

WESTERN SURETY COMPANY
Sioux Falls, South Dakota
Statement of Net Admitted Assets and Liabilities
December 31, 2011

ASSETS

Bonds	\$1,403,423,957
Stocks	22,726,363
Cash and short-term investments	66,852,340
Uncollected premiums and agents' balances	34,207,619
Funds held by or deposited with reinsured companies	13,980,081
Net deferred tax asset	25,802,839
Investment income due and accrued	17,647,175
Other assets	2,489,406
Total Assets	<u><u>\$1,587,129,780</u></u>

LIABILITIES AND SURPLUS

Losses	\$296,352,421
Loss adjustment expense	82,551,462
Contingent and other commissions payable	5,246,025
Other expense	28,831,919
Taxes, licenses and fees	1,925,642
Federal and foreign income taxes payable	5,637,067
Unearned premiums	247,814,064
Other liabilities	29,286,547
Total Liabilities	<u><u>697,645,147</u></u>

Surplus Account:

Capital paid up	\$4,000,000	
Gross paid in and contributed surplus	176,435,232	
Special Surplus	7,321,616	
Unassigned funds	701,727,785	
Surplus as regards policyholders		<u>\$889,484,633</u>
Total Liabilities and Capital		<u><u>\$1,587,129,780</u></u>



I, Amy M. Smith, Assistant Vice President of Western Surety Company hereby certify that the above is an accurate representation of the financial statement of the Company dated December 31, 2011, as filed with the various Insurance Departments and is a true and correct statement of the condition of Western Surety Company as of that date.

Western Surety Company

By Amy M. Smith
Assistant Vice President

Subscribed and sworn to me this 12th day of March, 2012.

My commission expires:

"OFFICIAL SEAL"
KATHLEEN M. SCHROEDER
Notary Public, State of Illinois
My Commission Expires 08/16/15

Kathleen Schroeder
Notary Public



Labor and Material Payment Bond

Note: This Bond is issued simultaneously with another Bond in favor of the Owner conditioned for the full and faithful performance of the Contract.

Jersen Construction Group,
KNOW ALL MEN BY THESE PRESENT: That LLC Principal (hereinafter called Principal) and Western Surety Company as Surety (hereinafter called Surety) are held and firmly bound unto the City of Saratoga Springs as Obligee (hereinafter called Owner) for the use and benefit of claimants as herein below defined; in the amount of (\$1,395,500.00) One Million Three Hundred Ninety-Five Thousand Five Hundred Dollars, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated June 19, 2012, entered into a Contract with Owner for Water Treatment. The Contract is by reference made part hereof, and is hereinafter referred to as the Contract. Plant Filter Rehabilitation - IFB #2012-12

NOW, THEREFORE, the condition of this obligation is such that, the said Principal shall promptly pay for all materials furnished and labor supplied or performed in the prosecution of the work included in and under the aforesaid Contract, whether or not the material or labor enters into and becomes a component part of the real asset, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Obligee of any extension of time for the performance of the Contract, or any other forbearance for the performance of the Contract, or any other forbearance on the part of either the Obligee or the Principal to the other shall not in any way release the Principal and the Surety or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alterations, extension or forbearance being hereby waived.

Any party, whether a subcontractor or otherwise, who furnished materials or supplies or performs labor or services in the prosecution of the work under said Contract, and who is not paid therefore, may bring a suit on this bond in the name of the person suing, prosecute the same to a final judgment, and have execution hereon for such sum as may be justly due.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this 19th day of June, 2012, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of: *(Power-of-Attorney for person signing for Surety Company must be attached to Bond.)*

Individual Principal (seal): _____

Business Address: _____

Partnership _____ (seal)

Business Address: _____

By: _____

Attest: _____ Corporate Principal: Jersen Construction Group, LLC

Business Address: 6 Industry Drive, Waterford, NY 12188

BY _____ AFFIX CORPORATE SEAL Kenneth J. Jersen, CEO

Attest: _____ Corporate Surety: Western Surety Company

By: _____ AFFIX CORPORATE SEAL Countersigned By: N/A

Harry B. Ungeheuer, Attorney-in-Fact

ATTORNEY-IN-FACT, STATE OF New York

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Harry B Ungeheuer, Gary Edie, Michael Grasso, John Bieniek, Carol A Baldwin, Barbara Ann Lavenia, Individually

of Latham, NY, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Senior Vice President and its corporate seal to be hereto affixed on this 15th day of December, 2006.



