinery to assure that the dewatering operation can be maintained.

PART 3 EXECUTION

3.01 METHODS

- A. Dewatering shall be done by any such method as the Contractor may select providing it is approved by the Engineer.
- B. The Contractor shall prevent surface water and subsurface or groundwater from flowing into the excavation and trenches. Accumulated water shall be pumped out.
- C. The Contractor shall not allow water to accumulate in excavations or trenches. The Contractor shall dewater as necessary to maintain the groundwater/surface water level at or below the surface of trench bottom, the base of the bedding course, or the foundation. Dewatering shall be completed prior to pipe laying and jointing. The dewatering operation shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the trench. Trench excavations shall not be used as temporary drainage ditches.
- D. The normal water table shall be restored to its natural level in such a manner as not to disturb the tank and its foundation.
- E. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand-packed and/or use other means to prevent pumping of fine sands or silts from the subsurface. A continual check by the Contractor shall be maintained to ensure that subsurface soil is not being removed by the dewatering operation.
- F. The Contractor shall dispose of water so as not to cause injury to public or private property or to cause a nuisance or menace to the public and in accordance with the requirements of regulatory agencies.
- G. Petroleum contaminated water encountered in dewatering shall be analyzed/tested and disposed of in accordance with environmental regulatory requirements at no additional cost to the County.
- H. Construction of temporary facilities to dispose of water shall be incidental to the construction, and shall be performed at no additional cost to the County.
- I. Permanent piping systems shall not be incorporated in the dewatering system.

- J. Upon completion of dewatering operations, the contractor shall remove the complete dewatering system, restore area to original condition and ensure that stabilization of soil conditions and structural integrity of adjacent structures have not been jeopardized.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades.
 - 2. Excavating and backfilling.
 - 3. Drainage course for slabs-on-grade.
 - 4. Subbase course for concrete walks and pavements.
 - 5. Base course for asphalt paving.
- B. Related Sections
 - 1. Removal of Underground Storage Tanks: Section 02040
 - 2. Temporary Sheet piling and Bracing: Section 02163
 - 3. Dewatering System: Section 02200

1.2 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.
- B. Base Course: Layer placed between the subbase course and asphalt paving.
- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by Architect. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

- 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
- J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- K. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the County or others unless permitted in writing by the County and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 11/2-inch (38-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.
- F. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 11/2-inch (38-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

- G. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.
- H. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (38-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.
- I. Detectable Warning Tape: Polyethylene film warning tape encasing a metallic core, minimum 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, freezing temperatures or frost, and other hazards created by earthwork operations. Provide protective insulating materials as necessary.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- D. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

3.2 EXCAVATION

- A. Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Excavate for structures, pavements, and walks to indicated elevations and dimensions. Extend excavations for placing and removing concrete formwork, for installing services and other construction, and for inspections. Trim bottoms to required lines and grades to leave solid base to receive other work.
- C. Excavate utility trenches to indicated gradients, lines, depths, and invert elevations of uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit.

1. Excavate trenches deeper than bottom of pipe elevation, 6 inches (150 mm) deeper in rock, 4 inches (100 mm) deeper elsewhere, to allow for bedding course. Hand excavate for bell of pipe.
- D. Proof roll subgrades, before filling or placing aggregate courses, with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities.
- F. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.
 1. Fill unauthorized excavations under other construction or utility pipe as directed by County.
- G. Stockpile borrow materials and satisfactory soil materials, without intermixing, in shaped, graded, drained, and covered stockpiles. Stockpile soil materials away from edge of excavations and outside drip line of remaining trees.

3.3 BACKFILLS AND FILLS

- A. Utility Trench Backfill: Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
 1. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch (25 mm), to a height of 12 inches (300 mm) over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.
 2. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.
- B. Fill: Place and compact fill material in layers to required elevations.
- C. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 1. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- D. Compaction: Place backfill and fill materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

- E. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 85 percent.
- F. Grading: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Grade lawns, walks, and unpaved subgrades to tolerances of plus or minus 1 inch (25 mm) and pavements and areas within building lines to plus or minus 1/2 inch (13 mm).
- G. Subbase and Base Courses: Under pavements and walks, place subbase course on prepared subgrade. Place base course material over subbase. Compact to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
- H. Under slabs-on-grade, place drainage course on prepared subgrade. Compact to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
- B. Allow testing agency to test and inspect subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.5 PROTECTION AND DISPOSAL

- A. Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction.

- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
- D. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off County property.

END OF SECTION

**SECTION 02741
HOT-MIX ASPHALT PAVING**

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes hot-mix asphalt paving and patching.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- C. Material certificates.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be registered with and approved by NYSDOT.
- B. Regulatory Requirements: Comply with NYSDOT Requirements for asphalt paving work.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Asphalt Base Course: Minimum surface temperature of 40 deg. F (4 deg. C) and rising at time of placement.
 - 2. Asphalt Surface Course: Minimum surface temperature of 60 deg. F (15.5 deg. C) at time of placement.

PART 2 PRODUCTS

2.1 AGGREGATES

- A. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag. B. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag,

or combinations thereof. C. Mineral Filler: ASTM D 242, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

- A. Asphalt Binder: AASHTO MP 1. B. Tack Coat: ASTM D 977, emulsified asphalt or cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

2.3 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by NYSDOT and complying with the following requirements:
1. Base Course: Type 3 2. Surface Course: Type 6F

PART 3 EXECUTION

3.1 COLD MILLING

- A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

3.2 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing un-bound aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.

3.3 SURFACE PREPARATION

- A. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- B. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving. 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.4 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Spread mix at minimum temperature of 250 deg. F (121 deg. C).
 - 2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg. F (85 deg. C).
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- F. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch (13 mm).
 - 2. Surface Course: Plus 1/4 inch (6 mm), no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch
 - 2. Surface Course: 1/8 inch
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).

3.7 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION