

**GOFFSTOWN, NEW HAMPSHIRE
SCHOOL DISTRICT**

**CONTRACT DOCUMENT
FOR
MOUNTAIN VIEW MIDDLE SCHOOL
BUS TURN-AROUND**

SPEC NO. ___



JANUARY 2023

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DIVISION 0

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SECTION 00031

REQUEST FOR BIDS

Legal Notice**Goffstown School District
Invitation to Bidders- Mountain View Middle School Bus Turn-Around**

The Goffstown School District is seeking qualified contractors for the construction of a bus turn-around, along with the associated site work/excavation, utility relocations, drainage improvements, sidewalk relocation and the installation of a new fire hydrant. The bidding information can be found on the Goffstown School District website at www.goffstown.k12.nh.us. Furthermore, contract documents may be examined online, or at the following locations, as of 9:00 am on January 30, 2023.

Goffstown School District
11 School Street
Goffstown, NH 03045
603-497-4818

Stantec Consulting Services Inc.
5 Dartmouth Drive
Suite 200
Auburn, NH 03032
Attention: Dan Tatem 603-218-9739
dan.tatem@stantec.com

Proposals shall be delivered in person, by USPS, or courier to the Goffstown School District Office at 11 School St. Goffstown, NH 03045. **All proposals must be received by Thursday, March 2, 2023, by 2:00 pm prevailing time, to be considered a responsive proposal.**

A public bid opening will take place on Thursday, March 2, 2023, at 2:00 pm at SAU 19 Administrative Building at 11 School Street, Goffstown NH 03045.

The school district reserves the right to extend this deadline by providing a written addendum to the proposal. **Proposals submitted by facsimile or email will not be considered.**

END OF SECTION

SECTION 00101
INSTRUCTIONS TO BIDDERS

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1. GENERAL

Bids will be received by the Goffstown New Hampshire School District, herein called the "OWNER", at the Goffstown School District office until 2:00 PM Local Time on March 2, 2023. Bids submitted after this time will not be accepted. All bids will be opened publicly after 2:00 PM at this location.

Each Bid must be submitted in a sealed envelope addressed to the Goffstown New Hampshire School District, 11 School Street, Goffstown, NH 03045.

The envelope must be plainly marked on the outside as BID for the MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND and the envelope should bear on the outside, the name and address of the Bidder. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the OWNER at the above address.

All bids must be made on the required Bid Form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid Form must be fully completed and executed when submitted. Only one (1) copy of the Bid Form is required.

The OWNER may waive any informalities or minor defects or reject any and all bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within thirty (30) days after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the OWNER and the BIDDER.

The OWNER is seeking two bid options for this PROJECT. The BID section provides two options for the BIDDER to complete and submit. The BIDDER may complete both options or the BIDDER may submit only one of the two BID options. BID Option #1 shall be submitted in compliance with all the noted Federal requirements, including, but not limited to the Davis Bacon Wage requirements and the Buy America requirements. BID Option #2 shall be submitted without the need to comply with Items 1, 2, 8, and 12, found in Section 00101, Article 15. In addition, BID Option #2 does not need to comply with the Schedule of Wages section, also located in Article 15.

2. COPIES OF BIDDING DOCUMENTS

Complete sets of the Contract Documents are available at www.Goffstown.k12.nh.us

Complete set of Contract Documents shall be used in preparing bids; the OWNER assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

The OWNER, in making copies of Contract Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

Before submitting a Bid, each BIDDER must:

- a. Examine the Contract Documents thoroughly.

- b. Visit the site to familiarize them self with local conditions that may in any manner affect cost, progress, or performance of the Work.
- c. Familiarize them self with Federal, State and Local laws, ordinances, rules, regulations that may in any manner affect cost, progress, or performance of the Work.
- d. Study and carefully correlate BIDDER'S observations with the Contract Documents.

Before submitting a Bid, each BIDDER will, at their own expense, make such additional investigations and tests as the BIDDER may deem necessary to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

On request, OWNER will provide each BIDDER access to the site to conduct such investigations and tests as each BIDDER deems necessary for submission of his Bid.

The lands upon which the work is to be performed rights-of-way for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract documents.

The submission of a Bid will constitute an incontrovertible representation by the BIDDER that they have complied with every requirement of this Article and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

4. QUALIFICATION OF BIDDER

The OWNER shall make such investigations as deemed necessary to determine the ability of the BIDDERS to perform the Work, and the BIDDERS shall furnish to the OWNER all such information data for this purpose as the OWNER may request. No award will be made to any BIDDER who cannot meet all the following requirements:

- a. The bidder shall not have defaulted on any contract within three (3) years prior to the Bid date.
- b. The bidder shall maintain a permanent place of business.
- c. The bidder shall have adequate personnel and equipment to perform the Work expeditiously.
- d. The bidder shall have suitable financial status to meet obligations incident to the Work.
- e. The bidder shall have appropriate technical experience in the class of work involved.
- f. The bidder shall be registered with the Secretary of State of New Hampshire to do business in New Hampshire.
- g. The bidder shall not have failed to perform satisfactorily on contracts of a similar nature.
- h. The bidder shall not have failed to complete previous contracts on time.

The OWNER reserves the right to reject any bid if the foregoing requirements are not satisfied or if any other evidence fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. Conditional or qualified bids will not be accepted.

5. INTERPRETATION

All questions during the Bidding period about the meaning or intent of the Contract documents shall be submitted to THE OWNER in writing. Questions which, in the OWNER'S opinion require interpretation, will be answered in an Addendum emailed not later than three (3) days prior to the date set for opening of Bids by certified mail with return receipt requested to all parties recorded by THE OWNER as having received the Contract Documents.

Questions received less than three (3) days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Any provisions in any of the Contract Documents which may be in conflict shall be subject to the following order of precedence for interpretation:

- a. Special Conditions will govern Supplementary Conditions which will govern General Conditions.
- b. All other conflicts between contract provisions shall be resolved by the ENGINEER, whose determination shall be final.

The CONTRACTOR shall take no advantage of any apparent error or omission in the Drawings or Specifications. In the event the CONTRACTOR discovers such an error or omission, he shall immediately notify the ENGINEER. The ENGINEER will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Drawings and Specifications.

6. BID SECURITY

Each Bid must be accompanied by a Bid Bond duly executed by the BIDDER as principal and having as surety thereon a surety company approved by the OWNER and authorized to do business in New Hampshire, or a Treasurer's, Cashier's or Certified Check drawn upon a bank within the State of New Hampshire payable to the OWNER for ten percent (10%) of the total amount of the Bid. The OWNER will return the Bid Security of all except the three (3) lowest responsible bidders within five (5) days of the Bid opening. The Bid Security of the two remaining unsuccessful Bidders will be returned within five (5) days of execution of the Agreement. The Bid Security of the successful BIDDER will be retained until the Payment Bond and Performance Bond have been executed and approved, after which it will be returned. A successful BIDDER, upon his failure or refusal to execute and deliver the Contract and Bonds required within ten (10) days after he has received notice of the acceptance of his Bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with his Bid.

7. AWARD

The OWNER reserves the right to reject any Bid for any reason that the OWNER determines to be in the public interest. The OWNER reserves the right to award the project to the Bidder that is the best perceived value to the OWNER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.

8. PERFORMANCE AND PAYMENT BOND

The General Conditions and Supplemental General Conditions set forth the OWNER'S requirements as to Performance and other Bonds. When the successful BIDDER delivers the executed Agreement to OWNER, it shall be accompanied by the required Contract Security.

Attorneys-in-fact who sign Bid Bonds or Payment Bonds or Performance Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond within five (5) calendar days from the date when Notice of Award is delivered to the BIDDER. The Notice of Award will be accompanied by the necessary Agreement and Bond forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may, at his option, consider the BIDDER in default, in which case the Bid Security accompanying the proposal shall become the property of the OWNER. The OWNER, within five (5) days of receipt of acceptable Performance Bond, Payment Bond and Agreement signed by the party to whom the Contract was awarded, shall sign the Agreement, and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may, by written notice, withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

Surety companies executing bonds most appear on the United States Treasury Department's most current list known as Dept. Circular 570, latest edition, and be authorized to transact business in the state where the project is located.

In lieu of either a performance bond, payment bond, or both, the BIDDER may substitute a cash deposit made accessible by only the Goffstown School District, in a local town bank. Cash deposits shall be in the amount of one hundred percent (100%) of the total bid price for payment or performance bonds and two hundred percent (200%) of the total bid price for both. The OWNER shall have the right to reject the use of cash as surety if the form of deposit is not acceptable to the OWNER, or if the bank of deposit is not acceptable to the OWNER.

9. NOTICE TO PROCEED

If the Notice to Proceed has not been issued within the thirty (30) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

10. CONTRACT TIME

The number of days within which the Work is to be completed (the Contract Time) is set forth in the Bid Form and included in the Agreement Form. The number of days and the date by which the Work is to be completed is set forth in the Notice to Proceed.

11. LIQUIDATED DAMAGES

Provisions for liquidated damages are set forth in the Bid - Section 00331, Agreement - Section 00531, and Special Conditions, Section 00840.

12. ADDITIONAL REQUIREMENTS

BIDDER'S attention is directed to the requirements and information put forth in the Supplementary General Conditions - Section 00820.

Contracts for Work under this proposal will obligate the CONTRACTOR and the Subcontractors not to discriminate in employment practices.

Successful BIDDERS must, if requested, submit a list of all Subcontractors who will perform work on the project.

13. PRECONSTRUCTION CONFERENCE

The CONTRACTOR shall not commence work until a conference has been held at which representatives of the CONTRACTOR, and OWNER are present. The preconstruction conference will be arranged by the OWNER.

14. TAXES

No amount shall be added for State or Federal taxes. The CONTRACTOR shall obtain from the State Tax Commissioner, a Certificate of Exemption for the tax on materials to be incorporated in the Work and an exemption from Federal Excise Taxes.

15. FEDERAL REQUIREMENTS

This project is being funded by a Federal Grant and therefore the Contractor is responsible for the following compliance requirements:

- 1) All wages paid on the project are subject to Davis-Bacon and related Acts (DBRA), 40 USC§ 3141 et seq., wage rates. Schedule of wages is included at the end of this section.
- 2) The Contractor shall, to the extent reasonably possible, sub-contract with minority business, women's business enterprises, and labor surplus area firms per 2 CFR 200.321.
- 3) Contract is subject to Anti-Lobbying requirements of 2 CFR 200, Appendix II (I). The Contractor shall submit an Anti-Lobbying Certification for contracts exceeding \$100,000.
- 4) Contract may be suspended per 2 CFR 200, Appendix II (B and H).
- 5) The Contractor may be terminated for cause and for convenience, based on then prevailing industry standards and all applicable laws and regulations in New Hampshire.
- 6) Remedies for either party to the Contract, including in instances where The Contractor breaches this Contract, are provided for in the Contract.
- 7) The Contractor shall comply with the Clean Air Act and the Federal Water Pollution Control Act, pursuant to 2 CFR 200, Appendix II(G)
- 8) The Contractor shall comply with 2 CFR 200.322 Domestic preferences for procurements. (a) As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable

under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. (b) For purposes of this section: (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. (2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

- 9) The Contractor shall comply with Equal Opportunity Employment in accordance with 41 CFR Part 60-1.3.
- 10) If applicable, the Contractor shall comply with the Contract Work Hours and Safety Standards Act 2 CFR 200 Appendix II (E)(40 USC 3701- 3708).
- 11) The Owner and Contractor shall maintain all appropriate oversight, standards of conduct, price and costs analyses, and records, sufficient to demonstrate compliance with federal procurement requirements, including all required standards of conduct with respect to federal procurement, and with respect to prohibition on conflicts of interest, as stated throughout this Contract. To the extent any further requirements are needed, those provisions of 2 CFR part 200, including 2 CFR 200.318 and 2 CFR 200.323, are incorporated herein by reference.
- 12) For sake of clarity, it is the intent of the Owner and Contractor for these Federal Terms to be complied with fully by both Parties, and, to the extent any of these Federal Terms conflict with any other terms of a Contract, for these Federal Terms to supersede and replace conflicting terms.

Schedule of Wages:

"General Decision Number: NH20220012 02/25/2022 Superseded General Decision Number: NH20210012

State: New Hampshire Construction Type: Highway

County: Hillsborough County in New Hampshire.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered	.	Executive Order 14026	
into on or after January 30,		generally applies to the	
2022, or the contract is		contract.	
renewed or extended (e.g., an	.	The contractor must pay	

option is exercised) on or after January 30, 2022: 	all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: 	Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at

<https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

* SUNH2011-028 08/15/2011

	Rates	Fringes
CARPENTER (Excluding Form Work)	\$ 24.27	1.06
CARPENTER (Form Work Only).....	\$ 19.93	1.06
ELECTRICIAN	\$ 23.22	2.78

INSTALLER:	Guardrail.....	\$ 20.50	6.30
IRONWORKER, REINFORCING.....		\$ 20.18	0.00
IRONWORKER, STRUCTURAL.....		\$ 34.45	17.20
LABORER:	Blaster Rock.....	\$ 29.50	11.21
LABORER:	Common or General	\$ 16.99	2.60
LABORER:	Flagger	\$ 11.79**	1.37
LABORER:	Highway/Parking Lot Striping	\$ 17.95	0.00
LABORER:	Landscape.....	\$ 14.40**	0.00
LABORER:	Pipelayer.....	\$ 17.63	2.72
OPERATOR:	Auger	\$ 26.07	0.00
OPERATOR:	Backhoe	\$ 27.05	7.95
OPERATOR:	Bobcat/Skid Steer/Skid Loader	\$ 19.25	0.00
OPERATOR:	Bucket.....	\$ 25.19	0.00
OPERATOR:	Bulldozer	\$ 25.39	5.09
OPERATOR:	Crane	\$ 23.37	2.21
OPERATOR:	Drill Rig Caissons	\$ 33.46	19.78
OPERATOR:	Excavator	\$ 24.98	6.56
OPERATOR:	Grader/Blade	\$ 25.75	6.00
OPERATOR:	Loader	\$ 25.40	7.51
OPERATOR:	Mechanic	\$ 25.12	3.44
OPERATOR:	Oiler	\$ 29.54	16.15
OPERATOR:	Paver (Asphalt, Aggregate, and Concrete)	\$28.88	17.05
OPERATOR:	Roller	\$25.23	9.69

OPERATOR: Post Driver/Pounder..... \$23.16 6.32

TRUCK DRIVER, Includes all
axles including Dump Trucks
(Excludes Low Bed Trucks) \$17.423.37

TRUCK DRIVER: Low Bed Truck \$20.77 4.27

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$15.00) or 13658 (\$11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year.

Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an

abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

END OF SECTION

SECTION 00331

BID

PART A - BID

The OWNER is seeking two bid options for this PROJECT. The BID section provides two options for the BIDDER to complete and submit. The BIDDER may complete both options or the BIDDER may submit only one of the two BID options. BID Option #1 shall be submitted in compliance with all the noted Federal requirements, including, but not limited to the Davis Bacon Wage requirements and the Buy America requirements. BID Option #2 shall be submitted without the need to comply with Items 1, 2, 8, and 12, found in Section 00101, Article 15. In addition, BID Option #2 does not need to comply with the Schedule of Wages section, also located in Article 15.

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____

*Insert "a corporation," "a partnership," or "an individual" as applicable.

To the Goffstown New Hampshire School District (hereinafter called "OWNER"): In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all Work for the CONSTRUCTION OF: MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND, Town of Goffstown, New Hampshire in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

By submission of this bid, the BIDDER certifies, and in the case of a joint bid, each party thereto certifies as to his own organization, that this bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other BIDDER or with any competitor.

The BIDDER declares that no person in the employ of the OWNER has pecuniary interest in this proposal or in the Contract for the Work which he proposes to do, that he has carefully examined the Contract and Specifications and has informed himself fully regarding all conditions pertaining to the site where the Work is to be done and has carefully estimated the Work. He understands that the OWNER, its agents, and employees, are not to be in any manner held responsible for the accuracy of, or bound by, any estimates or plans or locations of underground structures relating to the Work, and that if any have been given or made, they are to be considered solely as a base for filling out and comparing the several proposals.

The BIDDER proposes to furnish all the labor, equipment and materials required for carrying out the Work in accordance with the accompanying Specifications for the sum specified herein, subject to additions and deductions according to the Specifications, and in all respects according to the terms thereof.

BIDDER hereby agrees to commence Work under this Contract on or before the date to be specified in the Notice to Proceed, and to achieve Substantial Completion within 70 calendar days of the from the date set in the Notice to Proceed. BIDDER further agrees to pay as liquidated damages, the sum of \$500 for each consecutive calendar day thereafter. See the SPECIAL CONDITIONS for work that must be completed for Substantial Completion and Final Completion.

The BIDDER proposes and agrees that within the next five (5) calendar days after the day on

which Notice of the Award shall be given to him or mailed to him at the address hereinafter given, he will sign six (6) copies of the Agreement of the form provided in Section 00531 - Agreement, and will execute and deliver to the OWNER the Agreement and bonds in the sums specified, conditioned to faithfully furnish and do everything required of the CONTRACTOR, with a surety company authorized to do business in New Hampshire.

The BIDDER acknowledges receipt of the following addenda:

- No. _____ , dated _____ ,2023
- No. _____ , dated _____ ,2023
- No. _____ , dated _____ ,2023
- No. _____ , dated _____ ,2023

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered, and the data given must be clear and comprehensive. This Statement must be notarized. The Bidder may submit any additional information he/she desires.

Date

1. Firm Name: _____

2. Permanent Main Office Address and Phone Number: _____

3. When Organized: _____

4. If a corporation, where incorporated (if in more than one State, so indicate):

5. How many years have you been engaged in contracting under your present firm name:

6. Contracts on Hand (not completed). Show gross value for each contract, anticipated date of completion, names of Owner and Architect/Engineer:

7. Show significant contracts (recently completed), gross value for each, the month and year completed, the names and phone numbers of Owner and Architect/Engineer.

8. Experience in work similar to this contract (give Owner's name and Architect/Engineer associated with work).

9. General character of work performed by you:

10. Have you ever failed to complete any work awarded to you? If so, where and why?

11. Have you ever defaulted on a contract? If so, where and why?

12. List your major equipment that will be utilized for this contract. (Indicate if owned or leased).

13. Background and experience of the principal members of your organization that will be utilized for this Contract.

14. Background and experience of supervisor you propose to represent your firm at the site during the construction period of this Contract.

15. Give bank and credit references (include name, address, and phone #):

16. Give name of Agency and Company that will provide Performance and Payment Bonds for this Contract (including reference contract):

State of New Hampshire County of: _____

Subscribed and sworn to me this _____ day of _____, 2023

Notary Public: _____

My Commission Expires:

SCHEDULE OF PRICES: NOTE: This Proposal shall be filled in by the BIDDER with the prices written in both words and numerals and the extensions made by him/her. In case of discrepancy between words and numerals, the amount shown in words shall govern.

BIDDER agrees to perform all the necessary labor, furnish all materials, and do all work described in the Specifications and shown on the Drawings, for the following lump sum prices and/or unit prices:

OPTION 1 – SCHOOL BUS TURN AROUND CONSTRUCTION (INCLUDING ALL FEDERAL AND DAVIS BACON WAGE REQUIREMENTS)

Item No.	Item Description	Unit	Unit Price	QTY	Total Price
1	EXTERIOR DRAINAGE IMPROVEMENTS AND FIRE HYDRANT REPLACEMENT	LS	\$	1	\$
	Price in Words _____				
2	BUS TURN AROUND CONSTRUCTION	LS.	\$	1	\$
	Price in Words _____				
3	ALLOWANCE FOR SOILS TESTING	ALLOW.	\$ 2,500.00	1	\$ 2,500.00
	Price in Words _____				

The bidder shall enter a lump sum price with the condition that all work shall commence on June 16, 2022 and shall be completed within 70 days.

TOTAL LUMP SUM PART A BID PRICE (Item #1, THROUGH Item #3):

(in figures) \$ _____

(in words) _____

_____ Dollars

OPTION 2 – SCHOOL BUS TURN AROUND CONSTRUCTION (EXCLUDING THE FEDERAL AND DAVIS BACON WAGE REQUIREMETNS, AS NOTED IN SECTION 00331, Part A)

Item No.	Item Description	Unit	Unit Price	QTY	Total Price
1	EXTERIOR DRAINAGE IMPROVEMENTS AND FIRE HYDRANT REPLACEMENT	LS	\$	1	\$
	Price in Words _____				
2	BUS TURN AROUND CONSTRUCTION	LS.	\$	1	\$
	Price in Words _____				
3	ALLOWANCE FOR SOILS TESTING	ALLOW.	\$ 2,500.00	1	\$ 2,500.00
	Price in Words _____				

The bidder shall enter a lump sum price with the condition that all work shall commence on June 16, 2022 and shall be completed within 70 days.

TOTAL LUMP SUM PART A BID PRICE (Item #1, THROUGH Item #3):

(in figures) \$ _____

(in words) _____

_____ Dollars

PART B – BID CONDITIONS

- OWNER reserves the right to award the project to the Bid that is submitted that is the best perceived value by the OWNER.
- OWNER reserves the right to evaluate all bids for the two options and determine which option the project will be awarded under.**

- 3. The BIDDER understands that the OWNER reserves the right to reject any or all Bids and to waive any informality in the Bidding.
- 4. The OWNER reserves the right to include or exclude all, some, or none of the Bid Items.
- 5. The BIDDER agrees that the Bid shall be valid and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving Bids. Upon receipt of written notice of the acceptance of this Bid, the BIDDER shall execute the formal Contract attached and deliver the Contract and Performance Bond and Payment Bond required by the General Conditions to the OWNER within five (5) days.
- 6. The Bid Security attached in the sum of ten percent (10%) of the Bid is to become the property of the OWNER in the event the Contract and Bonds are not executed within the time set forth, as liquidated damages for the delay and additional expense to the OWNER caused thereby.
- 7. This Bid may be accepted by the OWNER at any time within thirty (30) days of the opening of Bids.
- 8. In case this Bid shall be accepted by the OWNER, and the undersigned shall fail to execute the Contract and furnish satisfactory Bonds, within five (5) days from the date of Notice of Award of the Contract, then the OWNER may, at his option, determine that the undersigned has abandoned the Contract, and thereupon, this Bid shall be null and void, and the Bid Security accompanying this Bid shall be forfeited to and become the property of the OWNER, or the penalty of the Bid Bond shall be invoked as liquidated damages for such failure or neglect; otherwise, such Bid Security shall be returned to the undersigned.

The full name and residence of all persons and parties interested in the foregoing Bid as principals are as follows:

_____	,	_____
_____	,	_____
_____	,	_____
_____	,	_____

PART C - EXECUTION

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

Seal (if corporation)

(Signature of BIDDER)

(Title of BIDDER)

(Business address of BIDDER)

(Town, State, and Zip Code)

Dated _____ the _____ day of _____, 2023.

END OF SECTION

SECTION 00410

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____

as Principal, and _____
as Surety, are hereby held and firmly bound unto Goffstown New Hampshire School District as OWNER in the penal sum of Ten percent (10%) of the bid for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns.

Signed, this ____ day of _____, 2023. The Condition of the above obligation is such that whereas the Principal has submitted to the Goffstown New Hampshire School District a certain Bid, attached hereto and hereby made a part hereof to enter a contract in writing, for the CONSTRUCTION OF MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND.

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulates, and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year set forth above.

Principal (L.S.)

Surety
By: _____

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list of companies holding Certificates of Authority as Acceptable sureties, known as circular 570 (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF SECTION

SECTION 00420

NOTICE OF AWARD

Project Description: MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND

The OWNER has considered the Bid submitted by you for the above-described Work in response to its Advertisement for Bids dated January 16, 2023, and Instructions to Bidders.

You are hereby notified that your Bid has been accepted for items in the amount of \$_____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance Bond, Payment Bond, and certificates of insurance within five (5) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said Bonds within five (5) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the OWNER.

Dated _____ the _____ day of _____, 2023.

OWNER:

Goffstown New Hampshire School District

By: Scott Gross
Business Administrator

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By _____
(Contractor)

this the _____ day of _____, 2023

By _____
(Authorized Signature)

Title _____

END OF SECTION

SECTION 00531

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2023, by and between the GOFFSTOWN SCHOOL DISTRICT, hereinafter called "OWNER" and _____, doing business as (an individual) or (a partnership) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of the **MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND**.
2. The CONTRACTOR will furnish all the material, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the Project described herein.
3. The CONTRACTOR will commence the work required by the Contract Documents within five (5) calendar days after the date of the Notice to Proceed and to achieve Substantial Completion of Part A within 70 calendar days of the from the date of June 16, 202. Growing season related work (i.e., landscaping) may be completed in the following spring once weather conditions allow as approved by the ENGINEER. Payment for all incomplete items will be withheld until completion. BIDDER further agrees to pay as liquidated damages, the sum of \$500 for each consecutive calendar day thereafter. See the SPECIAL CONDITIONS for work that must be completed for Substantial Completion and Final Completion.
4. The CONTRACTOR agrees to perform all the Work described in the Contract Documents and comply with the terms therein for the sum of _____, as shown in the Bid schedule. In addition, if boulders or ledge are encountered, the CONTRACTOR will be paid \$ 125 per cubic yard, as measured by the ENGINEER.
5. The term "Contract Documents" means and includes the following:

Division 0 - Bidding and Contract Requirements; Division 1 - General Requirements; Division 2 - Sitework; Division 3 - Concrete; Division 5 - Castings; Project Plans; Addenda's; all prepared by Stantec.

The term "Contract Documents" shall also mean and include the following addenda prepared by Stantec.

- No. _____, dated _____, 2023
- No. _____, dated _____, 2023
- No. _____, dated _____, 2023
- No. _____, dated _____, 2023

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions - Section 00720 such amounts as required by the Contract Documents. Retention from Progress Payments will be in accordance with the following procedures:
 - a. Until construction is fifty percent (50%) complete, as determined by the OWNER, retainage shall be ten percent (10%) of the monthly payments claimed.
 - b. After construction is fifty percent (50%) complete, provided the CONTRACTOR has performed to the satisfaction of the OWNER and provided further that there is no specific cause for greater retainage withholding, no additional retainage will be withheld.
 - c. Upon issuance of Certificate of Final Completion, retainage shall be reduced to two percent (2%) of the final contract total; said retainage to be held for the one (1) year warranty period.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in three (3) copies each of which shall be deemed an original on the date first above written.

OWNER:

Goffstown School District

(SEAL)

ATTEST:

Name: _____

(Please Type)

Title _____

CONTRACTOR:

By: _____

Name: _____
(Please Type)

Address: _____

(SEAL)

ATTEST:

Name: _____
(Please Type)

Title _____

NOTE: If the CONTRACTOR is a corporation, an affidavit giving the principal the right to sign the Contract must accompany the executed Contract.

END OF SECTION

SECTION 00580

NOTICE TO PROCEED

To:

Date:

Project: **MOUNTAIN VIEW MIDDLE SCHOOL
BUS TURN-AROUND**

You are hereby notified to commence Work in accordance with the Agreement dated _____, 2023, on or before _____, 2023, and you are to complete the Work within (70) consecutive calendar days thereafter. The date of completion of all Work is therefore _____, 2023.

OWNER:

Goffstown School District

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

By _____

this _____ day of _____, 2023

By _____

Title _____

END OF SECTION

SECTION 00610

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____, hereinafter called Principal
(Corporation, Partnership, or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called "Surety", are held and firmly bound unto the Goffstown New Hampshire School District, hereinafter called "OWNER", in the penal sum of _____ Dollars, \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presence.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2023, a copy of which is hereto attached and made a part hereof for the construction of the **Mountain View Middle School Bus Turn-Around**.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2023.

ATTEST:

Principal

by _____ (s)

(Principal Secretary)

(SEAL)

(Witness to Principal)

(Address)

Surety

(Address)

ATTEST:

(Surety Secretary)

(SEAL)

by _____
Attorney-In-Fact

(Witness to Surety)

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Notice of Award.
If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list of companies holding Certificates of Authority as Acceptable sureties, known as circular 570 (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

END OF SECTION

SECTION 00620

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____, hereinafter called Principal
(Corporation, Partnership, or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called "Surety", are held and firmly bound unto the Goffstown New Hampshire School District, hereinafter called "OWNER", in the penal sum of _____ Dollars, \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presence.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 20__, a copy of which is hereto attached and made a part hereof for the construction of the **Mountain View Middle School Bus Turn-Around**.

NOW THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations for all insurance premiums, for all equipment hired, including trucks, for all material used and for fuels, lubricants, power, tools, hardware, supplies purchased by said Principal and used in carrying out said contract and any authorized extension or modification thereof, and for labor and parts furnished upon order of said contractor for the repair of equipment used in carrying out said contract and any authorized extension or modification thereof, all in accordance with the provisions of New Hampshire State Statutes RSA 447: 15, 16, 17 and 18, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the notice required under this BOND to obtain benefits under this obligation by any person, firm or corporation having any claim for labor, labor performed, materials, machinery, tools, equipment or supplies shall extend for a period of ninety (90) days after the completion and acceptance of the work of the contract by the OWNER as signified by the filing and acceptance of a CERTIFICATE OF FINAL COMPLETION. Such notice must be filed in the office of the Clerk of the county in which the contract was performed. The County Superior Court is required to send a copy of the notice to the Surety, the Principal and any subcontractor involved in the claim. Any person under this BOND is required, within one year after filing the claim, to bring a lawsuit against the Principal or subcontractor of the Principal in the County Superior Court as which the notice was filed.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition of the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive

notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2023.

ATTEST:

Principal

by _____ (s)

(Principal Secretary)
(SEAL)

(Witness to Principal)

(Address)

Surety

(Address)

ATTEST:

(Surety Secretary)
(SEAL)

by _____
Attorney-In-Fact

(Witness to Surety)

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Notice of Award.

If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list of companies holding Certificates of Authority as Acceptable sureties, known as circular 570 (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

END OF SECTION

SECTION 00720

GENERAL CONDITIONS

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda--Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

Agreement--The written agreement between **OWNER** and **CONTRACTOR** covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment--The form accepted by **ENGINEER** which is to be used by **CONTRACTOR** in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

Bid--The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bonds--Bid, performance and payment bonds and other instruments of security.

Change Order--A document recommended by **ENGINEER**, which is signed by **CONTRACTOR** and **OWNER** and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Document--The Agreement, Addenda (which pertain to the Contract Documents), **CONTRACTOR**'s Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued pursuant to paragraphs 3.4 and 3.5 on or after the Effective Date of the Agreement.

Contract Price--The moneys payable by **OWNER** to **CONTRACTOR** under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

Contract Time--The number of days (computed as provided in paragraph 17.2) or the date stated in the Agreement for the completion of the Work.

CONTRACTOR--The person, firm or corporation with whom **OWNER** has entered into the Agreement.

defective--An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the

Contract Documents, or has been damaged prior to **ENGINEER**'s recommendation of final payment (unless responsibility for the protection thereof has been assumed by **OWNER** at Substantial Completion in accordance with paragraph 14.8 or 14.10).

Drawings--The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by **ENGINEER** and are referred to in the Contract Documents.

Effective Date of the Agreement--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER--The person, firm or corporation named as such in the Agreement.

Field Order--A written order issued by **ENGINEER** which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Time.

General Requirements--Sections of Division 1 of the Specifications.

Laws and Regulations; Laws or Regulations--Laws, rules, regulations, ordinances, codes and/or orders.

Notice of Award--The written notice by **OWNER** to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, **OWNER** will sign and deliver the Agreement.

Notice to Proceed--A written notice given by **OWNER** to **CONTRACTOR** (with a copy to **ENGINEER**) fixing the date on which the Contract Time will commence to run and on which **CONTRACTOR** shall start to perform **CONTRACTOR**'s obligations under the Contract Documents.

OWNER--The public body or authority, corporation, association, firm or person with whom **CONTRACTOR** has entered into the Agreement and for whom the Work is to be provided.

Partial Utilization--Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

Project--The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Resident Project Representative--The authorized representative of **ENGINEER** who is assigned to the site or any part thereof.

Shop Drawings--All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for **CONTRACTOR** to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instruction, diagrams and other information prepared by a Supplier and submitted by **CONTRACTOR** to illustrate material or equipment for some portion of the Work.

Specifications--Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor--An individual, firm or corporation having a direct contract with **CONTRACTOR** or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion--The Work (or a specified part thereof) has progressed to the point where, in the opinion of **ENGINEER** as evidenced by **ENGINEER**'s definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

Supplementary Conditions--The part of the Contract Documents which amends or supplements these General Conditions.

Supplier--A manufacturer, fabricator, supplier, distributor, materialman or vendor.

Underground Facilities--All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work--Work to paid for on the basis of unit prices.

Work--The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

Work Directive Change--A written directive to **CONTRACTOR**, issue on or after the Effective Date of the Agreement and signed by **OWNER** and recommended by **ENGINEER**, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.22. A Work Directive Change may not change the Contract Price or

the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in paragraph 10.2.

Written Amendment--A written amendment of the Contract Documents, signed by **OWNER** and **CONTRACTOR** on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly Work-related aspects of the Contract Documents.

ARTICLE 2--PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When **CONTRACTOR** delivers the executed Agreement to

OWNER, **CONTRACTOR** shall also deliver to **OWNER** such Bonds as **CONTRACTOR** may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. **OWNER** shall furnish to **CONTRACTOR** up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Time; Notice to Proceed:

2.3. The Contract Time will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within the thirty days after the Effective Date to the Agreement. In no event will the Contract Time commence to run later than the seventy-fifth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

Starting the Project:

2.4. **CONTRACTOR** shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

Before Starting Construction:

2.5. Before undertaking each part of the Work, **CONTRACTOR** shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. **CONTRACTOR** shall promptly report in writing to **ENGINEER** any conflict, error or discrepancy which **CONTRACTOR** may discover and shall obtain a written interpretation or clarification from **ENGINEER** before proceeding with any Work affected thereby; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Contract Documents, unless **CONTRACTOR** had actual knowledge thereof or should reasonably have known thereof.

2.6. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), **CONTRACTOR** shall submit to **ENGINEER** for review:

2.6.1. an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

2.6.2. a preliminary schedule of Shop Drawings submissions; and

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by **CONTRACTOR** at the time of submission.

2.7. Before any Work at the site is started, **CONTRACTOR** shall

deliver to **OWNER**, with a copy to **ENGINEER**, certificates (and other evidence of insurance requested by **OWNER**) which **CONTRACTOR** is required to purchase and maintain in accordance with paragraphs 5.3 and 5.4, and **OWNER** shall deliver to **CONTRACTOR** certificates (and other evidence of insurance requested by **CONTRACTOR**) which **OWNER** is required to purchase and maintain in accordance with paragraph 5.6 and 5.7.

Preconstruction Conference:

2.8. Within twenty days after the Effective Date of the Agreement, but before **CONTRACTOR** starts the Work at the site, a conference attended by **CONTRACTOR**, **ENGINEER** and others as appropriate will be held to discuss the schedules referred to in paragraph 2.6, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

Finalizing Schedules:

2.9. At least ten days before submission of the first Application for Payment a conference attended by **CONTRACTOR**, **ENGINEER** and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to **ENGINEER** as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on **ENGINEER** responsibility for the progress or scheduling of the Work nor relieve **CONTRACTOR** from full responsibility therefore. The finalized schedule of Shop Drawing submissions will be acceptable to **ENGINEER** as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to **ENGINEER** as to form and substance.

**ARTICLE 3--CONTRACT DOCUMENTS: INTENT,
AMENDING, REUSE**

Intent:

3.1. The Contract Documents comprise the entire agreement between **OWNER** and **CONTRACTOR** concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonable be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities

of **OWNER**, **CONTRACTOR** or **ENGINEER**, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to **ENGINEER**, or any of **ENGINEER**'s consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16. Clarifications and interpretations of the Contract Documents shall be issued by **ENGINEER** as provided in paragraph 9.4.

3.3. If, during the performance of the Work, **CONTRACTOR** finds a conflict, error or discrepancy in the Contract Documents, **CONTRACTOR** shall so report to **ENGINEER** in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from **ENGINEER**; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Contract Documents unless **CONTRACTOR** had actual knowledge thereof or should reasonably have known thereof.

Amending and Supplementing Contract Documents:

3.4. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

- 3.4.1. a formal Written Amendment,
- 3.4.2. a Change Order (pursuant to paragraph 10.4), or
- 3.4.3. a Work Directive Change (pursuant to paragraph 10.1).

As indicated in paragraph 11.2 and 12.1, Contract Price and Contract Time may only be changed by a Change Order or a Written Amendment.

3.5. In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

- 3.5.1. a Field Order (pursuant to paragraph 9.5),
- 3.5.2. **ENGINEER**'s approval of a Shop Drawing or sample (pursuant to paragraphs 6.26 and 6.27), or
- 3.5.3. **ENGINEER**'s written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:

3.6. Neither **CONTRACTOR** nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with **OWNER** shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of **ENGINEER**; and they shall not reuse any of them on extensions of the Project or any other project without written consent of **OWNER** and **ENGINEER** and specific written verification or adaptation by **ENGINEER**.

**ARTICLE 4-- AVAILABILITY OF LANDS; PHYSICAL
CONDITIONS; REFERENCE POINTS**

Availability of Lands:

4.1. **OWNER** shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of **CONTRACTOR**. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by **OWNER**, unless otherwise provided in the Contract Documents. If **CONTRACTOR** believes that any delay in **OWNER**'s furnishing these lands, rights-of-way or easements entitles **CONTRACTOR** to an extension of the Contract Time, **CONTRACTOR** may make a claim therefore as provided in Article 12. **CONTRACTOR** shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Physical Conditions:

4.2.1. Explorations and Reports: Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by **ENGINEER** in preparation of the Contract Documents. **CONTRACTOR** may rely upon accuracy of the technical data contained in such reports, but not upon nontechnical data, interpretations or opinions contained therein or for the completeness thereof for **CONTRACTOR**'s purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, **CONTRACTOR** shall have full responsibility with respect to subsurface conditions at the site.

4.2.2. Existing Structures: Reference is made to the Supplementary Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at or contiguous to the site that have been utilized by **ENGINEER** in preparation of the Contract Documents. **CONTRACTOR** may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for **CONTRACTOR**'s purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, **CONTRACTOR** shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3. Reporting of Differing Conditions: If **CONTRACTOR** believes that:

4.2.3.1. any technical data on which **CONTRACTOR** is entitled to rely as provided in paragraph 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2. any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents, **CONTRACTOR** shall, promptly after becoming aware thereof and before performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.22), notify **OWNER** and **ENGINEER** in writing about the inaccuracy or difference.

4.2.4. **ENGINEER**'s Review: **ENGINEER** will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise **OWNER** in writing (with a copy to **CONTRACTOR**) of **ENGINEER**'s findings and conclusions.

4.2.5. Possible Document Change: If **ENGINEER** concludes that there is material error in the Contract Documents or that because of newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6. Possible Price and Time Adjustments: In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference. If **OWNER** and **CONTRACTOR** are unable to agree as to the amount or length thereof, a claim may be made therefore as provided in Article 11 and 12.

Physical Conditions--Underground Facilities:

4.3.1. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to **OWNER** or **ENGINEER** by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1. **OWNER** and **ENGINEER** shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2. **CONTRACTOR** shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

4.3.2. Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or revealed or indicated in the Contract Documents and which **CONTRACTOR** could not reasonably have been expected to be aware of, **CONTRACTOR** shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.22), identify the owner of such Underground Facility and give written notice thereof to that owner and to **OWNER** and **ENGINEER**. **ENGINEER** will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, **CONTRACTOR** shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. **CONTRACTOR** shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which **CONTRACTOR** could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, **CONTRACTOR** may make a claim therefore as provided in Articles 11 and 12.

Reference Points:

4.4. **OWNER** shall provide engineering surveys to establish

reference points for construction which in **ENGINEER's** judgment are necessary to enable **CONTRACTOR** to proceed with the Work. **CONTRACTOR** shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of **OWNER**. **CONTRACTOR** shall report to **ENGINEER** whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

ARTICLE 5--BONDS AND INSURANCE

Performance and Other Bonds:

5.1. **CONTRACTOR** shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all **CONTRACTOR's** obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Law or Regulation or by the Contract Documents. **CONTRACTOR** shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the surety on any Bond furnished by **CONTRACTOR** is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, **CONTRACTOR** shall within five days thereafter substitute another Bond and Surety, both of which must be acceptable to **OWNER**.

Contractor's Liability Insurance:

5.3. **CONTRACTOR** shall purchase and maintain such comprehensive general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from **CONTRACTOR's** performance and furnishing of the Work and **CONTRACTOR's** other obligations under the Contract Documents, whether it is to be performed or furnished by **CONTRACTOR**, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.3.1. Claims under worker's or workmen's compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of **CONTRACTOR's** employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than **CONTRACTOR's** employees;

5.3.4. Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by **CONTRACTOR**, or (b) by any other person for any other reason;

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom;

5.3.6. Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

5.3.7. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required by the paragraph 5.3 shall include the specific coverage and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changes or renewal refused until at least thirty days' prior written notice has been given to **OWNER** and **ENGINEER** by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when **CONTRACTOR** may be correcting, removing or replacing defective Work in accordance with paragraph 13.12. In addition, **CONTRACTOR** shall maintain such completed operations insurance for at least two years after final payment and furnish **OWNER** with evidence of continuation of such insurance at final payment and one year thereafter.

Contractual Liability Insurance:

5.4. The comprehensive general liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to **CONTRACTOR's** obligations under paragraphs 6.30 and 6.31.

Owner's Liability Insurance:

5.5. **OWNER** shall be responsible for purchasing and maintaining **OWNER's** own liability insurance and, at **OWNER's** option, may purchase and maintain such insurance as will protect **OWNER** against claims which may arise from operations under the Contract Documents.

Property Insurance:

5.6. Unless otherwise provided in the Supplementary Conditions, **OWNER** shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in Supplementary Conditions or required by Laws or Regulations). This insurance shall include the interests of **OWNER**, **CONTRACTOR**, Subcontractors, **ENGINEER** and **ENGINEER's** consultants in the Work, all of whom shall be listed as insureds or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall

include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, **CONTRACTOR** shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

5.7. **OWNER** shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of **OWNER, CONTRACTOR, Subcontractor, ENGINEER, AND ENGINEER's** consultants in the Work, all of whom shall be listed as insured or additional insured parties.

5.8. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by **OWNER** in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to **CONTRACTOR** by certified mail and will contain waiver provisions in accordance with paragraph 5.11.2.

5.9. **OWNER** shall not be responsible for purchasing and maintaining any property insurance to protect the interests of **CONTRACTOR, Subcontractors** or others in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. The risk of loss within the deductible amount, will be borne by **CONTRACTOR, Subcontractor** or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. If **CONTRACTOR** requests in writing that other special insurance be included in the property insurance policy, **OWNER** shall, if possible, include such insurance, and the cost thereof will be changed to **CONTRACTOR** by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, **OWNER** shall in writing advise **CONTRACTOR** whether or not such other insurance has been procured by **OWNER**.

Waiver of Rights:

5.11.1 **OWNER** and **CONTRACTOR** waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to paragraphs 5.6 and 5.7 and any other property insurance applicable to the Work, and also waive all such rights against the Subcontractors, **ENGINEER, ENGINEER's** consultants and all other parties named as insureds in such policies for losses and damages so caused. As required by paragraph 6.11, each subcontract between **CONTRACTOR** and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of **OWNER, CONTRACTOR, ENGINEER, ENGINEER's** consultants and all other parties named as insureds. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by **OWNER** as trustee or otherwise payable under any policy so issued.

5.11.2. **OWNER** and **CONTRACTOR** intend that any policies provided in response to paragraphs 5.6 and 5.7 shall protect all of the

parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by **ENGINEER** or **ENGINEER's** consultant **OWNER** will obtain the same, and if such waiver forms are required of any Subcontractor, **CONTRACTOR** will obtain the same.

Receipt and Application of Proceeds:

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with **OWNER** and made payable to **OWNER** as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. **OWNER** shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. **OWNER** as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after occurrence of loss to **OWNER's** exercise of this power. If such objection be made, **OWNER** as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, **OWNER** as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of such duties.

Acceptance of Insurance:

5.14. If **OWNER** has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by **CONTRACTOR** in accordance with paragraphs 5.3 and 5.4 on the basis of its not complying with the Contract Documents, **OWNER** shall notify **CONTRACTOR** in writing thereof within ten days of the date of delivery of such certificates to **OWNER** in accordance with paragraph 2.7. If **CONTRACTOR** has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by **OWNER** in accordance with paragraphs 5.6 and 5.7 on the basis of their not complying with the Contract Documents, **CONTRACTOR** shall notify **OWNER** in writing thereof within ten days of the date of delivery of such certificates to **CONTRACTOR** in accordance with paragraph 2.7. **OWNER** and **CONTRACTOR** shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request. Failure by **OWNER** or **CONTRACTOR** to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

Partial Utilization--Property Insurance:

5.15. If **OWNER** finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall

commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.

ARTICLE 6 -- CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

6.1. **CONTRACTOR** shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. **CONTRACTOR** shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but **CONTRACTOR** shall not be responsible for the negligence of others in the design or selection of a specific means, methods, technique, sequence or procedure of construction which is indicated in and required by Contract Documents. **CONTRACTOR** shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. **CONTRACTOR** shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to **OWNER** and **ENGINEER** except under extraordinary circumstances. The superintendent will be **CONTRACTOR's** representative at the site and shall have authority to act on behalf of **CONTRACTOR**. All communications given to the superintendent shall be as binding as if given to **CONTRACTOR**.

Labor, Materials and Equipment:

6.3. **CONTRACTOR** shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. **CONTRACTOR** shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and **CONTRACTOR** will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without **OWNER's** written consent given after prior written notice to **ENGINEER**.

6.4. Unless otherwise specified in the General Requirements, **CONTRACTOR** shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by **ENGINEER**, **CONTRACTOR** shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to **ENGINEER**, or any of **ENGINEER's** consultants, agents or employees, any duty or authority

to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

Adjusting Progress Schedule:

6.6. **CONTRACTOR** shall submit to **ENGINEER** for acceptance (to the extent indicated in paragraph 2.9) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

Substitutes or "Or-Equal" Items:

6.7.1. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by **ENGINEER** if sufficient information is submitted by **CONTRACTOR** to allow **ENGINEER** to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by **ENGINEER** will include the following as supplemented in the General Requirements. Requests for review of substitute items of material and equipment will not be accepted by **ENGINEER** from anyone other than **CONTRACTOR**. If **CONTRACTOR** wishes to furnish or use a substitute item of material or equipment, **CONTRACTOR** shall make written application to **ENGINEER** for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice **CONTRACTOR's** achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with **OWNER** for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by **ENGINEER** in evaluating the proposed substitute. **ENGINEER** may require **CONTRACTOR** to furnish at **CONTRACTOR's** expense additional data about the proposed substitute.

6.7.2. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, **CONTRACTOR** may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to **ENGINEER**, if **CONTRACTOR** submits sufficient information to allow **ENGINEER** to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by **ENGINEER** will be similar to that provided in paragraph 6.7.1 as applied by **ENGINEER** and as

may be supplemented in the General Requirements.

6.7.3. **ENGINEER** will be allowed a reasonable time within which to evaluate each proposed substitute. **ENGINEER** will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without **ENGINEER**'s prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. **OWNER** may require **CONTRACTOR** to furnish at **CONTRACTOR**'s expense a special performance guarantee or other surety with respect to any substitute. **ENGINEER** will record time required by **ENGINEER** and **ENGINEER**'s consultants in evaluating substitutions proposed by **CONTRACTOR** and in making changes in the Contract Documents occasioned thereby. Whether or not **ENGINEER** accepts a proposed substitute, **CONTRACTOR** shall reimburse **OWNER** for the charges of **ENGINEER** and **ENGINEER**'s consultants for evaluating each proposed substitute.

Concerning Subcontractors, Suppliers and Others:

6.8.1. **CONTRACTOR** shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to **OWNER** and **ENGINEER** as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom **OWNER** or **ENGINEER** may have reasonable objection. **CONTRACTOR** shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom **CONTRACTOR** has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to **OWNER** in advance of the specified date prior to the Effective Date of the Agreement for acceptance by **OWNER** and **ENGINEER** and if **CONTRACTOR** has submitted a list thereof in accordance with the Supplementary Conditions, **OWNER**'s or **ENGINEER**'s acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case **CONTRACTOR** shall submit an acceptable substitute, the Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by **OWNER** or **ENGINEER** of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of **OWNER** or **ENGINEER** to reject defective Work.

6.9. **CONTRACTOR** shall be fully responsible to **OWNER** and **ENGINEER** for all acts and omissions of the Subcontractors, Suppliers and other person and organizations performing or furnishing any of the Work under a direct or indirect contract with **CONTRACTOR** just as **CONTRACTOR** is responsible for **CONTRACTOR**'S own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between **OWNER** or **ENGINEER** and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of **OWNER** or **ENGINEER** to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.10. The division and sections of the Specifications and the identifications of any Drawings shall not control **CONTRACTOR** in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11. All Work performed for **CONTRACTOR** by a Subcontractor will be pursuant to an appropriate agreement between **CONTRACTOR** and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of **OWNER** and **ENGINEER** and contains waiver provisions as required by paragraph 5.11. **CONTRACTOR** shall pay each Subcontractor a just share of any insurance monies received by **CONTRACTOR** on account of losses under policies issued pursuant to paragraphs 5.6 and 5.7.

Patent Fees and Royalties:

6.12. **CONTRACTOR** shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of **OWNER** or **ENGINEER** its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by **OWNER** in the Contract Documents. **CONTRACTOR** shall indemnify and hold harmless **OWNER** and **ENGINEER** and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

Permits:

6.13. Unless otherwise provided in the Supplementary Conditions, **CONTRACTOR** shall obtain and pay for all construction permits and licenses. **OWNER** shall assist **CONTRACTOR**, when necessary, in obtaining such permits and licenses. **CONTRACTOR** shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement. **CONTRACTOR** shall pay all charges of utility owners for connections to the Work, and **OWNER** shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

Laws and Regulations:

6.14.1. **CONTRACTOR** shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither **OWNER** nor **ENGINEER** shall be responsible for monitoring **CONTRACTOR**'s compliance with any Laws or Regulations.

6.14.2. If **CONTRACTOR** observes that the Specifications or Drawings are at variance with any Laws or Regulations, **CONTRACTOR** shall give **ENGINEER** prompt written notice

thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If **CONTRACTOR** performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to **ENGINEER**, **CONTRACTOR** shall bear all costs arising therefrom; however, it shall not be **CONTRACTOR**'s primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

Taxes:

6.15. **CONTRACTOR** shall pay all sales, consumer, use and other similar taxes required to be paid by **CONTRACTOR** in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

Use of Premises:

6.16. **CONTRACTOR** shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. **CONTRACTOR** shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against **OWNER** or **ENGINEER** by any such owner or occupant because of the performance of the Work, **CONTRACTOR** shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. **CONTRACTOR** shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold **OWNER** and **ENGINEER** harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against **OWNER** or **ENGINEER** to the extent based on a claim arising out of **CONTRACTOR**'s performance of the Work.

6.17. During the progress of the Work, **CONTRACTOR** shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work **CONTRACTOR** shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by **OWNER**. **CONTRACTOR** shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18. **CONTRACTOR** shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall **CONTRACTOR** subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

Record Documents:

6.19. **CONTRACTOR** shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to

paragraph 9.4) in good order. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to **ENGINEER** for **OWNER**.

Safety and Protection:

6.20. **CONTRACTOR** shall be responsible for initiation, maintaining and supervising all safety precautions and programs in connection with the Work. **CONTRACTOR** shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1. all employees on the Work and other persons and organizations who may be affected thereby;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. **CONTRACTOR** shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by **CONTRACTOR**, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by **CONTRACTOR** (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of **OWNER** or **ENGINEER** or any one employed by either of them or anyone for whose acts either of them may be liable and not attributable, directly or indirectly, in whole or part, to the fault or negligence of **CONTRACTOR**). **CONTRACTOR**'s duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and **ENGINEER** has issued a notice to **OWNER** and **CONTRACTOR** in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.21. **CONTRACTOR** shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be **CONTRACTOR**'s superintendent unless otherwise designated in writing by **CONTRACTOR** to **OWNER**.

Emergencies:

6.22. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, **CONTRACTOR**, without special instruction or authorization from **ENGINEER** or **OWNER**, is obligated to act to prevent threatened damage, injury or loss. **CONTRACTOR** shall give **ENGINEER** prompt written notice if **CONTRACTOR** believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby.

If **ENGINEER** determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

Shop Drawings and Samples:

6.23. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, **CONTRACTOR** shall submit to **ENGINEER** for review and approval in accordance with the accepted schedule of Shop Drawing submission (see paragraph 2.9), or for other appropriate action if so indicated in the Supplementary Conditions, five copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that **CONTRACTOR** has satisfied **CONTRACTOR's** responsibilities under the Contract Documents with respect to the review of the submissions. All submissions will be identified as **ENGINEER** may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable **ENGINEER** to review the information as required.

6.24. **CONTRACTOR** shall also submit to **ENGINEER** for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that **CONTRACTOR** has satisfied **CONTRACTOR's** responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.25.1. Before submission of each Shop Drawings or sample **CONTRACTOR** shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.25.2. At the time of each submission, **CONTRACTOR** shall give **ENGINEER** specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to **ENGINEER** for review and approval of each such variation.

6.26. **ENGINEER** will review and approve with reasonable promptness Shop Drawings and samples, but **ENGINEER's** review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. **CONTRACTOR** shall make corrections required by **ENGINEER**, and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval. **CONTRACTOR** shall direct specific attention in writing to revisions other than the corrections called for by **ENGINEER** on

previous submittals.

6.27. **ENGINEER's** review and approval of Shop Drawings or samples shall not relieve **CONTRACTOR** from responsibility for any variation from the requirements of the Contract Documents unless **CONTRACTOR** has in writing called **ENGINEER's** attention each such variation at the time of submission as required by paragraph 6.25.2 and **ENGINEER** has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by **ENGINEER** relieve **CONTRACTOR** from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.25.1.

6.28. Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to **ENGINEER's** review and approval of the pertinent submission will be the sole expense and responsibility of **CONTRACTOR**.

Continuing the Work:

6.29. **CONTRACTOR** shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with **OWNER**. No Work shall be delayed or postponed pending resolution of any dispute or disagreements, except as permitted by paragraph 15.5 or as **CONTRACTOR** and **OWNER** may otherwise agree in writing.

Indemnification:

6.30. To the fullest extent permitted by Laws and Regulations **CONTRACTOR** shall indemnify and hold harmless **OWNER** and **ENGINEER** and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of **CONTRACTOR**, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them are liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

6.31. In any and all claims against **OWNER** or **ENGINEER** or any of their consultants, agents or employees by any employee of **CONTRACTOR**, any subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for **CONTRACTOR** or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.32. The obligations of **CONTRACTOR** under paragraph 6.30 shall not extend to the liability of **ENGINEER**, **ENGINEER's**

consultants, agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, survey, Change Orders, designs or specifications.

ARTICLE 7 – OTHER WORK

Related Work at Site:

7.1. **OWNER** may perform other work related to the Project at the site by **OWNER's** own forces, have other work performed by utility owners or let other direct contracts therefore which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to **CONTRACTOR** prior to starting any such other work; and, if **CONTRACTOR** believes that such performance will involve additional expense to **CONTRACTOR** or requires additional time and the parties are unable to agree as to the extent thereof, **CONTRACTOR** may make a claim therefore as provided in Articles 11 and 12.

7.2. **CONTRACTOR** shall afford each utility owner and other contractor who is a party to such a direct contract (or **OWNER**, if **OWNER** is performing the additional work with **OWNER's** employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. **CONTRACTOR** shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. **CONTRACTOR** shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of **ENGINEER** and the others whose work will be affected. The duties and responsibilities of **CONTRACTOR** under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of **CONTRACTOR** in said direct contracts between **OWNER** and such utility owners and other contractors.

7.3. If any part of **CONTRACTOR's** Work depends for proper execution or results upon the work of any such other contractor or utility owner (or **OWNER**), **CONTRACTOR** shall inspect and promptly report to **ENGINEER** in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. **CONTRACTOR's** failure so to report will constitute an acceptance of the other work as fit and proper for integration with **CONTRACTOR's** Work except for latent or nonapparent defects and deficiencies in the other work.

Coordination:

7.4. If **OWNER** contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither **OWNER** nor **ENGINEER** shall have any authority or responsibility in respect of such coordination.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

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8.1. **OWNER** shall issue all communications to **CONTRACTOR** through **ENGINEER**.

8.2. In case of termination of the employment of **ENGINEER**, **OWNER** shall appoint an engineer against whom **CONTRACTOR** makes no reasonable objection, whose status under the Contract Documents shall be that of the former **ENGINEER**. Any dispute in connection with such appointment shall be subject to arbitration.

8.3. **OWNER** shall furnish the data required of **OWNER** under the Contract Documents promptly and shall make payments to **CONTRACTOR** promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4. **OWNER's** duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to **OWNER's** identifying and making available to **CONTRACTOR** copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by **ENGINEER** in preparing the Drawings and Specifications.

8.5. **OWNER's** responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.8.

8.6. **OWNER** is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. **OWNER's** responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with **OWNER's** right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with **OWNER's** right to terminate services of **CONTRACTOR** under certain circumstances.

ARTICLE 9-- ENGINEER'S STATUS DURING CONSTRUCTION

Owner's Representative:

9.1. **ENGINEER** will be **OWNER's** representative during the construction period. The duties and responsibilities and the limitations of authority of **ENGINEER** as **OWNER's** representative during construction are set forth in the Contract Documents and shall not be extended without written consent of **OWNER** and **ENGINEER**.

Visits to Site:

9.2. **ENGINEER** will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. **ENGINEER** will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. **ENGINEER's** efforts will be directed toward providing for **OWNER** a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, **ENGINEER** will keep **OWNER** informed of the progress of the Work and will endeavor to

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guard **OWNER** against defects and deficiencies in the Work.

Project Representation:

9.3. If **OWNER** and **ENGINEER** agree, **ENGINEER** will furnish a Resident Project Representative to assist **ENGINEER** in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If **OWNER** designates another agent to represent **OWNER** at the site who is not **ENGINEER**'s agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

Clarifications and Interpretations:

9.4. **ENGINEER** will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as **ENGINEER** may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If **CONTRACTOR** believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, **CONTRACTOR** may make a claim therefore as provided in Article 11 or Article 12.

Authorized Variations in Work:

9.5. **ENGINEER** may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on **OWNER**, and also on **CONTRACTOR** who shall perform the Work involved promptly. If **CONTRACTOR** believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, **CONTRACTOR** may make a claim thereof as provided in Article 11 or 12.

Rejecting Defective Work:

9.6. **ENGINEER** will have authority to disapprove or reject Work which **ENGINEER** believes to be defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Shop Drawings, Change Orders and Payments:

9.7. In connection with **ENGINEER**'s responsibility for Shop Drawings and samples, see paragraphs 6.23 through 6.29 inclusive.

9.8. In connection with **ENGINEER**'s responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.9. In connection with **ENGINEER**'s responsibilities in respect of Applications for Payment, etc., see Article 14.

Determinations for Unit Prices:

9.10. **ENGINEER** will determine the actual quantities and

classifications of Unit Price Work performed by **CONTRACTOR**. **ENGINEER** will review with **CONTRACTOR** **ENGINEER**'s preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). **ENGINEER**'s written decisions thereon will be final and binding upon **OWNER** and **CONTRACTOR**, unless, within ten days after the date of any such decision, either **OWNER** or **CONTRACTOR** delivers to the other party to the Agreement and to **ENGINEER** written notice of intention to appeal from such a decision.

Decisions on Disputes:

9.11. **ENGINEER** will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to **ENGINEER** in writing with a request for a formal decision in accordance with this paragraph, which **ENGINEER** will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to **ENGINEER** and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to **ENGINEER** and the other party within sixty days after such occurrence unless **ENGINEER** allows an additional period of time to ascertain more accurate data in support of the claim.

9.12. When functioning as interpreter and judge under paragraph 9.10 and 9.11, **ENGINEER** will not show partiality to **OWNER** or **CONTRACTOR** and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by **ENGINEER** pursuant to paragraphs 9.10 and 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by **OWNER** or **CONTRACTOR** of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

Limitations on ENGINEER's Responsibilities:

9.13. Neither **ENGINEER**'s authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by **ENGINEER** in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of **ENGINEER** to **CONTRACTOR**, any Subcontractor, and Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.14. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgement of **ENGINEER** as to the Work, it is intended that such requirement, direction, review of judgement will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any term or

adjective shall not be effective to assign to **ENGINEER** any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

9.15. **ENGINEER** will not be responsible for **CONTRACTOR**'s means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and **ENGINEER** will not be responsible for **CONTRACTOR**'s failure to perform or furnish the Work in accordance with the Contract Documents.

9.16. **ENGINEER** will not be responsible for the acts or omissions of **CONTRACTOR** or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

ARTICLE 10 – CHANGES IN THE WORK

10.1. Without invalidating the Agreement and without notice to any surety, **OWNER** may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Written Amendment, a Change Order, or a Work Directive Change. Upon receipt of any such document, **CONTRACTOR** shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2. If **OWNER** and **CONTRACTOR** are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefore as provided in Article 11 or 12.

10.3. **CONTRACTOR** shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.4 and 3.5, except in the case of an emergency as provided in paragraph 6.22 and except in the case of uncovering Work as provided in paragraph 13.9.

10.4. **OWNER** and **CONTRACTOR** shall execute appropriate Change Orders (or Written Amendments) covering:

10.4.1. changes in the Work which are ordered by **OWNER** pursuant to paragraph 10.1, are required because of acceptance of defective Work under paragraph 13.13 or correcting defective Work under paragraph 13.14, or are agreed to by the parties;

10.4.2. changes to the Contract Price or Contract Time which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by **ENGINEER** pursuant to paragraph 9.11; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, **CONTRACTOR** shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice of any change affecting the general scope of the Work

or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be **CONTRACTOR**'s responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 – CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to **CONTRACTOR** for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by **CONTRACTOR** shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or a Written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to **ENGINEER** promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless **ENGINEER** allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Price shall be determined by **ENGINEER** in accordance with paragraph 9.11 if **OWNER** and **CONTRACTOR** cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1. through 11.9.3, inclusive),

11.3.2. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2.1).

11.3.3. On the basis of the Cost of the Work (determined as provided in paragraph 11.4 and 11.5) plus a **CONTRACTOR**'s Fee for overhead and profit (determined as provided in paragraphs 11.6 and 11.7).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by **CONTRACTOR** in the proper performance of the Work. Except as otherwise may be agreed to in writing by **OWNER**, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. Payroll costs for employees in the direct employ of **CONTRACTOR** in the performance of the Work under schedules of

job classifications agreed upon by **OWNER** and **CONTRACTOR**. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by **OWNER**.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to **CONTRACTOR** unless **OWNER** deposits funds with **CONTRACTOR** with which to make payments, in which case the cash discount shall accrue to **OWNER**. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to **OWNER**, and **CONTRACTOR** shall make provisions so that they may be obtained.

11.4.3. Payments made by **CONTRACTOR** to the Subcontractors for Work performed by Subcontractors. If required by **OWNER**, **CONTRACTOR** shall obtain competitive bids from Subcontractors acceptable to **CONTRACTOR** and shall deliver such bids to **OWNER** who will then determine, with the advice of **ENGINEER**, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as **CONTRACTOR**'s Cost of the Work. All subcontractors shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of **CONTRACTOR**'s employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of **CONTRACTOR**.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from **CONTRACTOR** or others in accordance with rental agreements approved by **OWNER** with the advice of **ENGINEER**, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof--all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, consumer, use or similar taxes related to the Work, and for which **CONTRACTOR** is liable, imposed by Laws and Regulations.

11.4.5.5. Deposits lost for causes other than negligence of **CONTRACTOR**, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by **CONTRACTOR** in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by **OWNER** in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of **CONTRACTOR**, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of **OWNER**. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining **CONTRACTOR**'s Fee. If, however, any such loss or damage requires reconstruction and **CONTRACTOR** is placed in charge thereof, **CONTRACTOR** shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by **OWNER** in accordance with paragraph 5.9.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of **CONTRACTOR**'s officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by **CONTRACTOR** whether at the site or in **CONTRACTOR**'s principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered in paragraph 11.4.4 -- all of which are to be considered administrative costs covered by the **CONTRACTOR**'s Fee.

11.5.2. Expenses of **CONTRACTOR**'s principal and branch offices other than **CONTRACTOR**'s office at the site.

11.5.3. Any part of **CONTRACTOR**'s capital expenses, including interest on **CONTRACTOR**'s capital employed for the Work and charges against **CONTRACTOR** for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not **CONTRACTOR** is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5. Cost due to the negligence of **CONTRACTOR**, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

CONTRACTOR's Fee:

11.6. The **CONTRACTOR's** Fee allowed to **CONTRACTOR** for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or if none can be agreed upon,

11.6.2. a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2, the **CONTRACTOR's** Fee shall be fifteen percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the **CONTRACTOR's** Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to **CONTRACTOR** on account of overhead and profit of all Subcontractors shall be fifteen percent;

11.6.2.3. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.4. the amount of credit to be allowed by **CONTRACTOR** to **OWNER** for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in **CONTRACTOR's** Fee by an amount equal to ten percent of the net decrease; and

11.6.2.5. when both additions and credits are involved in any one change, the adjustment in **CONTRACTOR's** Fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.4, inclusive.

11.7. Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 or 11.5, **CONTRACTOR** will submit in form acceptable to **ENGINEER** an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8. It is understood that **CONTRACTOR** has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to **ENGINEER**. **CONTRACTOR** agrees that:

11.8.1. The allowances include the cost to **CONTRACTOR** (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2. **CONTRACTOR's** costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by **ENGINEER** to reflect actual amounts due **CONTRACTOR** on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

Unit Price Work:

11.9.1. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by **CONTRACTOR** will be made by **ENGINEER** in accordance with Paragraph 9.10.

11.9.2. Each unit price will be deemed to include an amount considered by **CONTRACTOR** to be adequate to cover **CONTRACTOR's** overhead and profit for each separately identified item.

11.9.3. Where the quantity of any item of Unit Price Work performed by **CONTRACTOR** differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if **CONTRACTOR** believes that **CONTRACTOR** has incurred additional expense as a result thereof, **CONTRACTOR** may make a claim for an increase in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the amount of any such increase.

ARTICLE 12 -- CHANGE OF CONTRACT TIME

12.1. The Contract Time may only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to **ENGINEER** promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless **ENGINEER** allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by **ENGINEER** in accordance with paragraph 9.11 if **OWNER** and **CONTRACTOR** cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of **CONTRACTOR** if a claim is

made therefore as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by **OWNER** or others performing additional work as contemplated by Article 7, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 12 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) for delay by either party.

**ARTICLE 13– WARRANTY AND GUARANTEE;
TEST AND INSPECTIONS;
CORRECTION, REMOVAL OR
ACCEPTANCE OF DEFECTIVE WORK**

Warranty and Guarantee:

13.1 **CONTRACTOR** warrants and guarantees to **OWNER** and **ENGINEER** that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to **CONTRACTOR**. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

13.2. **ENGINEER** and **ENGINEER's** representatives, other representatives of **OWNER**, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. **CONTRACTOR** shall provide proper and safe conditions for such access.

Tests and Inspections:

13.3. **CONTRACTOR** shall give **ENGINEER** timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If Laws and Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved. **CONTRACTOR** shall assume full responsibility therefore, pay all costs in connection therewith and furnish **ENGINEER** the required certificates of inspection, testing or approval. **CONTRACTOR** shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with **OWNER's** or **ENGINEER's** acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to **CONTRACTOR's** purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above, which are required by the Contract Documents, shall be paid by **OWNER** (unless otherwise specified).

13.5. All inspections, test or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to **OWNER** and **CONTRACTOR** (or by **ENGINEER** if so specified).

13.6. If any Work (including the work of others) that is to be inspected, tested or approved is covered without written

concurrence of **ENGINEER**, it must, if requested by **ENGINEER**, be uncovered for observation. Such uncovering shall be at **CONTRACTOR's** expense unless **CONTRACTOR** has given **ENGINEER** timely notice of **CONTRACTOR's** intention to cover the same and **ENGINEER** has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by **ENGINEER** nor inspections, tests or approvals by others shall relieve **CONTRACTOR** from **CONTRACTOR's** obligations to perform the Work in accordance with the Contract Documents.

Uncovering Work:

13.8 If any Work is covered contrary to the written request of **ENGINEER**, it must, if requested by **ENGINEER**, be uncovered for **ENGINEER's** observation and replaced at **CONTRACTOR's** expense.

13.9. If **ENGINEER** considers it necessary or advisable that covered Work be observed by **ENGINEER** or inspected or tested by others, **CONTRACTOR**, at **ENGINEER's** request, shall uncover, expose or otherwise make available for observation, inspection or testing as **ENGINEER** may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, **CONTRACTOR** shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals), and **OWNER** shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided in Article 11. If, however, such Work is not found to be defective, **CONTRACTOR** shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, **CONTRACTOR** may make a claim therefore as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10 If the Work is defective, or **CONTRACTOR** fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, **OWNER** may order **CONTRACTOR** to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of **OWNER** to stop the Work shall not give rise to any duty on the part of **OWNER** to exercise this right for the benefit of **CONTRACTOR** or any other party.

Correction or Removal of Defective Work:

13.11 If required by **ENGINEER**, **CONTRACTOR** shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by **ENGINEER**, remove it from the site and replace it with nondefective Work. **CONTRACTOR** shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

One Year Correction Period:

13.12 If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, **CONTRACTOR** shall promptly, without cost to **OWNER** and in accordance with **OWNER's** written instructions, either correct such defective Work, or, if it has been rejected by **OWNER**, remove it from the site and replace it with nondefective Work. If **CONTRACTOR** does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, **OWNER** may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by **CONTRACTOR**. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

Acceptance of Defective Work:

13.13 If, instead of requiring correction or removal and replacement of defective Work, **OWNER** (and, prior to **ENGINEER's** recommendation of final payment, also **ENGINEER**) prefers to accept it, **OWNER** may do so. **CONTRACTOR** shall bear all direct, indirect and consequential costs attributable to **OWNER's** evaluation of and determination to accept such defective Work (such costs to be approved by **ENGINEER** as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to **ENGINEER's** recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and **OWNER** shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, **OWNER** may make a claim therefore as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by **CONTRACTOR** to **OWNER**.

OWNER May Correct Defective Work:

13.14 If **CONTRACTOR** fails within a reasonable time after written notice of **ENGINEER** to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by **ENGINEER** in accordance with paragraph 13.11, or if **CONTRACTOR** fails to perform the Work in accordance with the Contract Documents, or if **CONTRACTOR** fails to comply with any other provision of the Contract Documents, **OWNER** may, after seven days' written notice to **CONTRACTOR**, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph **OWNER** shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, **OWNER** may exclude **CONTRACTOR** from all or part of the site, take possession of all or part of the Work, and suspend **CONTRACTOR's** services related thereto, take possession of **CONTRACTOR'S** tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which **OWNER** has paid

CONTRACTOR but which are stored elsewhere. **CONTRACTOR** shall allow **OWNER**, **OWNER's** representatives, agents and employees such access to the site as may be necessary to enable **OWNER** to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of **OWNER** in exercising such rights and remedies will be charged against **CONTRACTOR** in an amount approved as to reasonableness by **ENGINEER**, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and **OWNER** shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, **OWNER** may make a claim therefore as provided in Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of **CONTRACTOR's** defective Work. **CONTRACTOR** shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by **OWNER** of **OWNER's** rights and remedies hereunder.

ARTICLE 14-- PAYMENTS TO CONTRACTOR AND COMPLETION***Schedule of Values:***

14.1. The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to **ENGINEER**. Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment:

14.2. At least twenty days before each progress payment is scheduled (but not more often than once a month), **CONTRACTOR** shall submit to **ENGINEER** for review an Application for Payment filled out and signed by **CONTRACTOR** covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that **OWNER** has received the materials and equipment free and clear of all

liens, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect **OWNER's** interest therein, all of which will be satisfactory to **OWNER**. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

CONTRACTOR's Warranty of Title:

14.3. **CONTRACTOR** warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to **OWNER** no later than the time of payment free and clear of all Liens.

Review of Applications for Progress Payment:

14.4. **ENGINEER** will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to **OWNER**, or return the Application to **CONTRACTOR** indicating in writing **ENGINEER's** reasons for refusing to recommend payment. In the latter case, **CONTRACTOR** may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment with **ENGINEER's** recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by **OWNER** to **CONTRACTOR**.

14.5. **ENGINEER's** recommendation of any payment requested in an Application for Payment will constitute a representation by **ENGINEER** to **OWNER**, based on **ENGINEER's** on-site observations of the Work in progress as an experienced and qualified design professional and on **ENGINEER's** review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of **ENGINEER's** knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation); and that **CONTRACTOR** is entitled to payment of the amount recommended. However, by recommending any such payment **ENGINEER** will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to **ENGINEER** in the Contract Documents or that there may not be other matters or issues between the parties that might entitle **CONTRACTOR** to be paid additionally by **OWNER** or **OWNER** to withhold payment to **CONTRACTOR**.

14.6. **ENGINEER's** recommendation of final payment will constitute an additional representation by **ENGINEER** to **OWNER** that the conditions precedent to **CONTRACTOR's** being entitled to final payment as set forth in paragraph 14.13 have been fulfilled.

14.7. **ENGINEER** may refuse to recommend the whole or any part of any payment if, in **ENGINEER's** opinion, it would be incorrect to make such representations to **OWNER**. **ENGINEER** may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in **ENGINEER's** opinion to protect **OWNER** from loss because:

14.7.1. the Work is defective, or completed Work has been damaged requiring correction or replacement,

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3. **OWNER** has been required to correct defective Work or complete Work in accordance with paragraph 13.14, or

14.7.4. of **ENGINEER's** actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.9 inclusive.

OWNER may refuse to make payment of the full amount recommended by **ENGINEER** because claims have been made against **OWNER** on account of **CONTRACTOR's** performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling **OWNER** to a set-off against the amount recommended, but **OWNER** must give **CONTRACTOR** immediate written notice (with copy to **ENGINEER**) stating the reasons for such action.

Substantial Completion:

14.8 When **CONTRACTOR** considers the entire Work ready for its intended use **CONTRACTOR** shall notify **OWNER** and **ENGINEER** in writing that the entire Work is substantially complete (except for items specifically listed by **CONTRACTOR** as incomplete) and request that **ENGINEER** issue a certificate of Substantial Completion. Within a reasonable time thereafter, **OWNER**, **CONTRACTOR** and **ENGINEER** shall make an inspection of the Work to determine the status of completion. If **ENGINEER** does not consider the Work substantially complete, **ENGINEER** will notify **CONTRACTOR** in writing giving the reasons therefore. If **ENGINEER** considers the Work substantially complete, **ENGINEER** will prepare and deliver to **OWNER** a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. **OWNER** shall have seven days after receipt of the tentative certificate during which to make written objection to **ENGINEER** as to any provisions of the certificate or attached list. If, after considering such objections, **ENGINEER** concludes that the Work is not substantially complete, **ENGINEER** will within fourteen days after submission of the tentative certificate to **OWNER** notify **CONTRACTOR** in writing, stating the reasons therefore. If, after consideration of **OWNER's** objections, **ENGINEER** considers the Work substantially complete, **ENGINEER** will within said fourteen days execute and deliver to **OWNER** and **CONTRACTOR** a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as **ENGINEER** believes justified after consideration of any objections from **OWNER**. At the time of delivery of the tentative certificate of Substantial Completion **ENGINEER** will deliver to **OWNER** and **CONTRACTOR** a written recommendation as to division of responsibilities pending final payment between **OWNER** and **CONTRACTOR** with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties. Unless **OWNER** and **CONTRACTOR** agree otherwise in writing and so inform **ENGINEER** prior to **ENGINEER's** issuing the definitive certificate of Substantial Completion, **ENGINEER's** aforesaid recommendation will be binding on **OWNER** and **CONTRACTOR** until final payment.

14.9. **OWNER** shall have the right to exclude **CONTRACTOR** from the Work after the date of Substantial Completion, but **OWNER** shall allow **CONTRACTOR** reasonable access to complete or correct items on the tentative list.

Partial Utilization:

14.10 Use by **OWNER** of any finished part of the Work, which has specifically been identified in the Contract Document, or which **OWNER**, **ENGINEER** and **CONTRACTOR** agree constitutes a separately functioning and useable part of the Work that can be used by

OWNER without significant interference with **CONTRACTOR**'s performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1 **OWNER** at any time may request **CONTRACTOR** in writing to permit **OWNER** to use any such part of the Work which **OWNER** believes to be ready for its intended use and substantially complete. If **CONTRACTOR** agrees, **CONTRACTOR** will certify to **OWNER** and **ENGINEER** that said part of the Work is substantially complete and request **ENGINEER** to issue a certificate of Substantial Completion for that part of the Work. **CONTRACTOR** at any time may notify **OWNER** and **ENGINEER** in writing that **CONTRACTOR** considers any such part of the Work ready for its intended use and substantially complete and request **ENGINEER** to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, **OWNER**, **CONTRACTOR** and **ENGINEER** shall make an inspection of that part of the Work to determine its status of completion. If **ENGINEER** does not consider that part of the Work to be substantially complete, **ENGINEER** will notify **OWNER** and **CONTRACTOR** in writing giving the reasons therefore. If **ENGINEER** considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2 **OWNER** may at any time request **CONTRACTOR** in writing to permit **OWNER** to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to

ENGINEER and within a reasonable time thereafter **OWNER**, **CONTRACTOR** and **ENGINEER** shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If **CONTRACTOR** does not object in writing to **OWNER** and **ENGINEER** that such part of the Work is not ready for separate operation by **OWNER**, **ENGINEER** will finalize the list of items to be completed or corrected and will deliver such list to **OWNER** and **CONTRACTOR** together with a written recommendation as to the division of responsibilities pending final payment between **OWNER** and **CONTRACTOR** with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon **OWNER** and **CONTRACTOR** at the time when **OWNER** takes over such operation (unless they shall have otherwise agreed in writing and so informed **ENGINEER**). During such operation and prior to Substantial Completion of such part of the Work, **OWNER** shall allow **CONTRACTOR** reasonable access to complete or correct items on said list and to complete other related Work.

14.10.3 No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

Final Inspection:

14.11 Upon written notice from **CONTRACTOR** that the entire Work or an agreed portion thereof is complete, **ENGINEER** will make a final inspection with **OWNER** and **CONTRACTOR** and will notify **CONTRACTOR** in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. **CONTRACTOR** shall immediately take such measures as are necessary to remedy such

deficiencies.

Final Application for Payment:

14.12 After **CONTRACTOR** has completed all such corrections to the satisfaction of **ENGINEER** and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents--all as required by the Contract Documents, and after **ENGINEER** has indicated that the Work is acceptable (subject to the provisions of paragraph 14.16), **CONTRACTOR** may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to **OWNER**) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by **OWNER**, **CONTRACTOR** may furnish receipts or releases in full; an affidavit of **CONTRACTOR** that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which **OWNER** or **OWNER**'s property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Suppliers fails to furnish a release or receipt in full, **CONTRACTOR** may furnish a Bond or other collateral satisfactory to **OWNER** to indemnify **OWNER** against any Lien.

Final Payment and Acceptance:

14.13 If, on the basis of **ENGINEER**'s observation of the Work during construction and final inspection, and **ENGINEER**'s review of the final Application for Payment and accompanying documentation--all as required by the Contract Documents, **ENGINEER** is satisfied that the Work has been completed and **CONTRACTOR**'s other obligations under the Contract Documents have been fulfilled, **ENGINEER** will, within ten days after receipt of the final Application for Payment, indicate in writing **ENGINEER**'s recommendation of payment and present the Application to **OWNER** for payment. Thereupon **ENGINEER** will give written notice to **OWNER** and **CONTRACTOR** that the Work is acceptable subject to the provisions of paragraph 14.16. Otherwise, **ENGINEER** will return the Application to **CONTRACTOR**, indicating in writing the reasons for refusing to recommend final payment, in which case **CONTRACTOR** shall make the necessary corrections and resubmit the Application. Thirty days after presentation to **OWNER** of the Application and accompanying documentation, in appropriate form and substance, and with **ENGINEER**'s recommendation and notice of acceptability, the amount recommended by **ENGINEER** will become due and will be paid by **OWNER** to **CONTRACTOR**.

14.14 If, through no fault of **CONTRACTOR**, final completion of the Work is significantly delayed and if **ENGINEER** so confirms, **OWNER** shall, upon receipt of **CONTRACTOR**'s final Application for Payment and recommendation of **ENGINEER**, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by **OWNER** for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by

CONTRACTOR to **ENGINEER** with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Contractor's Continuing Obligation:

14.15 **CONTRACTOR's** obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by **ENGINEER**, nor the issuance of a certificate of Substantial Completion, nor any payment by **OWNER** to **CONTRACTOR** under the Contract Documents, nor any use or occupancy of the Work or any part thereof by **OWNER**, nor any act of acceptance by **OWNER** nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by **ENGINEER** pursuant to paragraph 14.13, nor any correction of defective Work by **OWNER** will constitute an acceptance of Work not in accordance with the Contract Documents or a release of **CONTRACTOR's** obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.16).

Waiver of Claims:

14.16 The making and acceptance of final payment will constitute:

14.16.1 a waiver of all claims by **OWNER** against **CONTRACTOR**, except claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.11 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by **OWNER** of any rights in respect of **CONTRACTOR's** continuing obligations under the Contract Documents; and

14.16.2 a waiver of all claims by **CONTRACTOR** against **OWNER** other than those previously made in writing and still unsettled.

ARTICLE 15-- SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1. **OWNER** may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to **CONTRACTOR** and **ENGINEER** which will fix the date on which Work will be resumed. **CONTRACTOR** shall resume the Work on the date so fixed. **CONTRACTOR** shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if **CONTRACTOR** makes an approved claim therefore as provided in Articles 11 and 12.

Owner May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if **CONTRACTOR** commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as

now or hereafter in effect, or if **CONTRACTOR** takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.2. if a petition is filed against **CONTRACTOR** under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against **CONTRACTOR** under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.3. if **CONTRACTOR** makes a general assignment for the benefit of creditors;

15.2.4. if a trustee, receiver, custodian or agent of **CONTRACTOR** is appointed under applicable law or under contract, whose appointment or authority to take charge of property of **CONTRACTOR** is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of **CONTRACTOR's** creditors;

15.2.5. if **CONTRACTOR** admits in writing an inability to pay its debts generally as they become due;

15.2.6. if **CONTRACTOR** persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as revised from time to time);

15.2.7. if **CONTRACTOR** disregards Laws or Regulations of any public body having jurisdiction;

15.2.8. if **CONTRACTOR** disregards the authority of **ENGINEER**; or

15.2.9. if **CONTRACTOR** otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving **CONTRACTOR** (and the surety, if there be one) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of **CONTRACTOR**, exclude **CONTRACTOR** from the site and take possession of the Work and of all **CONTRACTOR's** tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by **CONTRACTOR** (without liability to **CONTRACTOR** for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which **OWNER** has paid **CONTRACTOR** but which are stored elsewhere, and finish the Work as **OWNER** may deem expedient. In such case **CONTRACTOR** shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to **CONTRACTOR**. If such costs exceed such unpaid balance, **CONTRACTOR** shall pay the difference to **OWNER**. Such costs incurred by **OWNER** will be approved as to reasonableness by **ENGINEER** and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph **OWNER** shall not be required to obtain the lowest price for the Work performed.

15.3. Where **CONTRACTOR's** services have been so terminated by **OWNER**, the termination will not affect any rights or remedies of **OWNER** against **CONTRACTOR** then existing or which may thereafter accrue. Any retention or payment of moneys due **CONTRACTOR** by **OWNER** will not release **CONTRACTOR** from liability.

15.4. Upon seven days' written notice to **CONTRACTOR** and **ENGINEER**, **OWNER** may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, **CONTRACTOR** shall be paid for all Work executed and any expenses sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

Contractor May Stop Work or Terminate:

15.5. If, through no act or fault of **CONTRACTOR**, the Work is suspended for a period of more than ninety days by **OWNER** or under an order of court or other public authority, or **ENGINEER** fails to act on any Application for Payment within thirty days after it is submitted, or **OWNER** fails for thirty days to pay **CONTRACTOR** any sum finally determined to be due, then **CONTRACTOR** may, upon seven days' written notice to **OWNER** and **ENGINEER**, terminate the Agreement and recover from **OWNER** payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if **ENGINEER** has failed to act on an Application for Payment or **OWNER** has failed to make any payment as aforesaid, **CONTRACTOR** may upon seven days' written notice to **OWNER** and **ENGINEER** stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve **CONTRACTOR** of the obligations under paragraph 6.29 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with **OWNER**.

ARTICLE 16--ARBITRATION

16.1. All claims, disputes and other matters in question between **OWNER** and **CONTRACTOR** arising out of, or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.16) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining subject to the limitations of this Article 16. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.

16.2. No demand for arbitration of any claim, dispute or other matter that is required to be referred to **ENGINEER** initially for decision in accordance with paragraph 9.11 will be made until the earlier of (a) the date on which **ENGINEER** has rendered a decision or (b) the tenth day after the parties have presented their evidence to **ENGINEER** if a written decision has not been rendered by **ENGINEER** before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which **ENGINEER** has rendered a written decision in respect thereof in accordance with paragraph 9.11; and the failure to demand arbitration within said thirty days' period shall result in **ENGINEER's** decision being final and

binding upon **OWNER** and **CONTRACTOR**. If **ENGINEER** renders a decision after arbitration proceedings have been initiated, such decision may

be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of **ENGINEER** rendered in accordance with paragraph 9.10 will be made later than ten days after the party making such demands has delivered written notice of intention to appeal as provided in paragraph 9.10.

16.3. Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to **ENGINEER** for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.2 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

16.4. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including **ENGINEER**, **ENGINEER's** agents, employees or consultants) who is not a party to this contract unless:

16.4.1 . the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration,

16.4.2. such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and

16.4.3. the written consent of the other person or entity sought to be included and of **OWNER** and **CONTRACTOR** has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.5. The award rendered by the arbitrators will be final, judgement may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Section 10 and 11 of the Federal Arbitration Act (9 U.S.C. 10.11).

ARTICLE 17--MISCELLANEOUS

Giving Notice:

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time:

17.2.1 When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include

the last day of such period. If the last day of any such period falls on Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2 A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

General:

17.3. Should **OWNER** or **CONTRACTOR** suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.4. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitations, the warranties, guarantees and obligations imposed upon **CONTRACTOR** by paragraphs 6.30, 13.1, 13.12, 13.14, 14.3, and 15.2 and all of the rights and remedies available to **OWNER** and **ENGINEER** thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

SECTION 00820

SUPPLEMENTARY GENERAL CONDITIONS

<u>Article Number</u>	<u>Title</u>
SC1	Definitions
SC2	Preliminary Matters
SC4	Availability of Lands; Physical Conditions; Reference Points
SC5	Bonds and Insurance
SC6	Contractor's Responsibilities
SC9	Engineer's Status During Construction
SC11	Change of Contract Price
SC12	Change of Contract Time
SC13	Contractor's Guaranty
SC16	Arbitration
SC18	Liquidated Damages
SC19	Required Forms

SECTION 00820

SUPPLEMENTARY CONDITIONS

The General Conditions (Section 00720) are amended and supplemented as indicated below. All provisions not specifically amended shall remain in full force and effect.

Gender Disclaimer - Whenever the words "he," "his," or "himself" appear in these documents, they should be read as "he/she," "his/hers," or "himself/herself."

ARTICLE SC1 - DEFINITIONS

The terms used in these Supplementary Conditions which are defined in Section 00720 - General Conditions - have the meanings assigned to them in the General Conditions unless defined, amended, or supplemented below.

Insert the following definitions in Article 1 in the proper place in alphabetical order:

"AWARDING AUTHORITY - same definition as OWNER.

BIDDER - any person, firm or corporation submitting a BID for the work.

FINAL COMPLETION - the work has been fully completed, a Certificate of Final Completion of Work has been executed and the work ready for its intended use as required by Contract Documents and to the satisfaction of ENGINEER and OWNER, and CONTRACTOR's other obligations under the Contract Documents have been fulfilled. If a tentative list of items to be completed or corrected was issued with a certificate by Substantial Completion or issued subsequent thereto, such items shall be completed or corrected before work is considered fully completed."

Add the following sentence to the definition of "WORK":

"The CONTRACTOR shall work during regular work hours (7:00 AM to 3:30 PM Monday through Friday) excluding holidays. Work at other times, including nights and weekends, shall be at the option of, and only with written approval of, the OWNER AND ENGINEER."

Holidays shall be defined as New Years, Presidents Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving, Day After Thanksgiving, and Christmas.

Add the following sentence to the definition of "SUBSTANTIAL COMPLETION":

"The CONTRACTOR shall not be given phased or staged substantial completion as work is completed. All new infra-structure appurtenances which are installed under this Contract, whether operating or not, shall remain in the full control and responsibility of the CONTRACTOR until the entire project reaches substantial completion."

ARTICLE SC2 - PRELIMINARY MATTERS

Add the following new paragraph 2.10:

2.10 Contract Interpretation

The General Conditions, Supplementary Conditions and Special Conditions are complementary and shall be read together. Insofar as these Sections cannot be reconciled, the Special Conditions take precedence over the supplementary and general conditions; and the supplementary conditions take precedence over the general conditions.

All other conflicts in the Contract Documents will be resolved by the ENGINEER in accordance with Paragraphs 9.11 and 9.12."

ARTICLE SC4 - AVAILABILITY OF LANDS; PHYSICAL CONDITIONS, REFERENCE POINTS

Reports of explorations and tests of subsurface conditions that have been utilized by the ENGINEER in preparation of the Contract Documents will be included for the CONTRACTOR'S convenience, if available.

ARTICLE SC5 - BONDS AND INSURANCE

Add the following language at the end of Paragraph 5.1:

"The surety company shall be licensed to transact business in the State or Commonwealth within which the project is located."

Add the following language at the beginning of Paragraph 5.3:

"The CONTRACTOR shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. Approval of the insurance by the OWNER shall not relieve or decrease the liability of the CONTRACTOR hereunder."

Add the following language at the end of Paragraph 5.3:

"Certificates from the insurance carrier shall be filed in triplicate with the OWNER and shall state the type of coverage, limits of liability and the expiration date on each certificate.

Renewal certificates covering the renewal of all policies expiring during the Contract Time, shall be filed with the OWNER not less than thirty (30) days prior to the expiration of such policies.

With respect to insurance identified in paragraphs 5.3.3, 5.3.4, 5.3.5 and 5.3.6 (Comprehensive General Liability), such insurance shall name the OWNER and ENGINEER as additional named insureds."

Replace paragraph 5.5 with the following:

“The CONTRACTOR shall be responsible for purchasing and maintaining OWNER’s protective liability insurance to protect the OWNER against any and all claims which may arise from operations under the contract documents.”

Replace paragraph 5.6 with the following:

“Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in Supplementary Conditions or required by Laws or Regulations). This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insureds or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.”

Replace paragraph 5.7 with the following:

“CONTRACTOR shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractor, ENGINEER, AND ENGINEER's consultants in the Work, all of whom shall be listed as insured or additional insured parties.”

Replace paragraph 5.8 with the following:

“All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER by certified mail and will contain waiver provisions in accordance with paragraph 5.11.2.”

Replace paragraph 5.10 with the following:

“If OWNER requests in writing that other special insurance be included in the property insurance policy, CONTRACTOR shall, if possible, include such insurance, and the cost thereof will be paid by the CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, CONTRACTOR shall in writing advise OWNER that the insurance has been procured by the CONTRACTOR.”

Add the following new paragraphs after Paragraph 5.15:

"Insurance Requirements:

5.16.1 Liability Insurance: The limits of liability for the liability insurance required by Paragraph 5.3 of the General Conditions shall provide coverages for not less than the following amounts or greater where required by law or regulations and the coverages under Paragraphs 5.4 and 5.5 shall be as follows:

a. Workers Compensation, etc. under Paragraphs 5.3.1 and 5.3.2. of the General Conditions:

State:	Statutory
Applicable Federal:	Statutory
Employer's Liability:	\$2,000,000

b. Comprehensive General Liability under Paragraphs 5.3.3 through 5.3.6. of the General Conditions (including Premises-Operations; Independent Contractor's Protection; Products Liability and Completed Operations; Broad Form Property Damage);

Bodily Injury (including completed operations and products liability):

\$2,000,000	Each Occurrence
\$2,000,000	Annual Aggregate

Property Damage:

\$2,000,000	Each Occurrence
\$2,000,000	Annual Aggregate

or a combined single limit of \$2,000,000

Property Damage Liability Insurance will provide Explosion, Collapse and Underground coverages.

Personal Injury, with employment exclusion deleted

\$2,000,000	Annual Aggregate
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c. Comprehensive Automobile Liability under Paragraph 5.3.7 of the General Conditions:

Bodily Injury:

\$2,000,000	Each Person
\$2,000,000	Each Occurrence

Property Damage:

\$2,000,000	Each Occurrence
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or a combined single limit of \$2,000,000

d. Contractual Liability under Paragraph 5.4 of the General Conditions:

Bodily Injury:

\$2,000,000 Each Occurrence

Property Damage:

\$2,000,000 Each Occurrence
\$2,000,000 Annual Aggregate

ARTICLE SC6 - CONTRACTOR'S RESPONSIBILITIES

Add the following paragraph to paragraph 6.7.1:

"Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period can be considered if the equipment supplier or manufacturer is willing to provide a bond or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure."

Add the following sentence to paragraph 6.11:

Replace paragraphs 5.6, 5.7, 5.8, 5.9 and 5.10 with the following:

"The CONTRACTOR shall submit one (1) copy of each of his subcontracts to the ENGINEER demonstrating compliance with this and related requirements."

Add the following paragraph to paragraph 6.20:

"This Project is subject to the Contract Work Hours and Safety Standards Act. The Contract Work Hours and Safety Standards Act (40 USC 327 et seq) and the regulations of the Department of Labor under 29 CFR Part 5 require contractors and subcontractors to pay wages to laborers and mechanics on the basis of an eight-hour workday and forty (40) hour work week and to pay at least time and a half for work performed in excess of these time limitations. Also, the Act prohibits contractors and subcontractors from requiring laborers and mechanics to work in hazardous, unsanitary or dangerous conditions (see 29 CFR Part 1926)."

Add the following paragraph to paragraph 6.23:

"It is the CONTRACTOR'S responsibility to prepare, coordinate and review all submittals prior to delivery to the ENGINEER. The ENGINEER will review each submittal and the first resubmittal without cost to the CONTRACTOR.

The CONTRACTOR, however, shall reimburse the OWNER for all reasonable costs associated with the ENGINEER'S and his consultant's review of each subsequent resubmittal. For the purpose of this paragraph only, submittals include Section 01340 - Shop Drawings, Product Data and Samples, Section 01630 - Product Options and Substitutions."

ARTICLE SC9 - ENGINEER'S STATUS DURING CONSTRUCTION

Add the following paragraphs to paragraph 9.3:

"9.3.1 ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing performance of the Work of the CONTRACTOR.

Through more extensive on-site observations of the Work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for the OWNER against defects and deficiencies in the Work; but, the furnishing of such services will not make the ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR'S failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER'S agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

9.3.1.1 General

RPR is ENGINEER'S agent at the site, will act as directed by and under the supervision of the ENGINEER and will confer with ENGINEER regarding RPR'S actions.

RPR'S dealings in matters pertaining to the on-site Work shall in general be with ENGINEER and CONTRACTOR, keeping OWNER advised as necessary. RPR'S dealings with subcontractors shall only be through or with the full knowledge and approval of the CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of the ENGINEER.

9.3.2.1 Duties and Responsibilities of RPR

1. Schedules: Review the progress schedule, schedule of shop drawing submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

2. Conferences and Meetings: Attend meeting with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other Project related meetings, and prepare and circulate copies of minutes thereof.

3. Liaison:

a. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.

b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

4. Shop Drawings and Samples:
 - a. Record date of receipt of shop drawings and samples.
 - b. Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.
 - c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a shop drawing or sample if the submittal has not been approved by the ENGINEER.
5. Review of Work, Rejection of Defective Work, Inspections and Tests:
 - a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work in general is proceeding in accordance with the Contract Documents.
 - b. Report to ENGINEER whenever RPR believes that any work is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
 - c. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and start-ups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
6. Interpretation of Contract Documents: Report to ENGINEER when clarification and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
7. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or specifications and report with RPR'S recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.
8. Records:
 - a. Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER'S clarifications and interpretations of the Contract Documents, progress reports and other Project related documents.
 - b. Keep a diary or logbook, recording CONTRACTOR'S hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed

conditions, list of job site visitors, daily activities, decisions, observation in general and specific observations in more detail as in the case of observing test procedures; send copies to ENGINEER.

- c. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.
9. Reports:
- a. Furnish ENGINEER periodic reports as required of the progress of the Work and of CONTRACTOR'S compliance with the progress schedule and schedule of shop drawings and sample submittals.
 - b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
 - c. Draft proposed Change Orders and Work Directive Changes, obtaining back-up material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes and Field Orders. Report immediately to ENGINEER and OWNER upon the occurrence of any accident.
10. Payment Requests: Review application for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the site but not incorporated in the Work.
11. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that certificates, operation and maintenance manuals and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.
12. Completion:
- a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
 - b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
 - c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

9.3.1.3 Limitations of Authority:

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitutions of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER'S authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibility of CONTRACTOR, subcontractors, or CONTRACTOR'S superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept shop drawings or sample submittals from anyone other than CONTRACTOR.
7. Shall not authorize the OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER."

ARTICLE SC11 - CHANGE OF CONTRACT PRICE

Paragraph 11.2 is changed by deleting the phrase "but in no event later than thirty (30) days" and replacing with "but in no event later than seven (7) days".

Add the following paragraph to paragraph 11.4.5.3:

Only the equipment required as a result of the work, or any change order is allowable. Equipment rental rates shall be governed by the current Nielson/Dataquest Rental Rate Bluebook for Construction Equipment (Blue Book). In determining the rental rate, the following shall apply:

- a. For equipment already on the project, monthly rental rate shall be prorated for the actual hourly use.
- b. For equipment not on the project, the daily rate, weekly rate, or monthly rate shall prevail, depending on which method proves to be the most cost effective to the OWNER.
- c. Small tools and manual equipment owned by the CONTRACTOR shall not be eligible for separate reimbursement but shall be considered part of the CONTRACTOR'S overhead costs.

Paragraph 11.6.2.2 is changed by deleting the phrase "profit of all subcontractors shall be fifteen percent;" and replacing it with "profit of all subcontractors shall be five percent".

ARTICLE SC12 - CHANGE OF CONTRACT TIME

Paragraph 12.1 is changed by deleting the phrase "but in no event later than thirty (30) days" and replacing it with "but in no event later than seven (7) days".

Add the following paragraphs immediately after Paragraph 12.1:

- 12.1.1 The ENGINEER shall evaluate CONTRACTOR's request for extension of Contract Time as follows:
 - a. The ENGINEER will determine whether the amount of labor (man-hours) reasonably correlates to the magnitude of the addition or reduction of the work.
 - b. If the labor requested is determined reasonable, the ENGINEER shall evaluate the impact the additional labor has on the rate of the entire crew. This evaluation will consider whether the addition in work is critical to the CONTRACTOR's schedule and, if critical, to what extent the progress of the CONTRACTOR's overall crew is affected.
 - c. The CONTRACTOR shall provide the ENGINEER with all information necessary for ENGINEER to make this analysis.
- 12.1.2 The CONTRACTOR is not entitled to any time extension until the CONTRACTOR's scheduled completion date exceeds the contract completion date.
- 12.1.3 The CONTRACTOR is not entitled to recover delay or delay impact damages until the contract completion date is extended.
- 12.1.4 The CONTRACTOR is not entitled to recover delay impact damages for time extensions due to weather conditions beyond the control of the OWNER.
- 12.1.5 The CONTRACTOR is only entitled to time extensions for extra work which directly impacted the critical path of the project.

ARTICLE SC13 - CONTRACTOR'S GUARANTY

Add the following paragraph after 13.1:

"The CONTRACTOR shall guarantee all materials and equipment furnished and work performed for a period of one year from the date of Substantial Completion. The CONTRACTOR warrants and guarantees for a period of one year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall, within three (3) days of receipt of such notice, make such corrections as may be necessary by reason of such defects including the repairs or any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period."

ARTICLE SC16 - ARBITRATION

Article 16 is deleted in its entirety. In all cases the ENGINEER'S decision shall be final.

ARTICLE SC18 - LIQUIDATED DAMAGES

Add the following Article SC18 in its entirety:

ARTICLE SC18 - LIQUIDATED DAMAGES

- 18.1 The Bid and the Agreement contain a paragraph specifying the Contract Time stated as a number of consecutive calendar days following execution of the Contract, and the dollar amount of liquidated damages to be paid to the OWNER for each calendar day beyond the specified final completion period that the work remains uncompleted.
- 18.2 The date of beginning and the Contract Time for the work are essential conditions of the Contract Documents and the work embraced shall be commenced on a date specified in the Notice to Proceed.18.3 The CONTRACTOR will proceed with the work at such rate of progress to insure Final Completion within the Contract Time. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the Contract Time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.
- 18.3 If the CONTRACTOR shall fail to fully complete the work and obtain a Certificate of Final Completion of Work within the Contract Time, or extension of time granted by the OWNER, then the CONTRACTOR shall pay to the OWNER the amount for liquidated damages as specified in the Bid and Agreement for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the BID and Agreement.
- 18.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due to the following, and the CONTRACTOR has promptly given written notice of such delay to the OWNER or ENGINEER:
 - 18.4.1 To any preference, priority or allocation order duly issued by the OWNER.
 - 18.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a Contract with the OWNER, fires, floods, abnormal and unforeseeable weather; and
 - 18.4.3 To any delays of Subcontractors occasioned by any of the causes specified in Paragraphs 18.5.1 and 18.5.2 above.

ARTICLE SC19 - REQUIRED FORMS

Add the following Article SC19 in its entirety:

ARTICLE SC19 - REQUIRED FORMS

- 19.1 All forms included in these Contract Documents shall be used by the CONTRACTOR in the administration of the Contract.

END OF SECTION

SECTION 00840

SPECIAL CONDITIONS

1. INTERRUPTION OF SCHOOL DISTRICT OPERATIONS

- A. The CONTRACTOR shall not interfere with operations at the Goffstown Middle School, unless otherwise permitted by the OWNER.

2. CONTRACT COMPLETION

- A. Substantial Completion must be achieved within 70 consecutive calendar days of the Notice to Proceed. The following items must be completed to achieve Substantial Completion:
 - i. Part A – School Bus Turn Around Construction.
- B. Liquidated damages apply to Substantial Completion and Final Completion.

3. SEQUENCE OF CONSTRUCTION

- A. The suggested sequence of construction is explained on the Contract Drawings. Any deviation from the sequence provided must be brought to the attention of the OWNER and ENGINEER.
- B. The OWNER reserves the right to accept or deny any proposed deviation made by the CONTRACTOR from sequence of construction provided.
- C. Compliance with provided sequence of construction and/or any approved deviation is absolute.

4. WORKING HOURS

- A. The CONTRACTOR shall not begin work until after 07:00 hours and no construction activities shall be allowed after 4:00 PM. All cleanup and paving shall have been completed by this hour. No work shall be allowed on weekends or holidays without written permission from the SAU.

5. CHARACTER OF THE CONTRACTOR'S SUPERINTENDENT AND WORKERS

- A. The CONTRACTOR'S superintendent shall conduct himself in a professional and responsible manner. If, in the opinion of the ENGINEER, the superintendent does not conduct him/herself in a manner that is professional and courteous, the ENGINEER may recommend to the OWNER to relieve the superintendent of his/her responsibilities and have him/her removed from the project. Upon written notice from the OWNER the superintendent shall immediately be relieved of his/her responsibilities and removed from the project. If a superintendent change is to be made, work shall be terminated until qualifications of a new superintendent have been submitted and approved by the OWNER and ENGINEER. The superintendent that was removed from the site shall not be allowed to work on any other portion of work in this Contract without written approval of the ENGINEER. The OWNER and ENGINEER do not take any responsibility in conduct of the superintendent or the scheduling and completion of work.

- B. Any person employed by the CONTRACTOR or by any subcontractor who, in the opinion of the ENGINEER, does not conduct him/herself in a proper and professional manner or is intemperate or disorderly shall, at written request of the ENGINEER, be removed immediately by the CONTRACTOR or subcontractor employing such person, and shall not be allowed to work on any other portion of work in this Contract without written approval of the ENGINEER.

6. OCCUPYING PRIVATE PROPERTY

- A. The CONTRACTOR shall not enter upon nor occupy with personnel, equipment, or materials any property outside of the public highways or town easements, except after the consent of the owners or their agents.

7. BACKGROUND CHECKS

- A. The lowest responsive bidder prior to work commencing on the property of a school administrative unit (SAU), school district, or chartered public school shall submit to the SAU a notarized criminal history records release form, as provided by the division of state police, which authorizes the release of information regarding the presence or absence of any record of convictions of the applicant of felonies or of the crimes for all employees that are to be working on school property. The applicant shall submit with the release form a complete set of fingerprints taken by a qualified law enforcement agency or an authorized employee of the school administrative unit, school district, or chartered public school.

If the criminal history records information indicates that the applicant has been convicted of a felony or of a crime listed in Paragraph V (RSA 189:13), the school administrative unit, school district, or chartered public school shall review the information for a hiring decision, and the division of state police shall notify the department of education of any such convictions. The school administrative unit, school district, or chartered public school shall destroy any criminal history record information that indicates a criminal record within 30 days of receiving such information.

END OF SECTION

DIVISION 1

SECTION 01010	SUMMARY OF WORK
SECTION 01020	DIG SAFE
SECTION 01025	MEASUREMENT AND PAYMENT
SECTION 01026	APPLICATION FOR PAYMENT
SECTION 01027	CHANGE ORDER PROCEDURES
SECTION 01340	SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
SECTION 01560	TEMPORARY CONTROLS
SECTION 01630	PRODUCT OPTIONS AND SUBSTITUTIONS
SECTION 01720	PROJECT RECORD DOCUMENTS
SECTION 01740	WARRANTIES AND BONDS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Description of Work.
- B. Contract type.
- C. Work sequence.
- D. Use of premises.

1.02 DESCRIPTION OF WORK

- A. The work consists of pavement removal and demolition/removal of trees and structures along a portion of the perimeter road at Mountain View Middle School, and subsequent construction of a paved bus turn-around. Additionally, work includes construction of replacement sidewalk, granite curbing, and a pedestrian crossing in the vicinity, re-grading and landscaping, installation of a catch basin and lateral, installation of relocated lighting pole and overhead electric wire, re-paving of roadway surfaces, landscaping and restoration of all disturbed areas, project safety, and all other work necessary to fully construct the project in accordance with the provided plans and specifications.

1.03 CONTRACT TYPE

- A. Construct the Work under a lump sum contract.

1.04 WORK SEQUENCE

- A. Coordinate Progress Schedule and performance with OWNER during construction.

1.05 USE OF PREMISES

- A. CONTRACTOR shall limit use of premises for work, for storage, and for access, to allow:
 - 1. OWNER occupancy on OWNER'S property.
- B. Coordinate use of premises under direction of OWNER.
- C. Assume full responsibility for protection and safekeeping of products under this Contract.
- D. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01020

DIG SAFE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Comply with all regulations and laws concerning excavation, demolition or explosive work and be advised of "Dig Safe" requirements and the requirements of New Hampshire RSA 374:55.

1.02 DIG SAFE

- A. Within the State, "Dig-Safe" is the name of the Utility Underground Plant Damage Prevention Authority. They are located at 111 South Bedford Road, Burlington, MA 01803. Their phone number is 811 or 1-888-344-7233.
- B. The CONTRACTOR must notify "Dig-Safe" of contemplated excavation, demolition, or explosive work in public or private ways, and in any Utility Company Right of Way or Easement.
- C. This notification must be made at least seventy-two (72) hours prior to the work, but not more than sixty (60) days before the contemplated work. Such notice shall set forth the name of the street or the route number of said way and an accurate description of the location and nature of the proposed work.
- D. "Dig-Safe" is required to respond to the notice within seventy-two (72) hours from the time said notice is received, by designating at the locus the location of pipes, mains, wires, or conduits.
- E. The CONTRACTOR shall not commence work until "Dig-Safe" has responded as noted above. The work shall then be performed in such a manner, and with reasonable precautions taken to avoid damage to utilities under the surface in said areas of work.
- F. In addition, the CONTRACTOR must notify the New Hampshire Public Utilities Commission in accordance with the applicable section of New Hampshire RSA 374:55.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 PROCEDURES

- A. For unit price items, the CONTRACTOR shall be paid for the actual amount of work accepted during the period of construction. After the Work is completed and before final payment is made, the ENGINEER shall make final measurements to determine the quantities of the various items of work accepted as the basis for final payment.
- B. For lump sum items, the CONTRACTOR shall be paid in accordance with the progress schedule and schedule of values based on actual work accepted until the work item is completed. Upon completion of the item, one hundred percent (100%) of the lump sum price may be paid, less retained amounts.
- C. All units of measurement shall be standard United States convention as applied to the individual items of work as specified and as interpreted by the OWNER.
- D. Once, and only once, each month the CONTRACTOR will prepare and sign an Application for Payment and submit the original and three (3) copies for review and signature of the OWNER. These completed forms will provide the basis upon which payment will be made to the CONTRACTOR.

1.02 SCOPE OF PAYMENT

- A. Payments to the CONTRACTOR will be made for the actual quantities of the contract unit price items performed and accepted in accordance with the Contract Documents. Upon completion of construction, if these actual quantities show either an increase or decrease from the quantities given in the Bid, the contract unit prices will still prevail, except as provided in Section 00720 - General Conditions and Section 00820 - Supplemental General Conditions.
- B. No payment of any Application for Payment or of any retained percentage shall relieve the CONTRACTOR of his obligation to repair or replace any defective parts of the construction or to be responsible for all damage due to such defects during the construction period or the one-year correction period.

1.03 PARTIAL PAYMENTS

- A. Partial payments shall be made monthly as the work progresses. All partial invoices and payments shall be subject to correction in the final Application for Payment.

1.04 PAYMENT FOR MATERIAL DELIVERED

- A. When requested by the CONTRACTOR, and at the discretion of the OWNER, payment may be made for all or part of the value of acceptable, non-perishable materials and equipment which are to be incorporated into the Work, which has not been used and which have been delivered to the construction site and placed in storage area acceptable to the OWNER. The Application for Payment shall be accompanied by such data, satisfactory to the OWNER, that will establish the OWNER'S title to

the material and equipment and protect the OWNER'S interest therein, including insurance. Each subsequent Application for Payment shall include an affidavit of the CONTRACTOR stating that all previous progress payments received on account of the Work have been applied to discharge in full, all the CONTRACTOR'S obligations reflected in prior Applications for Payment. The OWNER shall have the right to deduct from the next progress payment, an amount equal to payment for said material and/or equipment if reasonable and adequate proof is not submitted.

- B. Materials and equipment, when so paid for by the OWNER, shall become the property of the OWNER and in the event of default on the part of the CONTRACTOR, the OWNER may use, or cause to be used, these materials and equipment in the construction of the Work. The CONTRACTOR shall be responsible for any damage to, or loss of, these materials and equipment. The amount paid by the OWNER shall reduce the estimated amounts due the CONTRACTOR as the material is incorporated into the Work.
- C. No partial payment shall be made for fuels, supplies, lumber, false work, or other expendable or temporary materials, or on temporary structures of any kind which are not a permanent part of the Contract.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 GENERAL

- A. The items of work required by the Division 0 - Bidding and Contractual Requirements and Division 01 - General Requirements shall not be measured and paid separately, except as expressly indicated therein, but shall be included in the prices bid for each unit and lump sum item.
- B. The payment for lump sum items listed below shall include all materials, labor, tools, equipment, and incidental work necessary to complete the item in accordance with the plans and specifications whether the work is mentioned in the following paragraphs.

3.02 EXTERIOR DRAINAGE IMPROVEMENTS AND FIRE HYDRANT REPLACEMENT

A. Measurement:

Measurement shall be in a lump sum basis for all work required to furnish and install all improvements, as show on the plans specified herein, and as approved by the ENGINEER.

B. Payment:

Payment shall be at the Lump Sum Price Bid, which shall be full compensation for all labor, equipment and materials required to lay out, test pit, furnish, install / construct all drainage improvements, including the removal of all temporary erosion control measures, as shown on the plans, and specified herein as approved by the ENGINEER.

- C. Allowance paid per invoices submitted with the Request for Payment (no mark-up allowed).

3.03 SCHOOL BUS TURN AROUND CONSTRUCTION

A. Measurement:

Measurement shall be for all work required to construct bus turn around including test pits to locate existing underground utilities, installation of underground and overhead utilities, and sidewalk and crosswalk construction.

B. Payment:

Payment shall be made at the contract lump sum price and shall be full compensation for the complete project upon completion and approval by the ENGINEER and shall include all items shown on the plans and listed in the specifications herein, including:

- Construction and associated work related to the school bus turn around.
- Saw cutting and removal of existing pavement and sidewalk.
- Fine grade and compact all road base material.
- Excavation and backfill of the new turn-around and connecting roadways.
- Removal and replacement of existing curb and installation of new curb.
- Preparation and paving of new sidewalks.
- Furnish and placement of road pavement per specifications.
- Furnish and installation of pavement striping per plan.
- Installation of handicapped ramps and crosswalk.
- Furnish and install specified signage.
- Final site restoration and landscaping of disturbed areas.
- All other work identified in the Plans and Specifications herein.

3.04 ALLOWANCE FOR MATERIAL TESTING

A. Measurement:

Measurement shall be for all required soils testing, specified herein, and as directed and approved by the ENGINEER. All reports shall be provided to the ENGINEER within 7 days of the issuance date of each report.

B. Payment:

Allowance paid per invoice, plus 10% markup, submitted with the Request for Payment and as approved by the ENGINEER.

END OF SECTION

SECTION 01026

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures for preparation and submittal of Applications for Payment.

1.02 FORMAT

- A. AIA G702 and G703 - Application and Certificate for Payment included at the end of this section, or alternate form approved by the OWNER.

- B. For each item, by specification section number and title, provide a column for listing:

- 1 Item Number.
- 2 Description of Work.
- 3 Scheduled Value.
- 4 Previous Applications.
- 5 Work in Place.
- 6 Stored Materials.
- 7 Authorized Change Orders.
- 8 Total Work Completed.
- 9 Materials Stored to Date of Application.
- 10 Percentage of Completion.
- 11 Balance to Finish.
- 12 Retainage.

For specification sections covering more than one production or work item, list each item separately as a sub-listing to the section.

- C. Submit format to be used to OWNER for review and approval a minimum of ten (10) days prior to the first Application for Payment.
- D. For items bid as unit price items, follow bid schedule for listing component items.

1.03 PREPARATION OF APPLICATIONS

- A. Preparation of Applications shall conform to the General Conditions, Section 00720.
- B. Review application with Resident Project Representative (RPR).

- C. Type required information and executed certification by signature of authorized officer.
- D. Submit each payment application to the OWNER for approval and submission to OWNER for payment.
- E. Use data on accepted Schedule of Values. Provide dollar value in each column for each line item for portion of Work performed and for stored materials.
- F. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount the same as for an original item of Work.
- G. Prepare Application for Final Payment as specified in Section 01701 - Contract Closeout Procedure.

1.04 SUBMITTAL PROCEDURES

- A. Submit three (3) copies of each Application for Payment monthly at times to be established at the Preconstruction Conference.
- B. Applications for Payment submitted more frequently than monthly will not be considered.

1.05 SUBSTANTIATING DATA

- A. When OWNER requires substantiating information, submit data justifying line-item amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.06 PAYMENTS BY OWNER

- A. As provided in Section 00720 - General Conditions, the OWNER has the right to directly pay subcontractors, laborers, workmen, mechanics, material supplier and furnishers of machinery and parts thereof, equipment, power tools and all supplies, for costs incurred in the furtherance of the performance of this Contract, for which the CONTRACTOR has failed to pay, after written claim to the OWNER.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

APPLICATION FOR PAYMENT NO. _____

To: GOFFSTOWN SCHOOL DISTRICT (OWNER)
 From: _____ (CONTRACTOR)
 Contract: _____
 Project: MOUNTAIN VIEW MIDDLE SCHOOL BUS TURN-AROUND

OWNER's Contract No. _____ ENGINEER's Project No. _____
 For Work accomplished through the date of: _____

- 1. Original Contract Price: \$ _____
- 2. Net change by Change Orders and Written Amendments (+ or -): \$ _____
- 3. Current Contract Price (1 plus 2): \$ _____
- 4. Total completed and stored to date \$ _____
- 5. Retainage (per Agreement):
 - _____ % of completed Work: \$ _____
 - _____ % of stored material: \$ _____
 - Total Retainage: \$ _____
- 6. Total completed and stored to date less retainage (4 minus 5): \$ _____
- 7. Less previous Application for Payments: \$ _____
- 8. **DUE THIS APPLICATION (6 MINUS 7):** \$ _____

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated _____

CONTRACTOR

By: _____

State of: _____
 County of: _____
 Subscribed and sworn to me this _____
 day of _____, _____

Notary Public
 My Commission Expires:

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____

ENGINEER

By: _____

A. GENERAL INFORMATION

The sample form of Schedule of Values is intended as a guide only. Many projects require a more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site and other information. It is expected that a separate form will be developed by Engineer and Contractor at the time Contractor's Schedule of Values is finalized. Note also that the format for retainage must be changed if the Contract permits (or the law provides), and Contractor elects to deposit securities in lieu of retainage. Refer to Article 14 of the General Conditions for provisions concerning payments to Contractor.

B. COMPLETING THE FORMS

The Schedule of Values submitted and approved as provided in paragraphs 2.05.B.3 and 2.07 of the General Conditions should be reproduced as appropriate in the space indicated on the Application for Payment form. Note that the cost of materials and equipment is often listed separately from the cost of installation. Also, note that each Unit Price is deemed to include Contractor's overhead and profit.

All Change Orders affecting the Contract Price should be identified and included in the Schedule of Values as required for progress payments.

The form is suitable for use in Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

C. LEGAL REVIEW

All accompanying documentation of a legal nature, such as Lien waivers, should be reviewed by an attorney, and Engineer should so advise Owner.

APPLICATION NO. _____ DATE: _____

ITEM	UNIT PRICE	ESTIMATED QUANTITY	SCHEDULE OF VALUES AMOUNT	QUANTITY COMPLETED	AMOUNT	%	MATERIAL STORED	AMOUNT COMPLETED AND STORED
1.	\$		\$		\$		\$	\$
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTAL								

SECTION 01027

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Promptly implement change order procedures.
 - 1. Provide full written data required to evaluate the time and associated costs of changes.
 - 2. Maintain detailed records of work done on a time-and-material/ force account basis.
 - 3. Provide full documentation to OWNER.
- B. Designate in writing the member of CONTRACTOR'S organization:
 - 1. Who is authorized to accept changes in the Work.
 - 2. Who is responsible for informing others in the CONTRACTOR'S employ of the authorization of changes in the Work.
- C. OWNER will designate in writing the person who is authorized to execute Change Orders.

1.02 DEFINITIONS

- A. Change Order: See Section 00720 - General Conditions, Section 00820 - Supplementary Conditions, and Section 00840 - Special Conditions.
- B. Work Directive Change: A written order to the CONTRACTOR, signed by OWNER and ENGINEER, which amends the Contract Documents as described, and authorizes CONTRACTOR to proceed with a change which affects the Contract Price or the Contract Time, for inclusion in a subsequent Change Order.
- C. Field Order: The OWNER may issue, as required, a written order, instructions, or interpretations, signed by ENGINEER making minor changes in the Work not involving a change in Contract Price or Contract Time.

1.03 PRELIMINARY PROCEDURES

- A. OWNER may initiate changes by submitting a proposal request to CONTRACTOR. Such request is for information only, and is not an instruction to execute the changes, nor to stop Work in progress. Request will include:
 - 1. Detailed description of the change, products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.

3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
 4. A specific period of time during which the requested price will be considered valid.
- B. CONTRACTOR may initiate changes by submitting a written notice to ENGINEER, containing:
1. Description of the proposed changes.
 2. Statement of the reason for making the changes.
 3. Statement of the effect on the Contract Price and the Contract Time.
 4. Statement of the effect on the work of subcontractors or other contractors.
 5. Documentation supporting any change in Contract Price and/or Contract Time, as appropriate.

1.04 WORK DIRECTIVE CHANGE

- A. In lieu of proposal request, OWNER and ENGINEER may issue a Work Directive Change ordering the CONTRACTOR to proceed with a change for subsequent inclusion in a Change Order.
- B. The Work Directive Change will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Price and/or Contract Time.
- C. OWNER and ENGINEER will sign and date the Work Directive Change as authorization for the CONTRACTOR to proceed with the changes.
- D. CONTRACTOR may sign and date the Work Directive Change to indicate agreement with the terms therein.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data including labor, equipment, overhead and profit to allow ENGINEER to evaluate the quotation.
- B. On request provide additional data to support time and cost computations:
 1. Labor required.
 2. Equipment required.

3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 4. Taxes, insurance, and bonds.
 5. Credit for work deleted from Contract, similarly, detailed and documented.
 6. Overhead and profit in accordance with General Conditions - Section 00720, Sub-Section 11.
 7. Justification for any change in Contract Time. Justification shall include a revised project schedule identifying the impact of the change.
- C. Support each claim for additional costs, and for work done on a time-and-material basis, with documentation as required for a lump-sum proposal, plus additional information:
1. Name of the OWNER'S authorized agent who ordered the work, and date of the order.
 2. Dates and times work was performed, and by whom.
 3. Time record, summary of hours worked, and hourly rates paid (Certified Payroll).
 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use, and hourly rates.
 - b. Products used, listing of quantities and receipted bills.
 - c. Subcontractors' billings and description of work performed.
- D. Document requests for substitutions for Products as specified in Section 01630 - Product Option and Substitution.

1.06 PREPARATION OF CHANGE ORDERS

- A. ENGINEER will prepare each Change Order.
- B. Form: Change Order: Form included in Section 00834 - Change Order.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Price and/or Contract Time.

1.07 LUMP-SUM OR FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. ENGINEER'S proposal request and CONTRACTOR'S responsive proposal as mutually agreed between OWNER and CONTRACTOR.
 - 2. CONTRACTOR'S proposal for a change, as recommended by ENGINEER.
- B. OWNER will sign and date the Change Order as authorization for the CONTRACTOR to proceed with the changes.
- C. CONTRACTOR shall sign and date the Change Order to indicate agreement with the terms therein.

1.08 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. ENGINEER'S definition of the scope of the required changes.
 - 2. CONTRACTOR'S proposal for a change, as recommended by ENGINEER.
 - 3. Measurement of completed work.
- B. The amounts of the unit prices to be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between OWNER and CONTRACTOR.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the Work:
 - 1. OWNER will sign and date the Change Order as authorization for CONTRACTOR to proceed with the changes.
 - 2. CONTRACTOR shall sign and date the Change Order to indicate agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the Work:
 - 1. OWNER and ENGINEER will issue a Work Directive Change directing CONTRACTOR to proceed with the change on the basis of unit prices and will cite the applicable unit prices.
 - 2. At completion of the change, ENGINEER will determine the cost of such work based on the unit prices and quantities used. CONTRACTOR shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
 - 3. ENGINEER will sign and date the Change Order to establish the ENGINEER'S recommended change in Contract Price and in Contract Time.

- 4. OWNER will sign and date the Change Order as authorization.
- 5. CONTRACTOR shall sign and date the Change Order to indicate agreement with the terms therein.

1.09 TIME AND MATERIAL WORK DIRECTIVE CHANGE AND CHANGE ORDER

- A. OWNER and ENGINEER will issue a Work Directive Change directing CONTRACTOR to proceed with the changes.
- B. At completion of the change, CONTRACTOR shall submit itemized accounting and supporting data as provided in paragraph 1.05 Documentation of Proposals and Claims.
- C. ENGINEER will recommend the allowable cost of such work.
- D. ENGINEER will sign and date the Change Order to establish the ENGINEER'S recommended change in Contract Price and in Contract Time.
- E. OWNER will sign and date the Change Order as authorization.
- F. CONTRACTOR shall sign and date the Change Order to indicate their agreement therewith.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Price.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time. Revise sub-schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures for submittals.
- B. Schedule of submittals.

1.02 SHOP DRAWINGS

- A. Present in a clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number, detail and schedule of Contract Documents. The CONTRACTOR shall use and complete the transmittal form included at the end of this Section.
- B. Identify field dimensions; show relation to adjacent or critical features or Work or products.
- C. Minimum Sheet Size: 22 x 17 inches or multiples of 8-1/2 x 11 inches.
- D. Number Required: Six (6) copies of each page or sheet assembled in separate sets.

1.03 PRODUCT DATA

- A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; materials of construction; finishes; dimensions; and required clearances. Provide Material Safety Data Sheets required by OSHA for all chemicals to be supplied under this Contract. Submittals made without the required transmittal form which clearly identifies the respective specification section number for which the submittal is being made will be returned without review. It is the CONTRACTOR'S responsibility to make clearly identified submittals.
- B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- C. Provide manufacturer's preparation, assembly, delivery, storage, installation, start up, adjusting, and finishing instructions.
- D. If similar or identical submittal material can be submitted under more than one specification section, the CONTRACTOR shall make separate clearly identified submittals for each specification section. Submittal materials for any specification section shall be complete for that section; partial submittals are unacceptable.

1.04 SAMPLES

- A. Submit full range of manufacturer's standard finishes, except when more restrictive requirements are specified, indicating colors, textures, and patterns, for ENGINEER'S selection.
- B. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- C. Acceptable samples which may be used in the Work are indicated in the specification section.
- D. Label each sample with identification required for transmittal letter.
- E. Provide field samples of finishes at Project, at location acceptable to ENGINEER, as required by individual specification sections. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.
- F. Those provisions of paragraph 1.03 which relate to submittal identification and completeness are applicable for sample submittal.

1.05 CONTRACTOR REVIEW

- A. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittals with requirements of Work and of Contract Documents.
- C. Sign and date each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify ENGINEER in writing at time of submittal, of any deviations from requirements of Contract Documents.
- D. Do not fabricate or ship products or begin work which requires submittals until return of submittal that ENGINEER has reviewed and approved.
- E. CONTRACTOR shall check and verify all field measurements and shall be responsible for prompt submission of all shop and working drawings so that there shall be no delay in the Work.
- F. CONTRACTOR shall be responsible for the delays and/or additional expenses that result from the CONTRACTOR'S failure to submit a complete submittal and/or to identify portions of the submittal that do not conform to the specifications.

1.06 SUBMITTAL REQUIREMENTS

- A. Transmit submittals with required submittal form included herewith, in accordance with the Progress Schedule and in such sequence as to avoid delay in the Work.
- B. Apply CONTRACTOR'S stamp, signed certifying to review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents.


- C. Coordinate submittals into logical groupings to facilitate interrelation of the several items:
 - 1. Finishes which involve ENGINEER selection of colors, textures, or patterns.
 - 2. Associated items which require correlation for efficient function or for installation.
- D. Submit six (6) copies of shop drawings; three (3) of which will be retained by ENGINEER upon review; the other three (3) will be returned to the CONTRACTOR.
- E. Submit six (6) copies of product data; three (3) copies which will be retained by ENGINEER upon review; the other three (3) copies will be returned to the CONTRACTOR.
- F. Submit number of samples required by individual specification sections.
- G. Submit to ENGINEER using transmittal form provided in this Section. Identify Project by title and number. Identify work and product by specification section and paragraph number. ENGINEER will designate a submittal number upon receipt.
- H. Review by ENGINEER of any deviation in material, workmanship or equipment proposed subsequent to approval of the shop drawings, samples or design data shall be requested in writing by the CONTRACTOR.

1.07 RESUBMITTALS

- A. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.
- B. The ENGINEER will review each submittal and the first resubmittal without cost to the CONTRACTOR. The CONTRACTOR shall reimburse the OWNER for all subsequent resubmittal reviews.

1.08 ENGINEER REVIEW

- A. ENGINEER will respond to submittals with reasonable promptness.
- B. Submittals reviewed will be returned stamped as follows:

	
REVIEWED	<input type="checkbox"/>
REVIEWED AS MODIFIED	<input type="checkbox"/>
REVISE AND RE-SUBMIT	<input type="checkbox"/>
NOT REVIEWED	<input type="checkbox"/>
<p>THIS REVIEW BY STANTEC CONSULTING SERVICES, INC. IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THIS REVIEW SHALL NOT MEAN THAT STANTEC CONSULTING SERVICES, INC. APPROVES THE DETAIL DESIGN INHERENT IN THE SHOP DRAWINGS, RESPONSIBILITY FOR WITH SHALL REMAIN WITH THE CONTRACTOR SUBMITTING SAME, AND SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THE SHOP DRAWING OR OF HIS RESPONSIBILITY FOR MEETING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOB SITE, FOR INFORMATION THAT PERTAINS SOLELY TO FABRICATION PROCESSES OR TO TECHNIQUES OF CONSTRUCTION AND INSTALLATION AND FOR CO-ORDINATION OF THE WORK OF ALL SUBTRADES. STANTEC CONSULTING SERVICES, INC.</p>	
BY:	DATE:

1.09 DISTRIBUTION

- A. Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear ENGINEER'S stamp to job site file, Record Documents file, subcontractors, suppliers, other affected contractors, and other entities requiring information.

1.10 SCHEDULE OF SUBMITTALS

- A. Shop drawings, product data and sample submittals shall be made in a timely and logical fashion considering work scheduling and job progress.
- B. It is the CONTRACTOR'S responsibility to prepare, coordinate, and review all submittals prior to delivery to ENGINEER. The ENGINEER will review each submittal and the first resubmittal at no cost to the CONTRACTOR. The CONTRACTOR shall reimburse the OWNER for all reasonable costs associated with the ENGINEER'S, and his consultants, review of each subsequent resubmittal.

1.11 REVIEW QUALIFICATION

- A. Regardless of corrections made or acceptance of such drawings by the ENGINEER, the CONTRACTOR will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Contract Documents. The CONTRACTOR shall notify the ENGINEER in writing of any deviations at the time he furnishes such drawings.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Providing and maintaining methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas under CONTRACTOR'S control. Removal of physical evidence of temporary facilities at completion of the Work.

1.02 DUST CONTROL

- A. Provide positive methods and apply dust control materials such as calcium chloride or water to minimize raising dust from construction operations and provide positive means to prevent dust from dispersing into the atmosphere.

1.03 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper disposal.
- B. Provide, operate, and maintain pumps and equipment of adequate capacity to control surface and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas in accordance with local, state, and federal regulations.

1.04 RODENT CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction or storage area. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
- B. Use rodenticide in full accordance with the manufacturer's printed instructions and recommendations, and local, state, and federal regulations.

1.05 DEBRIS CONTROL

- A. Maintain all areas under CONTRACTOR'S control free of debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage, and parking areas, or along access roads and haul routes.

- 1. Provide containers for deposit of debris.

2. Prohibit overloading of trucks to prevent spillages on access and haul routes. Provide periodic inspection of traffic areas and enforce requirements.
 3. Schedule weekly collection and disposal of debris to prevent accumulation.
- C. Schedule periodic collection and disposal of debris. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.
- D. If the ENGINEER determines that the site is not adequately free of extraneous debris, the ENGINEER may order the CONTRACTOR to clean the site or have the site cleaned by others, the cost of which shall be borne by the CONTRACTOR.

1.06 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel to perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids. Excavate and dispose of any contaminated earth in accordance with local, state, and federal regulations, and replace with suitable compacted fill and topsoil.
- C. Take all appropriate measures to prevent harmful substances from entering surface waters and groundwater. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
1. Prevent toxic concentrations of chemicals.
 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.07 EROSION CONTROL

- A. Plan and execute construction and earth work by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
1. Minimize areas of exposed bare soil.
 2. Provide temporary control measures such as berms, dikes, and drains.
- B. Construct fill and waste areas by selective placement to eliminate surface silts or clays which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion. Apply corrective measures as required to control erosion.
- D. Construct sediment basins, diversion ditches, hay bale dikes or such other erosion control devices to control runoff from any area subject to erosion during construction. All such precautionary measures including, but not limited to, construction of sediment basins, diversion ditches, benches, berms, or hay

bale dikes or laying fiber matting on slopes until vegetation is established, shall be at no extra cost to the OWNER.

- E. Comply with all local, state, and federal permits and requirements.
- F. Provide Hay Bales around all catch basins and culverts in or downhill of the construction area. Hay bales and cost of cleaning catch basins and culverts shall be paid for by the CONTRACTOR.
- G. The CONTRACTOR shall keep all trenches stabilized during non-working hours. The CONTRACTOR shall place approved crushed gravel in the trench every night. The CONTRACTOR shall furnish and install crushed stone or other approved material in the trench to stabilize it as directed by the ENGINEER.

1.08 TRAFFIC SAFETY

- A. Schedule construction and place excavated material so that vehicular and pedestrian traffic may be maintained at all times.
- B. Traffic shall be protected by barricades, warning, and advance warning signs. The placement and materials shall be in general compliance with the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, latest edition, and be subject to the approval of the OWNER and ENGINEER. If the CONTRACTOR'S operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect barricades, or fences and/or take other safety measures in accordance with local, state and federal regulations.
- C. The CONTRACTOR shall provide experienced flag persons as directed by the ENGINEER.
- D. The trench shall be backfilled with approved common fill and crushed gravel every night, as directed by the ENGINEER. Place crushed gravel to a depth of twelve (12) inches below the bottom of the pavement.

1.09 STORAGE AND PROTECTION

- A. Material
 - 1. All loose granular material, pipes and other commonly used material shall be stored off the roadway but within the Right-Of-Way of the roadway. Lighted barriers shall be placed around the said material to make them visible to vehicular traffic.
- B. Equipment
 - 1. All equipment shall be stored off the roadway but within the Right-Of-Way of the roadway. Lighted barriers shall be placed around the vehicles to make them visible to vehicular traffic.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01630

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. CONTRACTOR'S options in selection of products.
- B. Products list.
- C. Requests for substitution of products.

1.02 CONTRACTOR OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Submit data substantiating that product meets those standards in accordance with Section 01340 - Shop Drawings, Product Data, and Samples, if required.
- B. Products Specified by Naming One or More Manufacturers with a Substitution Paragraph: Submit a request for substitution for products of any manufacturer not specifically named.

1.03 PRODUCTS LIST

- A. At preconstruction conference submit three (3) copies of a list of major products which are proposed for installation, including name of manufacturer. The CONTRACTOR will not be allowed a substitution for products not identified on this list.
- B. Tabulate products by specification section number, title, and paragraph number.
- C. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.
- D. ENGINEER will not reply to this list of major products. All acceptance or rejection and comments by the ENGINEER will be reserved until submittal of product data for conforming products or products proposed for substitution.

1.04 LIMITATIONS ON SUBSTITUTIONS

- A. Many sections of these specifications are based on specific manufacturer recommendations. Use of these recommendations does not and is not intended to exclude equal equipment of other manufacturers. The specifications serve only as a guide to minimum quality and performance.

1.05 REQUESTS FOR SUBSTITUTIONS

- A. Requests for substitutions not made in strict conformance with this paragraph will be unacceptable and will be rejected by the ENGINEER without review.

- B. Submit separate request for each substitution using the form included at the end of this Section. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.
- C. Identify product by specification sections and paragraph numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.
- D. Attach product data as specified in Section 01340 - Shop Drawings, Product Data, and Samples.
- E. List similar projects using product, dates of installation, and names of ENGINEER and OWNER.
- F. Give itemized comparison of proposed substitution with specified product, listing variations, and reference to Specification section and paragraph numbers.
- G. Give quality and performance comparison between proposed substitution and the specified product.
- H. Give cost data comparing proposed substitution with specified product, and amount of net change to Contract Price.
- I. List availability of maintenance services and replacement materials.
- J. State effect of substitution on construction schedule, and changes required in other work or products.
- K. A substitute product may be considered equal to the product identified in the Specifications if (1) it is at least equal in quality, durability, appearance, strength, and design; (2) it will perform at least equally the function imposed by the general design for the work being contracted for or the material being purchased; and (3) it conforms substantially, even with deviations, to the detailed requirements for the product in said Specifications.

1.06 REDESIGN

- A. Redesign of any portion of the work affected by the substitution and coordination of installation of the substitution shall be the responsibility of the CONTRACTOR. There shall be no increase in Contract Price for redesign due to substitution of products.

1.07 CONTRACTOR REPRESENTATION

- A. Submission of a request for substitution constitutes a representation that CONTRACTOR has investigated proposed product and has determined that it is equal to or superior in all respects to specified product. The ENGINEER, however, will make such determination based on the CONTRACTOR'S request under paragraph 1.05.
- B. CONTRACTOR shall provide as a minimum, the same warranty for substitution products as for specified product.
- C. CONTRACTOR shall coordinate installation of accepted substitute, making such changes as may be required for Work to be complete in all respects.

- D. CONTRACTOR waives claims for additional costs related to substitution which may later become apparent.

1.08 SUBMITTAL PROCEDURES

- A. After preconstruction conference, submit six (6) copies of request for substitution.
- B. ENGINEER will respond to CONTRACTOR'S requests for substitutions with reasonable promptness.
- C. ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject requested substitution.
- D. For accepted products, submit shop drawings, product data, and samples in accordance with Section 01340 - Shop Drawings, Product Data, and Samples.
- E. Submit with request such drawings as are necessary to define the redesign necessary to accommodate product substitution. Drawings shall be stamped by a professional engineer registered in the State where the work under this Contract is located, and for the engineering disciplines affected by the substitution.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Installation of substitutions shall not be done unless written acceptance of ENGINEER has been given.

SUBSTITUTION REQUEST FORM

Date: _____

1. Name of specified product: _____

2. Name of product submitted for consideration as substitute: _____

3. Specification Section Reference: _____
Drawing Number Reference: _____

4. Attach Product Data defining quality, function, and performance of proposed substitute to this form.

5. List similar projects using this product:

	<u>Project / Location</u>	<u>Date of Installation</u>	<u>Engineer / Phone No.</u>	<u>Owner / Phone No.</u>
a.	_____	_____	_____	_____
b.	_____	_____	_____	_____
c.	_____	_____	_____	_____

6. Attach itemized comparison of requested substitution to specified requirements arranged in order by Specification Paragraph.

7. State effect of requested substitution on:

a. Construction Schedule: _____

b. Project Cost: _____

c. Changes Required in Other Work: _____

8. Contractor Representations:

- a. Contractor has complied with Section 01630 in its entirety.
- b. Contractor has personally investigated proposed substitution and has determined that it is equal or superior in all respects to the product specified.
- c. Contractor and manufacturer will provide same warranty for the proposed substitution as required for the specified product, as a minimum.
- d. Contractor will coordinate installation of accepted substitution making such changes as may be required for the Work to be complete in all respects, at no additional cost to the OWNER.
- e. Contractor certifies that the cost data presented is complete and includes all related costs under the Contract except for the cost of redesign by the ENGINEER.
- f. Contractor waives all claims for additional costs related to changes required to accommodate the substitution, which subsequently become apparent.
- g. Contractor agrees to pay all reasonable fees of the ENGINEER and other consultants in making an evaluation of this substitution request whether such request is ultimately accepted or not and if required, pay all redesign costs to accommodate the proposed substitution.

9. Certification:

Signed _____
Title _____
Company _____
(Contractor)

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintaining and submitting record documents and samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain at the site for OWNER one record copy of:

- 1. Contract Drawings.
- 2. Project Manual.
- 3. Addenda.
- 4. Change Orders and other modifications to the Contract.
- 5. Accepted shop drawings, product data, and samples.
- 6. Field test records.
- 7. Inspection certificates.
- 8. Manufacturer's certificates.
- 9. Manufacturer's operating and maintenance manuals.

- B. Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.

- C. Label and file record documents and samples in accordance with section numbers listed in Specification Table of Contents. Label each document "PROJECT RECORD" in neat, large, printed letters.

- D. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes.

- E. Keep record documents and samples available for inspection by ENGINEER.

1.03 RECORDING

- A. Record information on a clean set of drawings.
- B. Use separate colors for recording information for each major system.

- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
 - 1. Measured depths of elements of foundation.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 - 4. Field changes of dimensions and details.
 - 5. Changes made by modifications.
 - 6. Details not on original Contract Drawings.
 - 7. References to related shop drawings and modifications.
- E. Specifications: Legibly mark each item to record actual construction, including:
 - 1. Manufacturer, trade name and catalog number of each product actually installed, particularly optional items and substitute items.
 - 2. Changes made by addenda or modifications.
- F. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records, required by individual Specification sections.

1.04 SUBMITTALS

- A. At Contract closeout submit record documents and samples, as required in Section 01701, to ENGINEER for use in the preparation of Project Record Drawings. Transmit with cover letter listing:
 - 1. Date.
 - 2. Project title and number.
 - 3. CONTRACTOR'S name, address, and telephone number.
 - 4. Number and title of each Record Document.
 - 5. Signature of CONTRACTOR or authorized representative.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Preparing and submitting warranties and bonds.

1.02 FORM OF SUBMITTALS

- A. Bind in commercial quality 8-1/2 x 11 inch, three-ring binders, with hardback, cleanable, plastic covers.
- B. Label cover of each binder with typed or printed title "WARRANTIES AND BONDS," with title of Project and identifying warranties and bonds included in binder.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents. Provide full information, using separate typed sheets as necessary. List CONTRACTOR, subcontractor, supplies and manufacturer, with name, address, and telephone number of responsible principal for each party.

1.03 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers within ten (10) days after completion of the applicable item of work. Except for items put into use with OWNER'S permission, leave date of beginning of time of warranty open until the date of substantial completion is determined. All warranty coverage shall be extended directly to the benefit of the OWNER.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

1.04 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with OWNER'S permission, submit documents within ten (10) days after acceptance.
- B. Make other submittals within ten (10) days after date of substantial completion, prior to final application for payment.
- C. For items of Work when acceptance is delayed beyond date of substantial completion, submit within ten (10) days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

DIVISION 2

SECTION 02051	REMOVAL, CUTTING AND PATCHING
SECTION 02225	EXCAVATING, BACKFILLING, AND COMPACTING
SECTION 02270	SLOPE PROTECTION AND EROSION CONTROL
SECTION 02271	RIP-RAP
SECTION 02330	HIGH DENSITY SYNTHETIC MEMBRANE
SECTION 02410	SUBDRAINAGE SYSTEMS
SECTION 02509	ROADWAY PAVEMENT RECLAMATION
SECTION 02510	BITUMINOUS CONCRETE PAVING
SECTION 02550	PAVEMENT PAINT MARKINGS
SECTION 02720	STORM DRAINS
SECTION 02761	PIPELINE CLEANING
SECTION 02762	TV INSPECTION
SECTION 02766	STRUCTURAL LINING - CURE-IN-PLACE
SECTION 02931	RESTORATION OF GROWTH - CLASS A (LAWN)
SECTION 02990	MISCELLANEOUS WORK AND CLEANING UP

SECTION 02051

REMOVAL, CUTTING AND PATCHING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Removing, cutting, and patching as required for the following items and/or items shown on the Drawings:
 - 1. Coring concrete at manholes and catch basins.
- B. Cutting as shown or required by the Work.
- C. Patching as shown or required by the Work.

1.02 COORDINATION

- A. Coordinate work of trades and schedule elements of removal, alterations and renovation work using procedures and methods to expedite completion of the Work.

1.03 SUBMITTALS

- A. Submit demolition and removal procedures and schedule in accordance with Section 01340.
- B. Submit record documents in accordance with Section 01720.

1.04 EXISTING CONDITIONS

- A. Conduct work to minimize interference with adjacent building areas. Maintain protected egress and access at all times.
- B. Provide, erect, and maintain temporary barriers and security devices.

PART 2 PRODUCTS

2.01 REMOVED MATERIALS

- A. The CONTRACTOR shall remove all equipment, fixtures, machinery, materials, etc., necessary to accomplish the Work except those items noted or shown that the OWNER will remove. All equipment, fixtures, machinery, materials, etc., removed under this Section shall become the property of the CONTRACTOR.
- B. Materials which are called for to be reused shall be turned over to the trade whose work includes this particular material with designated materials turned over to the OWNER.

- C. Salvage other original materials as approved by the ENGINEER for incorporation in the Work. Remove all other materials from the site. Dispose of materials in accordance with federal, state, and local regulations.

2.02 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

- A. Provide same products or types of construction as that in existing structure, as needed to patch, extend, or match existing work. Generally, Contract Documents will not define products or standards of workmanship present in existing construction; CONTRACTOR shall determine products by inspection and any necessary testing, and workmanship by use of the existing as a sample of comparison.
- B. Presence of a product, finish, or type of construction, requires that patching, extending, or matching shall be performed as necessary to make Work complete and shall be not less than that specified for new work in the applicable Sections.

PART 3 EXECUTION

3.01 PREPARATION

- A. Take precautions to guard against movement or settlement of existing work; provide bracing or shoring necessary or proper in connection herewith; be responsible for safety and support of such work; be liable for any such movement or settlement and any damage or injury caused thereby or resulting therefrom.
- B. Protect buildings and their contents from damage due to weather at all times, providing all necessary temporary enclosures to accomplish this protection.

3.02 EXECUTION

- A. Assign the work of moving, removal, cutting and patching, to CONTRACTOR'S personnel qualified to perform the Work in a manner to cause least damage to each type of work, and provide means of returning surfaces to same appearance of new work.
- B. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.
- C. Replace or repair any damage. Repair damage done to OWNER'S or any other person or persons property on or off premises by reason of required Work.
- D. If at any time the safety of adjacent structures appears to be endangered, cease operations; notify the ENGINEER and take precautions to support such structure; do not resume operations until permission has been granted. Any and all supports necessary to safeguard or prevent such movement or settlement shall be installed prior to resuming operations. The CONTRACTOR shall assume full responsibility and expense for the adequacy of such supports.
- E. Openings in the existing building shall be made using such temporary partitions as are necessary to prevent dust or dirt being transmitted to existing areas. Maintain this protection until such time as no further contamination is possible.

- F. Do no work until ensuring that all mechanical piping and ducts and electrical conduit and wires that would be interrupted during the work are turned off, and locked out, valved out, or disconnected.
- G. Provide proper shoring and bracing to prevent settlement or damage to adjacent structures.
- H. Keep dust, dirt, and debris to a minimum.
- I. Relocate materials and equipment where possible so as to minimize damage.

3.03 DEBRIS

- A. All debris resulting from removal work shall be removed as it accumulates and shall not be stored or permitted to accumulate on site. Remove all debris at the end of each working day.
- B. Burning of debris will not be permitted.

3.04 PATCHING

- A. Patch and extend existing work using skilled tradesmen who are capable of matching existing quality of workmanship. Quality of patched or extended work shall be not less than that specified for new work in the applicable sections.
- B. Where partitions are removed, patch floors, walls, and ceilings, with finish materials to match existing.
 - 1. Where removal of partitions results in adjacent spaces becoming continuous, rework floors, walls and ceilings to provide smooth planes without breaks, steps, or bulkheads.
 - 2. Where extreme change of plane of two inches or more occurs, request instructions from ENGINEER.
 - 3. Trim and refinish existing doors as necessary to clear new floors.
- C. Patch and replace any portion of an existing finished surface which is found to be damaged, lifted, discolored, or shows other imperfections, with matching material.
 - 1. Provide adequate support of substrate prior to patching the finish.
 - 2. Refinish patched portions of painted or coated surfaces that will produce compatible uniform color and texture over entire surface.
 - 3. When existing surface finish cannot be matched, refinish entire surface to nearest intersection.
- D. When new work abuts or finishes flush with existing work, make a smooth and workmanlike transition. Patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.
- E. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface.

END OF SECTION

SECTION 02225

EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Excavating topsoil and stockpiling topsoil for later use.
- B. Saw cutting pavement and excavating pavement.
- C. Excavating subsoil and stockpiling subsoil for later use.
- D. Excavating unsuitable material.
- E. Excavating ledge, boulders, solid rubble masonry and Portland Cement concrete that is less than two cubic yard in volume.
- F. Replacing ledge and boulder excavation and excavated unsuitable material with select fill material or common fill material.
- G. Placing select fill materials below utilities, tankage, and concrete structures.
- H. Backfilling excavations with common fill materials.
- I. Placing common fill materials for bringing site to subgrade.
- J. Complying with compaction requirements.
- K. Removing and disposal of excess topsoil and subsoil, excavated unsuitable material, and excavated pavement, rock, boulders, solid rubble masonry and Portland Cement concrete off site.
- L. Grading and rough contouring the site to the cut limits required for construction.
- M. Removing unsuitable material from excavated material and making the excavated material suitable for reuse.

1.02 REFERENCE STANDARDS

- A. ASTM C33 - Concrete Aggregates.
- B. ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.
- C. ASTM D75 - Sampling Aggregates.
- D. ASTM D1557 - Tests for Moisture - Density Relations of Soils and Soil- Aggregate Mixtures, Using 10-lb Rammer and 18-inch Drop: (Modified Proctor).
- E. ASTM D2922 - Tests for Density of Soil and Soil-Aggregate in Place by Nuclear Methods.
- F. State of New Hampshire Department of Transportation (NHDOT) Standard Specifications for Road and Bridge Construction (latest edition).

1.03 SAMPLES

- A. Submit Samples in accordance with Section 01340. Samples shall be obtained in accordance with ASTM D75.
- B. Submit in air-tight containers, 25-lb sample of each type of material to be tested, to ENGINEER.

1.04 TESTING

- A. Tests and analysis of fill materials will be performed in accordance with Section 01410 and the methods in ASTM C136.
- B. The CONTRACTOR shall reimburse the OWNER for the costs of failed tests.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record location of utilities remaining, rerouted utilities, and new utilities by horizontal dimensions, elevations or inverts, and slope gradient.
- B. Provide records of utility locations to ENGINEER prior to Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS – GENERAL

- A. Topsoil: Screened, friable, fertile, natural, free-draining loam typical of the locality; free of subsoil, roots, grass, sticks, weeds, clay, sod lumps, debris, and stones larger than one (1) inch in maximum dimension. Soil shall not be excessively acid or alkaline, nor contain toxic material harmful to plant growth and shall have a minimum of 5% organics.
- B. Unsuitable Material: Cut or broken pavement, debris, concrete or other rubble, organic materials; muck, peat, silty soils or clayey soils; rock over six (6) inches in maximum dimension; or any material which in the opinion of the ENGINEER will not provide sufficient support or maintain the completed construction in a stable condition.

2.02 COMMON FILL MATERIALS

- A. Subsoil (suitable for reuse): Material excavated on site which is friable, natural soil composed of gravel, sand, or silty or clayey gravel and sand; free from debris, concrete or other rubble, organic matter, muck, peat, excavated rock and boulders over 6 inches in maximum dimension.
- B. Additional Fill: Imported material which is friable, natural soil composed of gravel, sand, or silty or clayey gravel and sand; free from debris, concrete or other rubble, organic matter, muck, peat, excavated rock and boulders over 6 inches in maximum dimension.

2.03 SELECT FILL MATERIALS

- A. Bank Run Gravel: Material excavated from a suitable gravel bank and consisting of stones, rock fragments and fine durable particles resulting from natural disintegration of rock; meeting the following limits, as noted in NHDOT standard specification Section 304, when tested in accordance with ASTM C136:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
(Maximum Size - 6 inches)	
3-1/2 inch	95 - 100
No. 4	25 - 70
No. 200 (based on the fraction passing the No. 4 sieve)	0 - 12

- B. Sand: Clean mineral aggregate with the following particle size limits when tested in accordance with ASTM C136:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
No. 4	100
No. 100	0 - 30
No. 200	0 - 12

- C. Crushed Gravel: Clean, hard crushed gravel; free from silt, topsoil, clay, and organic matter; uniformly graded from coarse to fine within the following limits, as noted in NHDOT standard specification Section 304, when tested in accordance with ASTM C136:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
3 inch	100
2 inch	95 - 100
1 inch	55 - 85
No. 4	27 - 52
No. 200	0 - 12

- D. Recycled Asphalt Product (RAP): Imported asphalt materials as noted in NHDOT standard specification Section 306.

- E. Crushed Stone: Clean mineral aggregate meeting the following limits when tested in accordance with ASTM C136:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
¾ inch	100
No. 4	0 - 30

- F. Stone for Stone Fill: Hard, blasted angular rock other than serpentine rock containing the fibrous variety chrysotile (asbestos); reasonably well graded from smallest to maximum size stone so as to form a compact mass when in place: note NHDOT standard specification Section 585.

1. Class A - Approximately 50 percent of the mass having a minimum volume of 12 cubic feet, approximately 30 percent of the mass ranging from 12 and 3 cubic feet, approximately 10 percent of the mass ranging from 3 and 1 cubic feet, and the remainder of the mass composed of spalls.
2. Class B - Approximately 50 percent of the mass having a minimum volume of 3 cubic feet, approximately 40 percent of the mass ranging from 1 and 3 cubic feet, and the remainder of the mass composed of spalls.
3. Class C - Shall conform to the following gradation:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
12 inch	100
4 inch	50 - 90
1-1/2 inch	0 - 30
¾ inch	0 - 10

4. Class D - Shall conform to the following gradation:

<u>Sieve Designation</u>	Percentage by Weight Passing Square Mesh Sieve <u>TOTAL SAMPLE</u>
2 inch	100
1-1/2 inch	95 - 100
¾ inch	35 - 70
3/5 inch	10 - 30
No. 4	0 - 5

2.04 FILTER FABRIC

- A. Filter fabric shall be Mirafi 140N. Substitution of a product equal or better quality, detail, function, and performance may be proposed for substitution by following the procedures in Section 01630 - Product Option and Substitution

PART 3 EXECUTION

3.01 PREPARATION

- A. Request available information on existing utilities and structures from ENGINEER.
- B. Identify required lines, levels, contours, and datum.
- C. Identify known underground utilities. Stake and flag locations.
- D. Identify and flag surface and aerial utilities.
- E. Notify utility companies to locate and temporarily support, remove, and/or relocate utilities.
- F. Notify DIG-SAFE (1-800-225-4977) or 811

3.02 PROTECTION

- A. Protect trees, shrubs, lawns, and other features remaining as a portion of final landscaping.
- B. Protect benchmarks, existing structures, fences, stone walls, sidewalks, paving, and curbs from equipment and vehicular traffic.
- C. Protect above and below grade utilities and structures which are to remain.
- D. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation in accordance with Section 02160.
- E. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- F. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

3.03 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, landscaped, or graded, and stockpile. Remove excess topsoil not being reused from site. Topsoil suitable for reuse shall be in conformance with paragraph 2.01 A. Stockpiled topsoil shall be protected from erosion.

3.04 PAVEMENT EXCAVATION

- A. All pavements shall be cut with saws or acceptable power tools prior to removal.
- B. Excavate pavement within the limits shown on the Drawings.

- C. Keep excavated pavement separate from topsoil and subsoil stockpiles.
- D. Remove and dispose of pavement excavated from site.

3.05 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be landscaped or graded to the limits shown on the Drawings.
- B. Excavate subsoil required for structures, utilities or yard piping and other work to the limits necessary or as shown on the Drawings.
- C. Stockpile excavated material to be reused and remove and dispose of unsuitable subsoil and excess subsoil not being reused, off site. Subsoil suitable for reuse shall be in conformance with paragraph 2.02
 - A. Stockpiled subsoil shall be protected from erosion.
- D. Remove all muck, peat, and other unsuitable material within trench limits or where structures are to be located. If unsuitable material exists at limits of excavation shown on Drawings, obtain excavation authorization from ENGINEER prior to removal of material. Unauthorized excavation of unsuitable material will not be considered for payment. Excavated unsuitable material shall be replaced with backfill material as specified.
- E. Notify ENGINEER of unexpected subsurface conditions, discovery of unknown utilities or concealed conditions, and discontinue affected work in area until notified to resume work. Unexpected subsurface conditions do not include those conditions identified in the Contract Documents.
- F. Slope sides of excavation to satisfy OSHA requirements or install excavation support systems in accordance with Section 02160.
- G. Excavations shall not interfere with normal 45 degree bearing influence of any foundation.
- H. Grade top perimeter of excavations to prevent surface water run-off into excavation.
- I. When excavation through roots is necessary, cleanly cut roots.
- J. Correct unauthorized excavation at no cost to OWNER. Backfill with material acceptable to the ENGINEER.
- K. Maintain bottom of all excavations stable, dry, and free of water on a continual basis in accordance with Section 02140 - Dewatering.
- L. Remove boulders greater than six (6) inches in maximum dimension from sub-soil. Remove boulders greater than six (6) inches in maximum dimension but less than two (2) cubic yards shall not be eligible for payment as either unsuitable material or boulder excavation but shall be considered incidental to the excavation work.

3.06 BACKFILLING PREPARATION

- A. Brace walls and slabs of structures to support surcharge forces and construction loads to be imposed by backfilling operations.

- B. Remove all water, snow, ice and debris from excavations and trenches before placing pipe bedding, foundation material under tankage or concrete structures or backfilling.
- C. Compact subgrade surfaces disturbed by construction operations to density requirements for backfill material. Do not place bedding, foundation material or backfill on porous, unstable, or unsuitable subgrade.

3.07 BEDDING AND BACKFILLING

- A. Bedding and backfilling materials shall not contain frozen materials, ice or snow.
- B. Backfill with crushed gravel areas beneath pipe from which rock, boulders, or unsuitable bearing material has been removed.
- C. Install pipe on shaped, undisturbed subgrade or on bedding material in accordance with paragraph 3.12 SCHEDULE OF BEDDING, BACKFILL AND COMPACTION.
- D. Support pipe during placement and compaction of bedding material.
- E. Filter fabric shall be placed to completely enclose crushed stone used for bedding material or for replacement material where rock, boulders or unsuitable material have been removed in pipe trenches unless authorized otherwise by ENGINEER. Under structures, where crushed stone is used, the filter fabric shall enclose the material on the sides and bottom, and on top, extend 2 feet under all edges of the proposed structure.
- F. Place and compact bedding for utilities and yard piping in accordance with the specifications and typical trench details shown on the Drawings.
- G. Backfill excavations and trenches to depths, contours and elevations required.
- H. Each layer of backfill shall be compacted to the specified density the same day it is placed.
- I. Maintain optimum moisture content of backfill materials to attain required compaction density.
- J. Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content for compacting to the required density. If the fill material cannot be dried within 48 hours of placement, it shall be removed and replaced with drier fill at the CONTRACTOR'S expense. This applies to both subsoil (suitable for reuse) and all imported select and/or common fills.
- K. Fill that is too dry for proper compaction shall be watered uniformly over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.
- L. Employ placement and compaction methods that will not disturb or damage Work or existing structures or utilities. Disturbed or damaged Work, structures or utilities shall be repaired at no additional cost to the OWNER and at no additional time for performance.
- M. Do not backfill against unsupported foundation walls or before required concrete strength has been achieved. Backfill simultaneously on each side of unsupported foundation walls.

- N. Backfilling shall be performed as required to avoid interference with OWNER'S operations and/or other contractor's or subcontractor's Work.
- O. Grade backfill to provide a smooth surface which will readily shed water and provide positive drainage. Areas to receive compacted fill shall be graded to prevent ponding of surface water runoff.

3.08 BACKFILLING TOLERANCES

- A. Top Surface of Backfilling or Subgrade: Plus or minus one inch.

3.09 COMPACTION

- A. The maximum density at optimum moisture content for bedding and backfill materials shall be determined in accordance with ASTM D1557 (Modified Proctor).
- B. All bedding and backfill materials shall be compacted to the density shown in paragraph 3.12 SCHEDULE OF BEDDING, BACKFILL AND COMPACTION.
- C. Testing density of soil in place (compaction) will be performed in accordance with ASTM D1556, ASTM D2167, or ASTM D2922. If tests indicate compacted bedding and/or backfill does not meet specified requirements, remove, replace, and retest at no additional cost to OWNER and at no additional time for performance.

3.10 GRADING

- A. Grading Areas to be Loamed and Seeded:

1. Perform all rough grading required to attain the elevations indicated on the Drawings or as required.
2. Grade to elevations shown on the Drawings or as required for landscaping. Remove all material, including rock and boulders to a point at least 4 inches below the finished grade of landscaped areas to be loamed and seeded.
3. Remove all ruts and other uneven surfaces by surface grading.

- B. Grading Areas to be Paved or Surfaced:

1. Perform all rough grading, including shaping, sloping, and any work necessary to prepare the subgrades of all roadways, walks and parking areas. Subgrade shall be brought to the bottom elevation of the base course under paved or surfaced areas.
2. Accomplish all grading within the slope and grade lines as indicated on the Drawings or as necessary to accomplish the Work, unless otherwise authorized in writing by the ENGINEER. The roadway shall be graded to full cross section width at subgrade before placing any type of subbase or pavement except that partial width construction may be permissible where necessary for the maintenance of traffic.

- C. Slope grade away from structure minimum 2 inches in 10 feet, unless noted otherwise.

- D. Make gradual changes in grade. Slopes shall transition gradually into level areas.
- E. Grade all areas completely and remove and dispose of all excess excavated, bedding and backfill materials from site.
- F. Backfill to original grade or as indicated herein or on the Drawings. Deviations and settlement shall be corrected at no cost to the OWNER and at no additional time for performance.

3.11 FIELD QUALITY CONTROL

- A. All subgrades must be inspected and accepted by the ENGINEER prior to proceeding with Work. Sufficient time must be allowed for the ENGINEER to observe and to have any necessary tests performed on the subgrade.

3.12 SCHEDULE OF BEDDING, BACKFILL AND COMPACTION

- A. The following schedule identifies location; bedding and/or backfill materials to be used (identified from upper to lower fill type); loose thicknesses of each fill lift; and, compaction expressed as a percentage of maximum density and optimum moisture determined in accordance with ASTM D1557 (Modified Proctor).

<u>LOCATION</u>	<u>MATERIAL/THICKNESS</u>	<u>LIFTS (LOOSE)/COMPACTION</u>
SUBGRADE		
Disturbed, excavated subgrade	Natural subgrade/existing.	Existing 95 percent or equal to average density of undisturbed subgrade material
BACKFILL		
Beneath structures	Crushed Stone /6 inches min.	12-inch lifts
Beneath structures from which rock, boulders or unsuitable material have been removed	Crushed Stone/12 inches min. top of structural fill to underside of structure	12-inch lifts/s
	Structural Fill/as req'd to 12 inches below structure	12-inch lifts/s 95 percent
Slabs-on-grade	Crushed Gravel/8 inches min. on natural subgrade or structural fill	8-inch min./ 95 percent
	Structural Fill/as req'd	12-inch lifts/ 95 percent
Around structures	Common Fill/as req'd	12-inch lifts to top of fill/ 95 percent

<u>LOCATION</u>	<u>MATERIAL/THICKNESS</u>	<u>LIFTS (LOOSE)/COMPACTION</u>
Underground tanks (fuel)	Common Fill/top of Structural Fill to top of fill <hr/> Structural Fill/to 2 feet above tank top	12-inch lifts/ 95 percent
Under grassed areas	Common Fill/from subgrade or 12 inches above pipe to 4 inches below finished grade	15-inch lifts/ 90 percent
Under landscaped areas	Common Fill/from subgrade to 12 inches above pipe to 12 inches below finished grade	15-inch lifts/ 90 percent
Under paved areas	Common Fill/from subgrade or 12 inches above pipe to under-side of subbase for paved areas	6-inch lifts/ 95 percent
PIPE BLANKET		
RCP storm drain	Crushed Gravel/from springline of pipe to 12 inches above pipe	6-inch lifts 95 percent
PIPE BEDDING		
RCP storm drain	Crushed Gravel/6 inches min. below pipe to springline of pipe	Existing/ 95 percent or equal to average density of undisturbed material
All pipe in area of rock excavation	Crushed Gravel/6 inches min. below pipe to springline of pipe	6-inch lifts/ 95 percent
All pipe in area of unsuitable material excavation	Crushed Gravel/as required, 6-inches min. from excavation limits below pipe to springline of pipe	6-inch lifts/ 95 percent
SUBBASE		
Bituminous pavement subbase	12 inches Bank-run gravel, 6 in. crushed gravel	6-inch lifts/ 95 percent

END OF SECTION

SECTION 02270

SLOPE PROTECTION AND EROSION CONTROL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Planning and executing measures to prevent and control soil erosion.
- B. Furnishing, installing, and maintaining erosion control materials.

1.02 REFERENCE STANDARDS

- A. Soil Conservation Service (SCS) Manual for New Hampshire Sediment and Erosion Control.

1.03 SUBMITTALS

- A. Submit plans and details showing specific slope protection and erosion control measures to be taken for each phase of the construction. Plans and details shall conform to the Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites.

1.04 PROJECT CONDITIONS

- A. Schedule temporary seeding, mulching and other erosion control measures to take place as soon as possible.
- B. When temporary seeding cannot be accomplished to have established or visible growth by October 15, the disturbed areas shall be covered with 6 inches of mulch for the winter.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Hay Bales: Securely tied baled hay at least 14 inches by 18 inches by 30 inches long.
- B. Mulch Material: Select mulch material for erosion control that will best meet the site conditions from the following:
 - 1. Hay or Straw - Shall be dry, free of mold and weed seeds.
 - 2. Wood Chips - Shall be dry, free of soil and other foreign material.
- C. Mulch Anchoring: When mulch must be held in place, one of the following mulch anchoring materials shall be used:
 - 1. Mulch Netting (paper, twine, plastic, or plastic and wood fiber).
- D. Fertilizer: Complete fertilizer 10-20-20 (standard product).

- E. Lime: Ground limestone containing not less than 95% total carbonates (calcium or magnesium).
- F. Temporary Seed Mixture: When it is impractical to establish permanent protective vegetation on disturbed earth by October 15, use "Conservation Mix" or the following seed mixture:

<u>Kind of Seed</u>	<u>Lbs. per Acre</u>
Switchgrass (Blackwell or Shelter)	4.0
Big bluestem (Niagara or Kaw)	4.0
Little bluestem (Camper or Blaze)	2.0
Sand lovegrass (NE-27 or Blaze)	1.5
Birdsfoot trefoil (Viking)	2.0

- G. Inoculum specific to Birdsfoot trefoil must be used with this mixture. If seeding by hand, a sticking agent such as milk or cola shall be used to stick inoculum to the seed. If seeding with hydroseeder, use four (4) times the recommended amount of inoculum.
- H. Permanent Seed Mixture: See Section 02931.

PART 3 EXECUTION

3.01 GENERAL CONSTRUCTION SEQUENCE TO MINIMIZE EROSION

- A. Erect hay bale dikes and/or silt fences as shown on Drawings and as may be required in the field to protect property, waterways, wells and springs.
- B. Commence excavation. Stockpile soil so that erosion is minimized. Extra precautions shall be taken when soil is saturated.
- C. Control surface water and erosion in accordance with Section 01560 -Temporary Controls.
- D. Dewater trench in accordance with Section 02140 - Dewatering. Filter discharge using hay bales, silt fence, settling basin or natural vegetated buffer as site conditions require and as approved by the ENGINEER.
- E. Backfill excavation to grade. Grade site so that soil erosion caused by runoff will be minimized.
- F. Seed and mulch exposed ground.

3.02 SEEDING AND MULCHING

- A. All areas which will remain open shall be seeded and mulched within five (5) days of being stripped or backfilled and graded.
- B. Soil samples may be sent to the County Extension Service for analysis to determine the proper seed mixture and fertilizer requirements.
- C. The following procedures shall be followed for temporary seeding:

1. Apply lime at a rate of 75 to 100 pounds per 1,000 square feet. Incorporate into top two inches of soil.
2. Apply fertilizer at a rate of 30 pounds per 1,000 square feet. Mix thoroughly into the top two inches of soil.
3. Apply seed mixture at a rate of two pounds per 1,000 square feet evenly in two intersecting directions. Rake lightly.
4. Apply mulch material within 24 hours after seeding in accordance with the following:
 - a. Hay or Straw: Application rate - 75 to 100 pounds per 1,000 square feet. Spread by hand or with machine. Anchor on slopes and where subject to blowing or slipping.
 - b. Wood Chips: Application rate - two to six inches deep. Use for tree and shrub planting.
5. Anchor mulch on all slopes exceeding 5% and other areas as required using one of the following methods:
 - a. Mulch Netting: Spread over loose mulch and pin to the soil in accordance with the manufacturer's instructions.

3.03 STREAM CROSSINGS AND CULVERT INSTALLATION

- A. Install stream crossings and culverts during a period of low flows. The stream shall be diverted or another means employed to insure that the work does not take place in the water. Measures shall be taken to prevent siltation of the stream.

3.04 HAY BALE DIKES

- A. Embed hay bales into soil and anchor in place with stakes as shown on the Drawings. Butt hay bales together tightly.
- B. Hay bales shall be replaced when they become clogged with soil particles or as directed by the ENGINEER.

3.05 DAMAGE AND REPAIR

- A. Repair all damages caused by soil erosion or construction equipment at or before the end of each working day.