WESTERN SURETY COMPANY

Paul T. Bruflat, Senior Vice President

State of South Dakota }
County of Minnehaha } ss

On this 15th day of December, 2006, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Senior Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires
November 30, 2012



D. Krell, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 19th day of June, 2012



WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

INDIVIDUAL

STATE OF _____ }
COUNTY OF _____ } ss

On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be the individual in and who executed the foregoing instrument and acknowledged to me that _____ executed the same in his individual capacity.

Notary Public

COPARTNERSHIP

STATE OF _____ }
COUNTY OF _____ } ss

On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be one of the firm of _____ described in and who executed the foregoing instrument and he/she thereupon acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Notary Public

CORPORATE

STATE OF New York }
COUNTY OF Saratoga } ss

On this 19th day of June, 2012, before me personally appeared Kenneth J. Jersen to me known, who, being by me first duly sworn, did depose and say that he/she resides in Rexford, New York; that he/she is the Chief Executive Officer of Jersen Construction Group, LLC the corporation described in and which executed the foregoing instrument; that he/she knows the corporate seal of said corporation; that the corporate seal affixed to said instrument is such corporate seal; that it was so affixed by order and authority of the Board of Directors of said corporation, and that he/she signed his/her name thereto by like order and authority.

Rosaleen M Sanders
Notary Public



SURETY

STATE OF New York }
COUNTY OF Albany } ss

I, Barbara A. Lavenia Notary Public of Schenectady County, in the State of New York do hereby certify that Harry B. Ungeheuer Attorney-in-Fact, of the Western Surety Company, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he/she signed, sealed and delivered said instrument, for and on behalf of the Western Surety Company, for the uses and purposes therein set forth.

Given under my hand and notarial seal at my office in the City of Latham, NY in said County, this 19th day of June, A.D. 2012.

BARBARA A. LAVENIA
Notary Public, State of New York
Qualified in Schenectady County
No. 01LA5060627
Commission Expires 05/20/14

Barbara Lavenia
Notary Public

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Total Liabilities and Capital



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By Amy M. Smith
Assistant Vice President

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My commission expires:

"OFFICIAL SEAL"
KATHLEEN M. SCHROEDER
Notary Public, State of Illinois
My Commission Expires 08/16/15

Kathleen Schroeder
Notary Public



CERTIFICATE OF LIABILITY INSURANCE

OP ID: LT

DATE (MM/DD/YYYY)

06/06/12

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Rose and Kiernan, Inc. 99 Troy Road East Greenbush, NY 12061	518-244-4245	CONTACT NAME:	
	518-244-4262	PHONE (A/C, No, Ext):	FAX (A/C, No):
		E-MAIL ADDRESS:	
		PRODUCER CUSTOMER ID #: JERSE-1	
		INSURER(S) AFFORDING COVERAGE	
INSURED Jersen Construction Group LLC 6 Industry Drive Waterford, NY 12188	INSURER A: National Union Fire Insurance		NAIC # 19445
	INSURER B: Starr Indemnity & Liability Co		
	INSURER C: Hanover Insurance Co		158
	INSURER D: New Hampshire Insurance		23841
	INSURER E:		
		INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY						EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	X	X	GL4871230	11/01/11	09/01/12	DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$ 10,000
							PERSONAL & ADV INJURY \$ 1,000,000
							GENERAL AGGREGATE \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						\$
A	AUTOMOBILE LIABILITY	X	X				COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO			CA1707431	11/01/11	09/01/12	BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS						\$
	<input checked="" type="checkbox"/> NON-OWNED AUTOS						\$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB	<input checked="" type="checkbox"/> OCCUR					EACH OCCURRENCE \$ 10,000,000
	<input type="checkbox"/> EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE	X	X	SISCCCL01626311	11/01/11	09/01/12
	<input type="checkbox"/> DEDUCTIBLE						\$
	<input checked="" type="checkbox"/> RETENTION \$ 10000						\$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N	N/A	WC20635789	11/01/11	09/01/12	E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
C	Builders Risk/ Installation			RHS9374872	11/01/11	09/01/12	E.L. DISEASE - POLICY LIMIT \$ 1,000,000
							BR/Instal 1,500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