END OF SECTION

SECTION 02330

HIGH DENSITY SYNTHETIC MEMBRANE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. These specifications describe the manufacture, supply and installation of polyethylene lining membrane. All procedures, operations and methods shall be in strict accordance with specifications, plans and engineering drawings.
- B. Proposed alterations shall be submitted to the OWNER or his Representative for approval.
- C. The liner shall be installed to the grades, configurations and limits shown on the plans.

1.02 QUALITY ASSURANCE

- A. Codes and standards: Perform all work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Manufacturer: The Manufacturer and/or Fabricator of the geomembrane sheet must be approved by the OWNER and have satisfactory experience in extruding or fabricating high density polyethylene (HDPE) materials and a reputation for producing a high-quality product.
- C. Installer
 - 1. Experience: The installer must have either:
 - a. At least five (5) years continuous experience in the installation of HDPE geomembrane.
 - b. Experience totaling 100,000 sf of installed HDPE geomembrane.
 - c. At least ten (10) successfully completed projects.
 - 2. Installation shall be performed under the direction of a single installation supervisor.
 - a. Supervisor shall be on site and in responsible charge throughout the liner installation, including subgrade acceptance, liner layout, seaming, testing and repairs, and all other activities contracted for with the Installer.
 - b. The installation supervisor shall have supervised the installation of at least 100,000 sf. of polyethylene geomembrane.
 - 3. The Installer shall be approved by the Manufacturer.

1.03 SUBMITTALS

- A. Prior to delivery of the geomembrane to the job site, the Installer shall submit the following to the ENGINEER for approval.
 - 1. Written certification that the product delivered was extruded from the specified resin.
 - 2. Quality control certificates shall be signed by responsible parties employed by the Manufacturer.
 - 3. No geomembrane will be permitted to be delivered until the OWNER has in his possession such certification.
 - 4. Shop Drawings showing the following:
 - a. Proposed layout of the HDPE membrane system.
 - b. Details of jointing the HDPE membrane, anchoring, penetrations, repair, method of sealing to other structures, and other construction details.
 - 5. Certificates of compliance with the requirements of standards specified herein for the HDPE membrane and its installation.
 - 6. Installation and erection data and schedule.
 - 7. Manufacturer's standard guarantee.
- B. Roll Identification
 - 1. Each roll shall have permanently affixed the following information:
 - a. Name of manufacturer
 - b. Date of manufacture
 - c. Thickness of the material

1.04 MATERIAL WARRANTY

- A. The HDPE membrane manufacturer shall warrant the membrane against manufacturing defects and material degradation in the outdoor exposure for a period of one (1) year from the date of installation. The manufacturer shall replace at no expense to the OWNER any material which fails from the above causes within the warranty period. The manufacturer shall furnish the OWNER with a written warranty covering the requirements of this paragraph.

1.05 GUARANTEE

- A. The CONTRACTOR shall guarantee the HDPE membrane against defects in installation and workmanship for the period of one (1) year commencing with the date of final acceptance. The guarantee shall include the services of qualified service technicians and all materials required for the repairs at no expense to the OWNER.

PART 2 PRODUCTS

2.01 MATERIALS

A. Properties

1. The geomembrane shall be manufactured from new, first quality polyethylene resin of the type specified in this document.
2. Polyethylene geomembrane shall meet all requirements for the specified end use.
3. Reclaimed polymer shall not be added to the resin except the polymer recycled during the manufacturing process. Recycled polymer shall not exceed two percent (2%) by weight.

B. The sheet geomembrane shall demonstrate the following typical properties:

PROPERTY	TEST	VALUE
Carbon Black		
Content:	ASTM D1603	2-3% by weight
Dispersion:	ASTM D3015	A-1
Density	ASTM D1238 Condition E	> .94 g/cc
Dimensional Stability (each direction)	ASTM D1204 (212 Deg. F 15 minutes)	< 3%
Environmental Stress Crack Resistance	ASTM D1693 as modified in NSF*** Appendix A	> 2000 hours
Tensile Strength		
Yield:	ASTM D1505	2400 psi
Break	ASTM D638*	3800 psi
Elongation		
Yield:	ASTM D638*	10%
Break:	ASTM D638*	750%
Low Temp. Brittleness	ASTM D746	-70 degrees F.
Melt Index	ASTM D1238 Condition E	< 1.1 g/10 min.
Modulus of Elasticity	ASTM D638	> 80,000 psi
Puncture Resistance	FTMS** 101 B/2065	See Table A
Resistance to Soil burial (max. change)	ASTM D3083 as modified in NSF*** Appendix A	< 10%
Tear Resistance	ASTM D1004 Die C	See Table A
Coeff. of Linear Thermal Expansion	ASTM D696	1.2 x 10 ⁻⁴ / °C.
Thickness	ASTM D374	+ 10%
Water Absorption	ASTM D570	.1% per 4 Days

TABLE A

Tear Resistance

<u>Thickness</u>	<u>lbs</u>
.020	30
.030	45
.040	60
.060	90
.080	120 ***
.100	150

Puncture Resistance

<u>Thickness</u>	<u>lbs</u>
.020	100
.030	150
.040	200
.060	300
.080	400**
.100	500

* Jaw speed 2"/min., type IV die.

** Federal Test Methods Standards

*** National Sanitation Foundation, Standard #54

- C. The geomembrane shall be produced as to be free of holes, blisters, undispersed raw materials, or any sign of contamination by foreign matter, and shall not have striations, roughness, pinholes or bubbles on the surface.
- D. Transportation. Transportation shall be the responsibility of the Manufacturer unless otherwise specified in the contract. Any damaged or unacceptable material shall be replaced at no cost to the OWNER.
- E. Storage
 - 1. Storage of the geomembrane shall be the responsibility of the Installer.
 - 2. Geomembrane shall be stored to avoid deformation of rolled goods or contamination from foreign substances.
 - a. Appropriate handling equipment shall be used when moving rolled goods from one place to another.
 - b. Any damage caused by the Installer shall be repaired at no expense to the OWNER.
- F. The lining materials shall be manufactured a minimum of twenty-two and a half (22.5) feet seamless extruded width. Labels on the roll shall identify the thickness, length, width and manufacturer's mark number.

- G. Other materials: All welding material shall be of a type recommended and supplied by the Manufacturer and shall be delivered in the original sealed containers each with an indelible label bearing the brand name, manufacturer's mark number and complete directions as to proper storage.

PART 3 EXECUTION

3.01 Subgrade Preparation

- A. Preparation of subbase shall comply with specification Section 02220 - Excavation and Backfill.
- B. The Installer shall certify in writing that the surface to be lined is acceptable.
- C. Submittal of written acceptance may proceed incrementally according to installation schedule.
- D. No geomembrane shall be placed on subgrade deemed unsuitable by the Installer.
- E. All submittals required under Section 1.03 shall have been previously submitted to the ENGINEER.
- F. The anchor trench shall be constructed as shown on an approved Shop Drawing.
- G. The earth subgrade shall be approved by the ENGINEER prior to installation of the HDPE membrane. The subgrade shall be maintained in a smooth, uniform and compacted condition during installation of the HDPE membrane.
- H. All areas of the synthetic membrane damaged during installation as determined by the ENGINEER shall be repaired by the CONTRACTOR as specified herein and at no additional expense to the OWNER.

3.02 INSTALLATION

- A. The HDPE membrane material shall be cleaned of all debris and materials which may negatively affect the performance of the system.
- B. The HDPE membrane shall be installed by crews experienced in making lining installation.
- C. The liner Installer shall be solely responsible for ensuring the liner is placed with sufficient material to accommodate thermal contraction under temperature conditions which range from one hundred degrees Fahrenheit (100oF) to minus thirty degrees Fahrenheit (30oF) with the liner fully exposed to the environment.

3.03 SEAMING METHODS

- A. Approved process for seaming is fusion welding for all seams.
 - 1. Extrusion welding may be allowed as approved by the ENGINEER.
- B. Extrusion Process: A seam produced by extruding molten resin between or at the edge of two (2) overlapped sheets of geomembrane to effect a homogeneous bond.
 - 1. The extrusion apparatus shall be equipped with gauges to monitor extrudate temperature.

2. Temperature and flow rate shall be varied according to ambient conditions to maintain and demonstrate a consistent acceptable weld, as described in section 4.02.B.
3. The extruder shall be purged of all heat degraded or cooled extrudate prior to the commencement of each seaming sequence.
4. The extrudate rod shall be certified by the Manufacturer to be made of the same resin as the parent membrane, and certification supplied as in section 1.03, Submittals.
5. The weld area shall be prepared by sanding or grinding to a depth of less than .005 in. in the sheet surface to be in contact with the extrudate.
6. The weld area shall be kept clean and dry.

3.04 SEAMING PROCEDURES

- A. Where conditions warrant, the Installer may use a temporary support surface between the geomembrane and the subgrade to achieve proper support. The ENGINEER shall direct the deposition of the support material on completion of seaming.
- B. Seaming shall be a continuous process with a minimum of interruption along any given seam.
- C. Prior to seaming, the geomembrane shall be overlapped a minimum of four (4) to six (6) inches for fusion welding. Procedures used to temporarily position or bond the rolls shall not result in damage to the geomembrane.
- D. Seams shall be aligned so as to create a smooth and wrinkle free surface in the overlap area.
- E. Extrusion Welding.
 1. Grinding required along a seam shall be done within one hour of the seaming operation and shall not damage the geomembrane, as in section 3.0.2.
 2. Installer shall determine when preheating is required and whether wind affects may be deleterious to extrusion seaming operations.
 3. Artificially induced cooling of extrudate welds, by water or any other means, shall not be allowed. Care shall be taken during vacuum testing that extruded welds being vacuum tested are at ambient temperature.
- F. Cross Seams: the top and bottom excess overlap shall be removed and the top and bottom edge of the cross seam shall be ground to a smooth transition prior to seaming.
- G. No seaming shall be attempted in wet weather where the geomembrane is exposed to the elements.
- H. Where possible, seam overlaps shall be shingled to shed rather than catch prevailing winds.
- I. Where possible, low areas shall be patched, tested and inspected first.

- J. All patches shall have rounded corners, shall consist of the approved geomembrane material and shall extend beyond the edge of any defect a minimum of four (4) inches in all directions.

PART 4 COMPLETION OF WORK

4.01 REQUIREMENTS.

- A. All required deployment, seaming, repairs, and site clean-up shall be completed by the Installer.
- B. The OWNER is satisfied that the geomembrane has been installed in accordance with the above Specifications.
- C. Installer shall dispose of all trash, waste, material and equipment used in connection with the work and shall leave the premises in an acceptable condition.

END OF SECTION

SECTION 02509

ROADWAY PAVEMENT RECLAMATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Portions of this section have been taken from the State of New Hampshire's Department of Public Works and Highway's "Standard Specification for Road and Bridge Construction" (Section 306-Reconditioning).
- B. This work shall consist of scarifying and pulverizing existing bituminous pavement and gravel base to a minimum depth of fourteen (14) inches and constructing a stabilized base course as shown on the plans. Additional gravel subbase may be necessary to achieve final roadway design width and grade.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The materials shall consist of the existing bituminous surface and equal amounts of gravel base, consisting of a portion of the underlying base aggregate or added gravel, or both.
- B. The use of underlying base aggregate shall be minimized. No more than eleven (11) inches of underlying base aggregate shall be disturbed. The minimum thickness of the scarified pavement/gravel shall be eleven (11) inches, as indicated on the Contract Drawings.
- C. A gravel subbase material shall be added to roadway areas to extend the design width as required and in other existing roadway areas where unsuitable material is excavated and removed.
- D. Crushed gravel base course material that is to be mixed into existing scarified pavement and base course shall be as specified in SECTION 02225 EXCAVATING, BACKFILLING, AND COMPACTING.
- E. Gravel base material shall be as specified in SECTION 02225 EXCAVATING, BACKFILLING, AND COMPACTING.

PART 3 EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

- A. The existing pavement shall be broken by scarifying with conventional equipment such as a grader-mounted or bulldozer-mounted ripping or scarifying device.
- B. After the existing pavement has been broken up, the specified depth of pavement and base shall be windrowed and further processed in the windrow, using a traveling hammer mill or other approved pulverizing equipment until all the material is reduced to the size specified in the SECTION 02225 - EXCAVATING, BACKFILLING, AND COMPACTING - Gravel Base Course, of this specification.

Unless otherwise shown or ordered, the maximum size aggregate shall be that which will pass a two (2) inch sieve. Materials shall be blended together until all materials are uniformly distributed throughout the combined windrow.

The method of simultaneously crushing the asphalt and base course material into a homogeneous mass shall be such to ensure that the entire mass of material is worked to achieve a uniform grade to the gradation specifications of SECTION 02225.

- C. Prior to placing the windrowed material, the road bed shall be graded to the cross section as shown on the plans. Grading existing base aggregate shall be limited to a depth of four (4) inches. If the existing roadbed is disturbed or if additional gravel is added, the roadbed shall be compacted in accordance with the compaction section of this specification.
- D. The windrowed material shall then be bladed onto the prepared underlying base material, compacted, and graded as specified. The CONTRACTOR shall place grade stakes every fifty (50) feet minimally. Spreading and compaction shall be done in accordance with the applicable sections of this specification.
- E. The finished surface shall be inspected for smoothness and accuracy of grade and, if any portions are found to lack required smoothness or accuracy, such portion shall be rescarified, reshaped, recompacted, and otherwise manipulated as directed.
- F. Water shall be applied during the entire operation to ensure optimum moisture content at time of compaction.
- G. The restored cross-section shall be thoroughly compacted to a dense consolidated mass at a minimum ninety-five percent (95%) modified proctor. The CONTRACTOR, as soon as practical, shall prepare a test section of sufficient area to enable the ENGINEER to conduct the necessary tests.

END OF SECTION

SECTION 02510

BITUMINOUS CONCRETE PAVING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Bituminous concrete paving and associated preparatory work.
- B. Gravel subbase.
- C. Final grading of subbase.
- D. Installation of subbase, binder course and wearing course.

1.02 REFERENCE STANDARDS

- A. ASTM D1556 - Test for Density of Soil in Place by the Sand Cone Method.
- B. ASTM D1557 - Tests for Moisture - Density Relations of Soils and Soil - Aggregate Mixtures, Using 10-lb Rammer and 18-Inch Drop; Modified Proctor.
- C. ASTM D2167 - Tests for Density of Soil in Place by the Rubber-Balloon Method.
- D. ASTM D2922 - Tests for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- E. State of New Hampshire Department of Transportation (NHDOT) Standard Specifications for Road and Bridge Construction (latest edition).

1.03 SUBMITTALS

- A. Submit job mix data as required by NHDOT Standard Specification Division 300 and Division 400 and in accordance with Section 01340 - Shop Drawings, Product Data, and Samples.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Bankrun Gravel and Crushed Gravel: See SECTION 02225 - EXCAVATING, BACKFILLING, AND COMPACTING.
- B. Bituminous binder course shall be Type B (3/4 inch) per NHDOT Specification Section 401; Sub-Section 2 - Materials.
- C. Bituminous wearing course shall be Type E (1/2 inch) per NHDOT Specification Section 401; Sub-Section 2 - Materials.
- D. Temporary Bituminous Trench Pavement shall be Type B (3/4 inch) per NHDOT Specification Section 401; Sub-Section 2 - Materials.

- E. Bituminous Overlay shall be Type E (1/2 inch) per NHDOT Specification Section 401; Sub-Section 2 - Materials.
- F. Emulsified Asphalt: NHDOT Section 410.

PART 3 EXECUTION

3.01 GENERAL

- A. Subbase shall be placed on properly installed subgrade. Gravel thickness shall be 12" bankrun and 6" crushed or as shown on the Drawings. Each layer shall be compacted to a minimum of 95% of its maximum dry density as determined by the Modified Proctor Method. Subbase gravel shall be installed at the time of initial backfill of all trenches under existing paved surfaces, or at a later time as authorized by the ENGINEER.
- B. Bituminous concrete material shall be placed in accordance with NHDOT requirements and as specified herein. If there is a discrepancy between the requirements, the more stringent requirement shall govern. The specific gravity of the compacted bituminous pavement shall not be less than 97 percent of the specific gravity of the corresponding daily job sample except as follows:
 - 1. Pavement placed directly on subbase - 95 percent.
 - 2. Overlay paving less than 1-1/4 inch in compacted thickness - 95 percent.
- C. Areas to receive bituminous paving shall be as shown on the drawings, and all other areas damaged during construction. The edge of the pavement, at the limits of the paving, shall be saw cut, and all pavement the area shown on the drawings shall be removed.
- D. Bituminous concrete paving mixture shall be placed only when the proper density can be obtained. Precautions shall be taken at all times to compact the mixture while the mixture is in the proper temperature range. The mixture shall not be placed on any wet surface or when weather conditions prevent its proper handling or finishing.
- E. The number of paving courses and the thickness of each course shall conform to the Drawings or to the dimensions stated in this Section.

3.02 COMPACTION TESTING

- A. Compaction testing will be performed in accordance with ASTM D1556, ASTM D1557, ASTM D2167 or ASTM D2922.

3.03 EQUIPMENT

- A. Paver: Shall be a self-contained, self-propelled paver capable of spreading the required thickness and width of pavement. Short bodied pavers and hot boxes shall not be allowed.
- B. Roller: Eight (8) to twelve (12) ton self-propelled tandem drum roller.

3.04 EXECUTION

- A. In areas where trenching was conducted, the CONTRACTOR shall allow a thirty (30) days settling period to transpire before placing pavement, or as determined by the ENGINEER.
- B. All humps in the pavement from blasting operations or caused by the equipment shall be removed before paving at the CONTRACTOR'S expense. All loose pieces of pavement on the edge of the trench shall be removed and the edges saw cut before paving at the CONTRACTOR'S expense.
- C. Edges of pavement removed during trenching or other excavations shall be saw cut to provide one (1) foot minimum overlap of the final patch on undisturbed material. The disturbed areas shall receive crushed gravel base course to the depth equal to the existing depth or the depth shown on the plan, whichever is greater.
- D. During trenching all remaining asphalt surfaces that are less than four (4) feet wide after the pavement has been cut back a minimum of one (1) foot shall be removed and replaced with new pavement at the CONTRACTOR'S expense.
- E. Weather Limitations: Mixtures shall be placed only when the underlying surface is dry, frostfree and the surface temperature is above forty (40) degrees F and rising for courses greater than one and one fourth (1-1/4) inches in compacted depth and above fifty (50) degrees F and rising for courses less than one and one fourth (1-1/4) inches in compacted depth, or as determined by the ENGINEER.
- F. Clean edges of existing pavement and coat with emulsified asphalt prior to placement of the new pavement in accordance with NHDOT Specification Section 401.
- G. The temperature of the bituminous pavement shall be a minimum of two hundred and seventy-five (275) and a maximum of three hundred and fifty (350) degrees F when it is placed.
- H. Placing of any course shall be as nearly continuous as possible, keeping the number of transverse joints at a minimum. Stopping of the paver shall only be done in emergencies. If the ENGINEER determines that the paving operations result in excessive stopping of the paver, he may suspend all paving operations until the CONTRACTOR makes arrangements to synchronize the rate of paving with the rate of delivery of material.
- I. All surfaces and trenches eight (8) feet wide and greater shall use a approved self-propelled paver to apply the mix. Trenches less than eight (8) feet wide may use the hand method to apply mix.
- J. Any displacement occurring as a result of reversing the direction of a roller, or from other causes, shall be corrected at once by the use of lutes and addition of fresh mixture when required. Care shall be exercised in rolling not to displace the line and grade of the edges of the bituminous mixture.
- K. All courses shall be rolled until all roller marks are eliminated.
- L. All joints between existing and new pavement shall receive a bead of emulsified asphalt and a sand over, after the new pavement has been placed, to ensure proper adhesion.
- M. Reset valve boxes, catch basins, and manhole castings as required. Said adjustments to be performed at the CONTRACTOR'S expense.

- N. Unless otherwise authorized by the ENGINEER, the final wearing course shall not be placed until after guard rail posts have been set and general cleanup has been completed.
- O. Bituminous wearing and binder courses shall be constructed in full compliance with NHDOT Standard Specifications for Road and Bridge Construction; Section 401 - Pavements; Sub-Section 3 - Construction Requirements.
- P. The minimum thickness of permanent pavement shall be two (2-1/2) inches of binder and one (1) inch of wearing unless specified otherwise.

3.05 PERMANENT TRENCH PATCH

- A. The CONTRACTOR shall remove temporary trench patch, regrade subbase and install permanent trench patch as specified upon authorization by the ENGINEER.
- B. Permanent trench patch shall be a minimum of 2-1/2 inches of binder course mix and a minimum of 1 inch of top course mix in two separate and compacted layers for a minimum total of 3 -1/2 inches or as shown on the Drawings.
- C. The CONTRACTOR shall then sweep the entire roadway surface just prior to placing the wearing course if the ENGINEER thinks there is excess sand and/or debris on the road.
- D. The CONTRACTOR shall maintain permanent pavement under this Contract during the contract guarantee period and shall promptly refill and repave areas which have settled or are otherwise unsatisfactory for traffic.

3.06 REPLACEMENT

- A. If any imperfect places are found in any course, the CONTRACTOR shall remove the unsatisfactory material and replace it with satisfactory material after coating the exposed edges with suitable emulsified asphalt.
- B. If any high areas are found after placement of the base course the CONTRACTOR, at his expense, shall cut out the areas and refill them with approved material before the final wearing course is placed to the approval of the ENGINEER.
- C. If any low areas are found after placement of the base course the CONTRACTOR, at his expense, shall shim the areas before the final wearing course is placed to the approval of the ENGINEER.

3.07 CLEANUP

- A. Any bituminous material remaining on exposed surfaces of curbs, sidewalks, or other masonry structures shall be removed at the CONTRACTOR'S expense.
- B. All material left from the truck cleanup area shall be removed.

3.08 OVERLAY

-
- A. Roadway centerline offset stakes shall be set along the edge of the road at fifty (50) foot intervals so that the centerline can be replaced in its original location.
 - B. The CONTRACTOR shall cut a joint in the existing pavement, on all street tie-in, to accept the new overlay material. The joint shall be 1" deep at the edge and slope up to the existing pavement surface at a point 5' away from the joint edge (this may be modified by the NHDOT). Place a two (2) foot wide strip of emulsified asphalt at the outer most edge of the joint.
 - C. The CONTRACTOR shall raise all manhole covers, catch basin grates, and valve boxes prior to the overlay. The final elevation of these fixtures shall be one quarter (1/4) inch below the final pavement elevation.
 - D. The CONTRACTOR shall then sweep the entire roadway surface just prior to placing the overlay.
 - E. Place the bituminous overlay top the limits shown on the plan. Overlay street intersection to the NHDOT Right-Of-Way and driveway intersection to a minimum point of five (5) feet off of the edge of the road. Place a six (6) inch wide strip of emulsified asphalt at the limit of the overlay for driveway tie-ins.
 - F. The overlay shall be placed from one edge of pavement to the other.

3.09 PAVEMENT PAINT MARKINGS

- A. Temporary stick-on markings shall be placed and maintained on the temporary pavement if the existing paint lines get damaged. The markings shall be placed on the day that the lines are damaged. The need for stick-on markings shall be determined by the ENGINEER or NHDOT representative.
- B. The CONTRACTOR shall paint after the permanent pavement and after the overlay has been placed. Paint shall be as specified NHDOT Specification Section 708 - Paints.

3.10 APPROVALS

- A. All work shall be performed to the satisfaction of the ENGINEER and OWNER'S representative.

END OF SECTION

SECTION 02550

PAVEMENT PAINT MARKINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included

Pavement Marking work shall consist of the required white and/or yellow reflectorized pavement markings at the locations shown or ordered. Stripes indicating center lines, edge lines, barriers, and the like shall be four (4) inches wide or as ordered.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Paint shall conform to Section 708 and Appendix A or Appendix B of the "Standard Specifications for Road and Bridge Construction" appropriate for REGULAR DRY WHITE TRAFFIC PAINT or FAST DRY TRAFFIC PAINT (temperatures 120NF to 140NF).
- B. GLASS SPHERES FOR TRAFFIC PAINTS shall conform to 708-NH 4.13.

PART 3 EXECUTION

3.01 APPLICATION REQUIREMENTS

- A. The paint shall be applied at the rate of between 300 and 350 linear feet per gallon for four (4) inch wide stripes and the glass spheres (beads) shall be applied by the drop-on method at the rate of six (6) pounds to each gallon of paint. Beads applied to reflectorized paint pavement arrows may require an increased application rate. The beads shall be distributed in even application over the entire paint surface.
- B. The painting shall be done in a workmanlike manner, with lines well defined and without deviation. When repainting existing lines, the new line shall follow the exact pattern of the old lines and when new measurements are necessary, they shall be exact.
- C. The CONTRACTOR shall provide all materials, equipment, labor, protective devices, and warning signs necessary to the safe and efficient performance of the work and the safety of the traveling public.
- D. Painting shall be done only in seasonable weather in accordance with good painting practice.
- E. The painted lines shall remain protected until sufficiently dry to bear traffic.

END OF SECTION

SECTION 02720

STORM DRAINS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnishing pipe for storm drains.
- B. Installing and/or removing and replacing storm drains as shown on the drawings.

1.02 REFERENCE STANDARDS

- A. ASTM F405 – Standard specification for corrugated polyethylene tubing and fittings
- B. ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- C. ASTM D3034 - Type PSM Poly(Vinyl Chloride)(PVC) Sewer Pipe and Fittings.
- D. ASTM D3212 - Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

1.03 SUBMITTALS

- A. Submit manufacturer's certifications, shop drawings and product data in accordance with Section 01340.

1.04 QUALITY CONTROL

- A. The quality of all materials, the process of manufacture and the finished pipe shall be subject to inspection by the ENGINEER. Such inspection may be made at the place of manufacture, and or on the work site after delivery. Pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though sample pipe may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All pipe which have been damaged after delivery will be rejected, or if already installed, shall be repaired or removed and replaced by the CONTRACTOR, as directed by the ENGINEER, with no additional cost to the OWNER.
- B. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close-textured and free of blisters, cracks, roughness and exposure of reinforcement.
- C. Imperfections may be repaired, subject to the approval of the ENGINEER, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at the end of 7 days and 5,000 psi at the end of 28 days when tested in 2-inch cubes stored in the standard manner. Epoxy mortar may be utilized for repairs, subject to the approval of the ENGINEER.
- D. Pipe shall not be shipped or subjected to interior or exterior loadings until five (5) days after fabrication and/or repair and the concrete has attained a compressive strength of 3000 psi.

- E. Exercise care in unloading pipe from delivery trucks. Do not drop concrete pipe from trucks. Use an attached loading/unloading device or proper equipment. Defective pipe which cannot be repaired to the satisfaction of the ENGINEER shall be promptly removed from the project and replaced with new pipe.

PART 2 PRODUCTS

2.01 GENERAL

- A. All products included in this section shall conform to the requirements of the standard specifications referenced herein.
- B. Pipe size and material shall be as shown on the Drawings.

2.02 MATERIALS

- A. Reinforced Concrete Pipe (RCP): Pipe and fittings shall conform to AASHTO M170, Class IV, Wall B. Cement shall be Type II.
- B. Polyvinyl Chloride Pipe (PVC): Pipe and fittings shall be SDR 35, conforming to ASTM D3034. Joints shall be push on joints complying with ASTM D3212.
- C. Polyethylene pipe and fittings: pipe and fittings shall meet AASHTO M29497 types and M252. Polyethylene pipe shall meet ASTM D2321.
- D. Each length of pipe shall be marked or tagged with the nominal diameter, gauge or class, the name of the manufacturer or his trademark, and in the case of reinforced concrete pipe, the date of manufacture.
- E. Backfill material shall be as specified in Section 02225.

PART 3 EXECUTION

3.01 HANDLING PIPE

- A. Exercise care in moving pipe to its final position. Use slings, straps and/or other devices to support pipe when it is lifted. Transporting pipe from storage areas shall be restricted to operations which will not cause damage to the pipe. Pipe shall not be dropped into the trench.
- B. All pipe shall be examined before laying and no pipe shall be installed which is found to be defective. Defective pipe which cannot be repaired to the satisfaction of the ENGINEER shall be promptly removed from the project and replaced with new pipe.

3.02 CONTROL OF ALIGNMENT AND GRADE

- A. Easement and property and other control lines necessary for locating the Work as well as elevations and bench marks used in the design of the Work are shown on the Drawings. The CONTRACTOR shall use this information to set line and use a laser, level, or transit to set grade.

- B. The CONTRACTOR may use laser equipment to assist in setting the pipe provided he can demonstrate satisfactory skill in its use.
- C. The use of string levels, hand levels, carpenter's levels or other similar devices for transferring grade or setting pipe will not be permitted.
- D. During construction provide the ENGINEER, at his request, all reasonable and necessary materials, opportunities, and assistance for setting stakes and making measurements, including the furnishing of one or two rodmen as needed at intermittent times.
- E. CONTRACTOR shall not proceed until he has made timely request of the ENGINEER for, and has received from him, such controls and instructions as may be necessary as Work progresses. The Work shall be done in strict conformity with such controls and instructions.
- F. The CONTRACTOR shall carefully preserve bench marks, reference points and stakes, and in case of willful, careless, or accidental destruction by his own men, he will be responsible for the resulting cost to re-establish such destroyed control data and shall be responsible for any mistakes or delay that may be caused by the loss or disturbance of such control data.
- G. Maintain the proper alignment in laying pipe.

3.03 EXCAVATING TRENCH AND INSTALLING PIPE

- A. Pipe shall be laid in dry trench conditions. Provide for temporary diversion of water.
- B. Excavate a trench to required depth sufficiently wide to allow for jointing of the pipe and compaction of the material under and around the pipe. Excavation shall conform to Section 02225 - Trenching. If ledge rock, rocky soil, hard pan or other unyielding foundation material is encountered at the normal grade of the pipe bed, excavate to 6 inches below invert grade and one foot on each side of the interior face of the pipe wall and refill with compacted crushed gravel. Blocking is not permitted.
- C. Compact disturbed trench bottom and shape to fit pipe for a depth of not less than 10 percent of the total diameter of the pipe. The pipe shall rest firmly on the shaped bottom for the entire length of pipe barrels. Excavate troughs to accommodate bells or couplings to provide ample space for jointing pipe.
- D. Begin laying pipe at outlet and make sure that the lower segment of the pipe is in contact with the shaped trench bottom throughout its full length. Each pipe section shall be placed into position on the pipe bed in such a manner and by such means required to avoid injury to persons, any property or the pipe.
- E. Fill handling hole in concrete pipes with a precast plug, seal and cover with mastic or mortar.
- F. Allow time for inspection and approval before any backfill is placed. Relay any pipe out of alignment and remove any damaged pipe.
- G. After placing pipe on shaped trench bottom, backfill material shall be placed and compacted to the spring line (horizontal center line) of the pipe in continuous layers not exceeding 6 inches loose depth. Additional backfill material shall then be placed from the spring line to 12 inches above the crown of the

pipe. This material shall be placed and compacted in continuous layers not exceeding 6 inches loose depth.

- H. After placement of the material around and over the pipe, alignment and grade of the pipe shall be checked. If the pipe has been properly installed, the CONTRACTOR may refill or backfill the remainder of the trench in conformance with Section 02225 and details shown on the Drawings.
- I. At the end of each day's work or at other intervals, the ENGINEER, with the CONTRACTOR, may inspect the pipe installation. Unsatisfactory work shall be dug up and reinstalled to meet the requirements of the Contract Documents with no additional time for completion of the Work and at no additional cost to the OWNER.

END OF SECTION

SECTION 02931

RESTORATION OF GROWTH - CLASS A (LAWN)

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Finishing, loaming, grading, fertilizing, seeding, and maintaining all seeded areas as shown on the Drawings and/or specified herein, and any other areas disturbed by the CONTRACTOR'S operations.
- B. Class A growth restoration shall apply to all lawn or park type areas disturbed during construction.
- C. Restore growth in all areas to a condition at least fully equal to that prevailing prior to the construction.

1.02 QUALITY ASSURANCE

- A. Employ trained personnel experienced in this type of work.

1.03 PRODUCT DELIVERY AND STORAGE

- A. Fertilizer shall be delivered to the site in the original unopened containers each showing the manufacturer's guaranteed analysis, and stored so that, when used, it shall be dry and free flowing.
- B. Lime shall be delivered and maintained in a dry, free flowing condition until used.
- C. Seed shall be delivered in sealed containers bearing the dealer's guaranteed analysis and stored in a dry, protected place

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil shall be friable, fertile, natural free-draining loam, typical of the locality; free of subsoil, roots, grass, sticks, weeds, clay, sod lumps, debris and stones larger than 1-inch in maximum dimension. Soil shall not be excessively acid or alkaline, nor contain toxic material harmful to plant growth.
- B. Fertilizer shall be a complete commercial fertilizer, 10-20-20 grade.
- C. Lime shall be ground limestone containing not less than 95% calcium and magnesium carbonates.
- D. Seed shall be from the same or previous year's crop and shall have not more than 1% weed content. Seed shall also meet the following requirements:
 - 1. Grass seed of the specified mixtures shall be furnished in fully labeled, standard, sealed containers.
 - 2. Percentage and germination of each seed type in the mixture, purity and weed seed content of the mixture shall be clearly stated on the label.

- 3. The weight of pure live seed (PLS) is computed by the labeled purity percent times the labeled germination percent times the weight.
- 4. To illustrate the method of computing to PLS from the tag basis, the following example is given:

Required: 20 lbs PLS of a particular variety.

Stock Available: 99.41% pure and 92% germination.

$$\frac{20 \text{ lbs}}{(0.9941 \times 0.92)} = 21.87 \text{ lbs to be obtained}$$

- E. Class A shall normally be used on loam areas. This seed shall conform to the following and shall be furnished on a pure live seed (PLS) basis.

CLASS A

<u>Kind of seed</u>	<u>PLS per Acre, lbs</u>
Red Fescue (creeping)	21
Kentucky Bluegrass	21
Redtop	21
Perennial Ryegrass (Manhattan)	<u>21</u>
TOTAL	84

- F. Hay mulch shall consist of mowed and properly cured grass or legume mowings, reasonably free from swamp grass, weeds, twigs, debris or other deleterious material. It shall be free from rot or mold.
- G. Mulch Anchoring: When mulch must be held in place, one of the following mulch anchoring materials shall be used:
 - 1. Mulch Netting (paper, twine, plastic, or plastic and wood fiber)

PART 3 EXECUTION

3.01 GENERAL

- A. Rake the subgrade of all areas to be loamed for seed or ground cover and remove all rubbish, sticks, roots, and stones larger than 1 inch in maximum dimension. Spread and lightly compact the loam to finished grade as shown on the Drawings. When finished grades are not indicated, they shall be uniform between the points for which finished grades are given, or from such points to existing grades, except that the top and bottom of slopes shall be rounded. Compacted loam shall not be less than the depth specified. No loam shall be spread in water or while frozen or muddy.
- B. After the loam is placed and before it is raked to true lines and rolled, spread lime evenly over loam surface and thoroughly incorporate into the loam by heavy raking to at least one-half the depth of the loam.

- C. Uniformly spread fertilizer and immediately mix with the upper 2 inches of loam.
- D. Immediately following this preparation, uniformly apply the seed evenly in two (2) intersecting directions and lightly rake the seed into the surface. Lightly roll the surface and water with a fine spray.
- E. Seed shall be sown in a favorable season as approved by the ENGINEER. Seeding shall not be done during windy weather when ground is frozen, excessively wet or otherwise untillable.
- F. Promptly thereafter or within 24 hours after the seeding operation, lightly and uniformly mulch the area with hay. Spread hay by hand or with machine.
- G. Anchor mulch on all slopes exceeding 5% and other areas as required using one of the following methods:
 - 1. Asphalt Emulsion: Apply asphalt emulsion at a rate of 3.5 to 4.5 gallons per 1000 sq.ft. May be blown on with hay or straw or sprayed on after spreading hay or straw. Proper equipment shall be used to apply emulsion.
 - 2. Mulch Netting: Spread over loose mulch and pin to the soil in accordance with the manufacturer's instructions.
- H. Protect against washouts by an approved method. Any washout which occurs shall be regraded and reseeded at the CONTRACTOR'S expense until a good growth is established.

3.02 APPLICATION RATES

- A. Place loam to a minimum depth of 4 inches, or as shown on the drawings.
- B. Apply lime at the rate of 75 to 100 lbs per 1,000 square feet.
- C. Apply fertilizer at the rate of 30 lbs per 1,000 square feet.
- D. Apply seed at a rate of at least 84 lbs per acre or 2 lbs per 1,000 square feet.
- E. Apply mulch at the rate of 90 lbs per 1,000 square feet.

3.03 MAINTENANCE

- A. Keep all seeded areas watered and in good condition, reseeding if and when necessary until a good, healthy, uniform growth is established over the entire area seeded. Maintain these areas in an approved condition until final acceptance of growth by the ENGINEER. The maintenance shall include repairs for damage caused by erosion.

END OF SECTION

SECTION 02990

MISCELLANEOUS WORK AND CLEANING UP

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnishing all labor, materials, equipment, and incidentals required to do all miscellaneous work and cleaning up not otherwise specified including, but not limited to, the following:
 - 1. Cleaning up the construction site.
 - 2. Disposing of material and debris.
 - 3. The extra work of crossing existing sewers, drains, electrical and telephone conduits and water mains.
 - 4. Miscellaneous work associated with connecting to existing utilities.
 - 5. Disconnecting, plugging, and abandoning the existing piping including all excavation, backfill, concrete plugs and surface restoration items.
 - 6. Installing and removal of temporary chlorine injection points.
 - 7. Furnishing, installing, and removing project signs.
 - 8. All other work incidental to completing the project.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 CLEANUP

- A. Remove all construction material, excess excavation, equipment, or other debris remaining on the construction site as a result of construction operations and shall render the site of the work in a neat and orderly condition at least equal to that which existed prior to the start of construction.
- B. Dispose of all materials and debris off-site in accordance with local, state, and federal regulations.

3.02 INCIDENTAL WORK

- A. Do all incidental work not otherwise specified but obviously necessary to the proper completion of the Contract as specified and as shown on the Drawings.

END OF SECTION

DIVISION 3

SECTION 03310

CAST-IN-PLACE CONCRETE

SECTION 03481

PRECAST CONCRETE CATCH BASINS

SECTION 03310

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnishing all labor, materials, equipment, and incidentals required for all cast-in-place concrete, including reinforcing steel, forms, water stops and miscellaneous related items such as sleeves, reglets, anchor bolts, inserts and embedded items specified under other Sections.

1.02 REFERENCE STANDARDS

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 305 - Recommended Practice for Hot Weather Concreting.
- C. ACI 306 - Recommended Practice for Cold Weather Concreting.
- D. ACI 315 - Details and Detailing of Concrete Reinforcement.
- E. ACI 347 - Recommended Practice for Concrete Formwork.
- F. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- H. ASTM C33 - Concrete Aggregates.
- I. ASTM C94 - Ready-Mixed Concrete.
- J. ASTM C150 - Portland Cement.

1.03 SUBMITTALS

- A. Shop Drawings: Submit two (2) sets of completely detailed working drawings and schedules of all reinforcing required in accordance with Section 01340. Do not fabricate reinforcement until shop drawings have been reviewed and accepted by the ENGINEER.

1.04 QUALITY ASSURANCE

- A. Concrete work shall conform to all requirements of ACI 301 and ACI 347, except as modified herein.
- B. Protection: Store concrete reinforcement in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond breaking coatings.

1.05 SCHEDULING

- A. Formwork and steel reinforcing installation shall be completed at least 24 hours in advance of placing concrete.
- B. Notify ENGINEER upon completion of formwork and completion of steel reinforcing installation.
- C. Notify ENGINEER at least 24 hours in advance of placing concrete

PART 2 PRODUCTS

2.01 CEMENT

- A. Cement: ASTM C150, Portland Type I; Type II if concrete will be in contact with wastewater.

2.02 AGGREGATES

- A. Fine Aggregate: ASTM C33.
- B. Coarse Aggregate: ASTM C33, 3/4 inch maximum size.

2.03 ADMIXTURES

- A. Air Entraining: "Darex AEA" by W.R. Grace, or equal.
- B. Water Reducing: "WRDA with Hycol" by W.R. Grace, or equal.
- C. No other admixtures are permitted without prior acceptance by the ENGINEER.

2.04 CONCRETE

- A. The proportions of ingredients shall be selected in accordance with ACI 301 Section 3.8.
- B. Concrete shall be 4,000 psi, except where noted otherwise.
- C. All concrete shall have a slump between 3 & 5 inches and an air entrained content between 4 & 6 percent.

2.05 REINFORCING

- A. Reinforcing Steel: ASTM A615, Grade 60 deformed bars; stirrups and ties Grade 40.
- B. Welded Wire Fabric: ASTM A185.
- C. Fabricate reinforcing steel in conformance with ACI 315.

2.06 FLOOR HARDENER

- A. Wet Applied Hardener: "Lapidolith" manufactured by Sonneborn-Contech, or "Hornolith" manufactured by A. C. Horn.

B. Dry Shake Hardener:

1. "Mastercron" manufactured by Master Builders.
2. "Harcot Redi-Mixed" manufactured by Sonneborn-Contech.
3. "Quartzplate" manufactured by L & M Construction Chemicals, Inc. Application rate: 100 lbs per 100 square feet of floor area.

PART 3 EXECUTION

3.01 GENERAL

- A. Design, and construct formwork, falsework, shoring, and bracing to meet all loads during placement and curing, so that cast-in-place concrete conforms to required finishes, shapes, lines, and dimensions.
- B. Provide for inserts, openings, sleeves, offsets, recesses, anchorage, blocking, and other penetrations and embedment.
- C. Embedded Items: Set required steel frames, angles, bolts, inserts, and other items required to be anchored in the concrete before the concrete is placed.
- D. Form Release Agent: Do not apply form release agent where concrete surfaces are scheduled to receive special finishes which may be affected by agent. Soak contact surfaces of untreated forms with clean water and keep surfaces wet prior to placing concrete. Apply form release agent in accordance with manufacturer's instructions.

3.02 REINFORCING

A. Fabrication:

1. Fabricate all reinforcement in strict accordance with the reviewed and accepted shop drawings.
2. Do not use bars with kinks or bends not shown on the Drawings or on the reviewed and accepted shop drawings.
3. Do not bend or straighten steel in a manner that will damage the material.

B. Placement:

1. Accurately place all concrete reinforcement, positively securing and supporting by concrete bricks, metal chairs or spacers, or by metal hangers.
2. Splicing:
 - a. Place bars with minimum 30 bar diameter overlap at splices.
 - b. Lapped ends of bars may be placed in contact and securely wired or may be separated 1-1/2 inches minimum to permit the embedment of the entire surface of each bar in concrete.

- c. Stagger the splices of adjacent bars.
 - d. Splice wire fabric at least 1-1/2 meshes wide.
- C. Dowels: Place all required steel dowels and securely anchor them into position.
- D. Obstructions: If conduits, piping, inserts, sleeves, or any other items interfere with placing reinforcement as indicated on the Drawings or as otherwise required, immediately consult the ENGINEER for proper placement before placing concrete.
- E. Steel reinforcement shall be free from rust scale, loose mill scale, oil, paint, and all other coatings which will destroy or reduce bond between steel and concrete.

3.03 INSPECTION

- A. Verify that all formwork, reinforcing and work of other trades are complete and ready for placement of concrete.
- B. Notify ENGINEER at least 48 hours before placing concrete. Do not proceed without notifying ENGINEER.

3.04 CONCRETE MIXING AND PLACEMENT

- A. All cast-in-place concrete shall be transit-mix concrete in accordance with ASTM C94.
- B. Re-tempering of concrete is not permitted.
- C. Weather Conditions: Do not place concrete when weather conditions are not suitable for the proper placing, finishing or curing of the concrete. Unless otherwise accepted by ENGINEER, place concrete only during dry weather. In the event of sudden rainstorms, cover exposed, freshly placed concrete and protect from damage. When cold or hot weather concreting is authorized by ENGINEER, comply with ACI 305 and ACI 306.
- D. Cold Weather Concrete: Concrete shall not be placed on the ground where the temperature is below 35 degrees F or in forms where the form, reinforcing steel, adjacent concrete, etc. are below 35 degrees F. Concrete shall be covered and heated immediately after placement and only allowed to be covered to place the finish.
- E. When Type II cement is used, elapsed time between initial contact of the cement with water and the completed discharge of the batch at the Project site shall not exceed 1-1/2 hours or 300 revolutions of the drum, whichever comes first. Reduce the above limits when conditions result in quick-stiffening of the concrete, or when directed by ENGINEER.
- F. Conveying and Placing Concrete: Convey concrete to the forms as rapidly as practicable, utilizing methods which will not cause segregation or loss of ingredients. Free fall from mixer or truck to conveyance shall not exceed 3 feet. When placing concrete in final position, the free fall shall not exceed 5 feet. Place concrete in horizontal layers approximately 2 feet thick and avoid the formation of cold joints and poorly bonded sections between layers. The horizontal distribution of concrete by spading or vibration is prohibited.

- G. Vibration: Unless otherwise specified or directed by ENGINEER, vibrate all reinforced concrete. Use only approved mechanical vibrators operated by experienced operators. Apply vibrators at uniformly spaced points not further apart than the visible effectiveness of the machine. Vibrate concrete sufficiently to produce satisfactory consolidation without causing segregation. Do not use vibrators to transport concrete in the forms or insert them into lower layers of concrete that have begun to set.

3.05 CONCRETE TESTING

- A. CONTRACTOR shall prepare, cure and have tested by an independent laboratory, one (1) set of four (4) test cylinders for each concrete placement in accordance with Chapter 16 of ACI 301.
- B. CONTRACTOR shall pay for all concrete testing including all supplemental testing required if the cylinders break at lower than the required strength.
- C. A minimum of one slump test shall be performed for each batch of concrete and when additional water is added.

3.06 CURING

- A. Concrete shall be water cured or cured using curing compounds or waterproof paper and sheeting, or other acceptable methods. Minimum curing period shall be 7 days.

3.07 FINISHING CONCRETE

- A. Provide finishes in accordance with ACI 301 as follows:
1. Rough Form Finish: Concrete surfaces below grade and other surfaces not exposed to view after construction, shall have fins and rough edges removed. All tie holes and defects shall be patched in accordance with paragraph 3.11 - PATCHING CONCRETE. All channels and other surfaces used to convey liquids shall be provided with a smooth form finish, whether or not it may be exposed to view.
 2. Grout Cleaned Finish: Thoroughly wet and brush on a cement grout composed of 1 part cement to 2 parts fine sand, mixed with water to the consistency of heavy cream. Cement shall be light colored to produce a finish matching the color of the concrete. Thoroughly rub grout over the entire area with clean burlap or a sponge rubber float to fill pits and voids completely. While the grout is still plastic, rub the surfaces with a dry mix of the grout until no materials remain on the surface, except within pits and voids. The grouting operation for an area shall be completed the day it is started.
 3. Surfaces to Receive Epoxy Coatings: Remove oil and grease, and any curing compounds and other materials which are incompatible with or may adversely affect the bonding of the epoxy coatings. Prepare the concrete surfaces as specified for smooth form finish. Refer to Division 9 for additional surface preparation requirements.
 4. Floated Finish: Concrete floor slabs.
 5. Broom Finish: Exterior slabs for pedestrian traffic.

3.08 PROTECTION

- A. Protect concrete from damage due to sun, rain, flowing water, frost, weather, and mechanical injury.
- B. Maintain concrete temperature at a minimum of 50° F. for not less than 3 days and do not expose concrete to a temperature below 40° F. for a minimum of 7 days after placement.

END OF SECTION

SECTION 03481

PRECAST CONCRETE CATCH BASINS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnishing precast concrete catch basins and appurtenant materials.
- B. Installation.

1.02 REFERENCE STANDARDS

- A. AASHTO - Standard Specifications for Highway Bridges.
- B. ASTM C32 - Sewer and Manhole Brick (Made from Clay or Shale).
- C. ASTM C55 - Concrete Building Brick.
- D. ASTM C91 - Masonry Cement.
- E. ASTM C109 - Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50 mm Cube Specimens).
- F. ASTM C207 - Hydrated Lime for Masonry Purposes.
- G. ASTM C270 - Mortar for Unit Masonry.
- H. ASTM C387 - Packaged Dry Combined Materials for Mortar and Concrete.
- I. ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- J. ASTM C478 - Precast Reinforced Concrete Manhole Sections.
- K. ASTM C827 - Early Volume Change of Cementitious Mixtures.

1.03 SUBMITTALS

- A. Submit Shop Drawings showing details of construction, reinforcing, joints, embedded appurtenances, method of sealing pipe penetrations and dimensions in accordance with Section 01340.
- B. Submit certification from brick manufacturer that brick conforms to ASTM C32, Grade MS or ASTM C55, Grade N-I.

1.04 QUALITY ASSURANCE

- A. Design Criteria:
 - 1. Design of catch basin structure and components shall conform to ASTM C478.

2. Catch basin sections shall be capable of withstanding AASHTO H-20 loading without failure.
 3. Base of catch basin shall be a minimum of 8 inches thick and walls shall be a minimum of 5 inches thick.
 4. Concrete: Minimum compressive strength of 4,000 psi at 28 days.
- B. The quality of all materials, the process of manufacture and the finished sections shall be subject to inspection by the ENGINEER. Such inspection may be made at the place of manufacture, and/or on the work site after delivery. Sections shall be subject to rejection due to failure to meet any of the Specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged after delivery will be rejected, or if already installed, shall be repaired or removed and replaced entirely at the CONTRACTOR'S expense as directed by the ENGINEER.
- C. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close-textured and free of blisters, cracks, roughness and exposed reinforcement.
- D. Imperfections may be repaired, subject to acceptance by the ENGINEER, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Concrete grout shall be used for repairs. Epoxy grout may be used for repairs, subject to acceptance by the ENGINEER.

1.05 SOURCE QUALITY CONTROL

- A. Test concrete in accordance with ASTM C478.
- B. Retain plant records and quality control program used during production of precast concrete catch basins and make such records and test results available to ENGINEER, if requested.
- C. All precast concrete catch basin sections shall have the date of manufacture and name or trademark of the manufacturer indelibly marked on the inside of the wall.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Precast catch basin sections shall not be shipped until the concrete has attained a compressive strength of 3,000 psi or until 5 days after fabrication and/or repair, whichever time is longer.
- B. Conform to manufacturer's instructions for delivery and handling.
- C. Protect edges of catch basins to prevent chipping or spalling.
- D. Lift and support catch basin sections from lifting points using lifting or handling devices.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Specification includes references to designated manufacturers to illustrate minimum acceptable requirements for products.
- B. Substitutions: Products of equal or better quality, detail, function and performance may be proposed for substitution by following the procedures in Section 01630.

2.02 MATERIALS

- A. Concrete: ASTM C478, Portland Cement Type II.

2.03 PRECAST CATCH BASIN SECTIONS

- A. Precast reinforced concrete slab cover shall have an eccentric entrance opening and be capable of supporting AASHTO H-20 loads.
- B. The base section shall be monolithic to a point at least 6 inches above the openings cast to receive the storm drain lines. Any opening shall be a minimum of 6 inches from any joint.

2.04 CATCH BASIN MANHOLE JOINTS AND PIPE SEALS

- A. Horizontal joints between precast catch basin sections shall be tongue and groove and shall have a mastic-like sealant such as Ram-Nek, Kent Seal No. 2 or a butyl rubber joint gasket (O-ring) conforming to ASTM C443. All horizontal joints shall be watertight.
- B. Pipe to catch basin joints shall be sealed with non-shrinking mortar or concrete grout. Pipe to catch basin connections and joints shall be watertight.

2.05 BRICK

- A. Brick Masonry for Grade Adjustment: ASTM C32, Grade MS or ASTM C55, Grade N-I.

2.06 MORTAR

- A. Masonry Cement: ASTM C91.
- B. Mortar for Unit Masonry: ASTM C270, Type S.
- C. Premixed Materials: ASTM C387.

2.07 MISCELLANEOUS COMPONENTS

- A. Catch basin frames and covers shall comply with the Drawings and Section 05540.
- B. Bedding material shall consist of crushed stone as specified in Section 02223.

2.08 CONCRETE GROUT

- A. Concrete grout shall be premixed, prepackaged non-shrink cement-based grout such as Five Star Grout manufactured by U.S. Grout Corporation.

- B. Nonshrink when tested in accordance with ASTM C827.
- C. Minimum compressive strength of 5,000 psi at 28 days when tested in accordance with ASTM C109.

PART 3 EXECUTION

3.01 INSTALLATION OF CATCH BASIN BASES AND SECTIONS

- A. Precast bases shall be placed on a layer of compacted bedding material. The excavation shall be properly dewatered to allow placing of bedding material and setting the catch basin base on completely drained subgrade. Intermediate sections and top slab shall then be placed, using manufacturer's recommended procedure for sealing the horizontal joints. All joints shall be pointed. Catch basin sections shall be set vertical with sections in true alignment within 1/4 inch maximum tolerance.
- B. Inlet and outlet pipes shall be connected and sealed in accordance with the manufacturer's recommended procedure, and as shown on the Drawings.
- C. Holes in the concrete sections and around pipe entrances shall be plugged with concrete grout.
- D. The frame and grate shall be placed on the top of the catch basin, or some other means shall be provided to prevent accidental/ unauthorized entry until the CONTRACTOR is ready to make final adjustment to grade.

3.02 MIXING MORTAR

- A. Mortar shall be mixed in accordance with ASTM C270 or the recommendations of the manufacturer.

3.03 BRICK MASONRY

- A. Only clean bricks shall be used in brickwork for grade adjustment. The brick shall be moistened until in a surface dry, saturated condition.
- B. Each brick shall be laid in full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded.
- C. Brick masonry shall be protected from too rapid drying. Use an approved cover and protect from the weather and frost.
- D. All masonry joints which are exposed to view shall be examined to locate cracks, shall be pointed up and filled with mortar if required. Where necessary, in the opinion of the ENGINEER, the joints shall be cut out and repointed with mortar.

3.04 SETTING FRAMES AND GRATES

- A. Frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the Drawings. Frames shall be set concentric with the opening in the masonry and in a full bed of mortar so that the space between the top of the brick masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom

flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

- B. Grates shall be left in place in the frames on completion of other work at the catch basins.

END OF SECTION

DIVISION 5

SECTION 05540

CASTINGS

SECTION 05540

CASTINGS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnishing sewer, drain and miscellaneous manhole frames and covers and catch basin frames and grates.
- B. Installation.

1.02 REFERENCE STANDARDS

- A. ASTM A48 - Grey Iron Castings.

1.03 SUBMITTALS

- A. Submit shop drawings showing details of manufacture and installation in accordance with Section 01340.

1.04 QUALITY CONTROL INSPECTION

- A. All castings shall be subject to a hammer inspection by the ENGINEER. Castings rejected upon delivery to the site shall be marked as such and removed from the site. All castings damaged after delivery or after installation shall be removed and replaced as directed by the ENGINEER and at the CONTRACTOR'S expense.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Specifications based on products manufactured by *Neenah Foundry Co., E. L. LeBaron Foundry Co. or approved equal.
- B. Substitutions: Products of equal or better quality, detail, function, and performance may be proposed for substitution by following the procedures in Section 01630.

2.02 GENERAL

- A. The castings shall be of good quality, even-grained cast iron, free from scale and defects of any nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined at the foundry, before shipment to prevent rocking of covers in any orientation.
- B. All castings shall be thoroughly cleaned and subject to a careful hammer inspection.
- C. Castings shall be Class 30 minimum, conforming to the ASTM A48.

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- D. Before being shipped from the foundry, castings shall be sandblasted.
 - E. All castings shall be heavy duty suitable for H-20 loadings.
 - F. All manhole covers for installation on sanitary sewer manholes shall have the word "SEWER" cast into a diamond design on the top surface.
 - G. All manhole covers for installation on storm drain manholes shall have the word "DRAIN" cast into a diamond design on the top surface.

2.03 MANHOLE FRAMES AND COVERS

- A. Manhole frames and covers shall provide 30-inch diameter clear opening.

2.04 CATCH BASIN FRAMES AND GATES

- A. Catch basin frames and grates shall have 24-inch square grates with 2 inch square openings suitable for H-20 loadings.

PART 3 EXECUTION

3.01 SETTING FRAMES, COVERS AND GRATES

- A. Frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the Drawings. Frames shall be adjusted to grade with a precast concrete grade ring or a maximum of 3 courses of mortared red sewer brick. Exterior of sewer brick shall be plastered with mortar. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.
- B. Manhole covers and grates shall be left in place in the frames upon completion of other work at the manholes or catch basins.

END OF SECTION