City of Saratoga Springs and Barton Loguidice PC are primary non-contributory additional insureds for General Liability and Umbrella Liability and additional insured for Automobile Liability as required by written contract. Project: Water Treatment Plant Filtration Rehabilitation 2012-12

CERTIFICATE HOLDER

CANCELLATION

CITYS15 City of Saratoga Springs Attn: City Clerks Office 474 Broadway Saratoga Springs, NY 12866-2292	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

© 1988-2009 ACORD CORPORATION. All rights reserved.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
06/06/12

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

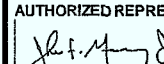
PRODUCER Rose and Kiernan, Inc. 99 Troy Road East Greenbush, NY 12061	518-244-4245 518-244-4262	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:													
	<table border="1"> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A:</td> <td></td> </tr> <tr> <td>INSURER B:</td> <td></td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A:		INSURER B:		INSURER C:		INSURER D:		INSURER E:		INSURER F:
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INSURED City of Saratoga Springs & Barton & Loguidice PC 474 Broadway Saratoga Springs, NY 12866															

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
X	GENERAL LIABILITY			9612852	06/19/12	09/01/12	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$
	<input checked="" type="checkbox"/> OCP						PERSONAL & ADV INJURY \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS		<input type="checkbox"/> SCHEDULED AUTOS				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS		<input type="checkbox"/> NON-OWNED AUTOS				PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB		<input type="checkbox"/> OCCUR				EACH OCCURRENCE \$
	EXCESS LIAB		<input type="checkbox"/> CLAIMS-MADE				AGGREGATE \$
	DED		RETENTION \$				\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)		<input type="checkbox"/> Y/N	N/A			OTHER
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Designated Contractor: Jersen Construction Group LLC 6 Industry Drive
Waterford Ny 12188. Project: Water Treatment Plant Filtration Rehabilitation 2012-12

CERTIFICATE HOLDER CITYS15 City of Saratoga Springs Attn: City Clerks Office 474 Broadway Saratoga Springs, NY 12866-2292	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE 
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STATE OF NEW YORK
WORKERS' COMPENSATION BOARD

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

<p>1a. Legal Name and address of Insured (Use street address only)</p> <p>Jersen Construction Group LLC 6 Industry Drive Waterford, NY 12188</p> <p>Work Location of Insured (<i>Only required if coverage is specifically limited to certain locations in New York State, i.e. a Wrap-Up Policy</i>)</p>	<p>1b. Business Telephone Number of Insured</p> <p>518-233-600</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 261479465</p>
<p>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</p> <p>City of Saratoga Springs Attn: Building Department 474 Broadway Saratoga Springs, NY 12866</p>	<p>3a. Name of Insurance Carrier</p> <p>New Hampshire Insurance</p> <p>3b. Policy Number of entity listed in box "1a":</p> <p>WC20635789</p> <p>3c. Policy effective period:</p> <p>11/01/11 to 09/01/12</p> <p>3d. The Proprietor, Partners or Executive Officers are:</p> <p><input checked="" type="checkbox"/> included. (Only check box if all partners/officers included)</p> <p><input type="checkbox"/> all excluded or certain partners/officers excluded.</p>

This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. (To use this form, New York (NY) must be listed under **Item 3A** on the INFORMATION PAGE of the workers' compensation insurance policy). The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The Insurance Carrier will also notify the above certificate holder within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate. (These notices may be sent by regular mail.) Otherwise, this Certificate is valid for a one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box "3c", whichever is earlier.

Please Note: Upon the cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved by: Laurie A. Teller, AAI

Approved by: *Laurie Teller* 6/4/12
(Signature) (Date)

Title: Assistant Vice President

Telephone Number of authorized representative or licensed agent of insurance carrier: 518-244-4214

Please Note: Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are NOT authorized to issue it.

C-105.2 (9-07)

Workers' Compensation Law

Section 57. Restriction on issue of permits and the entering into contracts unless compensation is secured.

1. The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any compensation to any such employee if so employed.

2. The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter.

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD
CERTIFICATE OF INSURANCE COVERAGE UNDER THE NYS DISABILITY BENEFITS LAW

PART 1. To be completed by Disability Benefits Carrier or Licensed Insurance Agent of that Carrier

<p>1a. Legal Name and Address of Insured (Use street address only)</p> <p>JERSEN CONSTRUCTION GROUP LLC 6 INDUSTRY DRIVE WATERFORD, NY 12188</p>	<p>1b. Business Telephone Number of Insured (518) 233 - 0600</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured 4895148</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 261479465</p>
<p>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</p> <p>CITY OF SARATOGA SPRINGS 474 BROADWAY SARATOGA SPRINGS, NY 12866</p>	<p>3a. Name of Insurance Carrier NATIONAL BENEFIT LIFE INSURANCE COMPANY</p> <p>3b. Policy Number of entity listed in box "1a": 8-910-0233056</p> <p>3c. Policy effective period: <u>06/12/2012</u> to <u>06/12/2014</u></p>

4. Policy covers:

a. All of the employer's employees eligible under the New York Disability Benefits Law

b. Only the following class or classes of the employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability Benefits insurance coverage as described above.

Date Signed 06/12/2012 By Kathleen Trevis
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number 800-535-2711 Title Vice President

IMPORTANT: If box "4a" is checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.
If box "4b" is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the Disability Benefits Law. It must be mailed for completion to the Workers' Compensation Board, DB Plans Acceptance Unit, 20 Park Street, Albany, New York 12207.

PART 2. To be completed by NYS Workers' Compensation Board (Only if box "4b" of Part 1 has been checked)

**State Of New York
Workers' Compensation Board**

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability Benefits Law with respect to all of his/her employees.

Date Signed _____ By _____
(Signature of NYS Workers' Compensation Board Employee)

Telephone Number _____ Title _____

Please Note: Only insurance carriers licensed to write NYS disability benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1. Insurance brokers are NOT authorized to issue this form.

DB-120.1 (5-06)

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in box "3" on this form is certifying that it is insuring the business referenced in box "1a" for disability benefits under the New York State Disability Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in box "2". *This Certificate is valid for the earlier of one year after this form is approved by the insurance carrier or its licensed agent, or the policy expiration date listed in box "3c".*

Please Note: Upon the cancellation of the disability benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability Benefits Law.

DISABILITY BENEFITS LAW

§220. Subd. 8

(a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article.

GENERAL CONDITIONS

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS

Wherever the following words, or corresponding pronouns are used in this Contract, they shall have the meaning given herein:

CONTRACT, OR CONTRACT DOCUMENTS: each of the various documents referred to in the Agreement, both severally and as a whole, including all additions, deletions, modifications and interpretations incorporated therein or appended thereto by or with approval of the Owner prior to the execution of the Contract.

OWNER: the party of the first part to this Contract, or any duly authorized agents or officers empowered to act therefor.

CONTRACTOR: the party of the second part to this Contract, or the legal representatives or agents appointed by said party for the performance of the work.

ENGINEER: the firm of Barton & Loguidice, P.C., Consulting Engineers, engaged by the Owner to provide Engineering services in connection with the work of this Contract, or its representatives duly authorized in writing to act therefor.

SURETY: the person, persons, firm or corporation who executes the Contractor's Performance Bond and Labor & Materials Payment Bond.

SUBCONTRACTOR: any person, other than employee of the Contractor, or any firm or corporation who contracts to act for or in behalf of the Contractor in performing any part of the work in connection with the Contract, exclusive of one who furnishes only materials or equipment.

PROJECT: the entire facility or improvement to which the Contract relates.

SITE: the area or areas bounded by the property lines shown on the Plans, and other areas that may be similarly designated.

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS - Continued

THE WORK: all labor, equipment and materials required, either expressly or by implication, to be furnished by the Contractor under this Contract or in connection with Change Orders or Supplemental Agreements thereto.

SUPPLEMENTAL AGREEMENT: an alteration or modification of the Contract Documents, made after execution of the Contract and agreed to in writing by the Contractor and the Owner.

CHANGE ORDER: a written order from the Owner to the Contractor directing an alteration or modification of the nature, scope or type of the work.

BOND OR PERFORMANCE BOND: the guarantee signed by the Surety, that the Contractor will complete all the work as required by the Contract.

LABOR & MATERIALS PAYMENT BOND: the guarantee, signed by the Surety, that the Contractor will pay for all Labor and Material required by the Contract.

SPECIFICATIONS: also referred to as **DETAIL SPECIFICATIONS** or **TECHNICAL SPECIFICATIONS**. The written directions, requirements, descriptions of materials, equipment, construction systems, standards and workmanship as applied to the work and specifically including Division 1 - Division 16 of the Contract Documents.

PLANS, DRAWINGS OR CONTRACT DRAWINGS: only those drawings listed as such in the Contract Documents with all Addenda thereto.

SHOP DRAWINGS, SETTING DRAWINGS, WORKING DRAWINGS, CONSTRUCTION DRAWINGS: drawings prepared, or caused to be prepared, by the Contractor, Sub-contractors, or by their equipment or material suppliers in their behalf, including standard or stock equipment drawings, necessary to the performance of the work in addition to the Contract Drawings, or as may be required by the Engineer to be submitted for review.

ADDITIONAL DRAWINGS, SUPPLEMENTARY DRAWINGS: drawings, in addition to the Contract Drawings, which may be prepared and issued by the Engineer as part of the instructions to or requests of the Contractor in connection with the work of the Contract or appertaining to changes in the work.

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.01 DEFINITIONS OF WORDS AND TERMS - Continued

ADDENDUM, ADDENDA: additional Contract provisions, deletions or changes issued by the Owner prior to the receipt of bids.

WRITTEN NOTICE: all written and authoritatively signed communications required in the normal conduct of the work or required to obtain compliance with the Contract provisions or preserve the rights of any party to the Contract. Written notice shall be considered as served when either delivered in person or deposited in a post-paid wrapper in a regularly maintained U.S. Mailbox and addressed to the person, firm or corporation intended to receive such notice, or to his appropriate agent, to the last business address of such known to the server. If mailed, the period of notice shall run from the time of the postal cancellation. It shall be incumbent upon each party to the Contract, and the Engineer, to advise the other parties to the Contract, and the Engineer, of any change in his business address until completion of the Contract and the expiration of all guarantee periods connected therewith.

DIRECTED, ORDERED, REQUIRED, DESIGNATED, PERMITTED, GRANTED, INSTRUCTED, CONSIDERED NECESSARY, APPROVED, SATISFACTORY, ACCEPTABLE: words referring to action or satisfaction of the Engineer, unless another meaning is specifically stated. The same shall apply to words of like import.

AS SHOWN, AS SHOWN ON THE PLANS: words referring to lines, numbers, or statements, or combinations thereof, on the Contract Drawings, unless another meaning is specifically stated.

ELEVATION: or any abbreviation of the word "elevation", followed by figures, shall refer to the distance in feet above the datum established by the Engineer for the Project.

ACT OF GOD: an earthquake, flood, excessive wind or other unusual natural occurrence. Rain, snow, wind, flood, lightning or other natural phenomenon of normal intensity for the locality shall not be included in the meaning of the term.

APPROVED EQUAL, EQUAL: in the Contract Documents or Contract Drawings wherever brand names are specified and followed by the phrase "or approved equal", this phrase shall be modified to read "or equal".

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.02 REFERENCES TO OTHER SPECIFICATIONS AND CODES

References in these Specifications to published specifications and codes of private and governmental technical societies and agencies shall mean the latest specification for the item or operation involved. Abbreviations of these organizations used in these Specifications may include the following:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AGA	American Gas Association
AGCA	Associated General Contractors of America
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AMCA	American Mechanical Contractors Association
ANSI	American National Standards Institute
APWA	American Public Works Association
ARI	American Refrigeration Institute
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CEMA	Conveyor Equipment Manufacturers Association
CIPRA	Cast-Iron Pipe Research Association
FM	Factory Mutual System
HEI	Heat Exchange Institute
HI	Hydraulics Institute
IEEE	Institute of Electrical and Electronics Engineer
IPCEA	Insulated Powers Cable Electric Association
NAFM	National Association of Fan Manufacturers

SECTION 00750

DEFINITIONS OF WORDS & TERMINOLOGY

00750.02 REFERENCES TO OTHER SPECIFICATIONS AND CODES - Continued

NBC	National Building Code
NBFPU	National Board of Fire Protection Underwriters
NBCA	National Bituminous Concrete Association
NCPI	National Clay Pipe Institute
NEC	National Electrical Code
NELA	National Electrical Lamp Association
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NSWMA	National Solid Wastes Management Association
NYSDOT	New York State Department of Transportation, Standard Specifications (Construction and Materials)
NYSECC	New York State Energy Conservation Code
OSHA	Occupational, Safety and Health Act
PCA	Portland Cement Association
SAE	Society of Automotive Engineers
SMACNA	Sheet Metal & Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
UL	Underwriter Laboratories', Inc.
USEPA	United States Environmental Protection Agency

END OF SECTION

GENERAL CONDITIONS

SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.01 RESPONSIBILITY OF THE ENGINEER

The Engineer shall decide questions which may arise as to the quality and acceptability of materials furnished, work performed, rate of progress of work, interpretation of Drawings and Specifications and all questions as to the acceptable fulfillment of the Agreement on the part of the Contractor. The duties and responsibilities of the Engineer as set forth herein shall not be extended except through written consent of the Engineer and the Owner.

- A. Observation of the Work: The Engineer will make periodic visits to the site to observe the progress and the quality of the executed work. All materials and each part or detail of the work shall be subject at all times to observation by the Engineer and the Owner, and the Contractor will be held strictly to the intent of the Contract Documents in regard to quality of materials, workmanship, and the diligent execution of the Contract. Observations may be made at the site or at the source of material supply, whether mill, plant or shop. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make his observations and construction review.
- B. Acceptability of Work: The Engineer's decision as to the acceptability or adequacy of the work shall be final and binding upon the Contractor. The Contractor agrees to abide by the Engineer's decision relative to the acceptability of the work.
- C. Engineer's Decisions: All claims of the Owner or the Contractor shall be presented to the Engineer for decision which shall be final except in cases where time and/or financial considerations are involved.
- D. The Engineer shall not be responsible for the Contractors or any Sub-contractor's construction means, methods, controls, techniques, sequences, procedures or construction safety or his failure to complete the work in accordance with the Contract Documents.

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SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.01 RESPONSIBILITY OF THE ENGINEER - Continued

- E. Oral Agreements: No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceedings of any other waiver or modification.

00751.02 INSPECTION OF WORK

Inspection services, performed by the Engineer pursuant to this Contract, whether of material or work, and whether performed prior to, during or after completion of construction, are performed solely for the purpose of determining general conformity of the work with the Contract Plans and Specifications.

Nothing contained herein shall create, or be deemed to create:

- A) any duty upon the Engineer to supervise the construction procedures and safety procedures followed by any Contractor or Sub-contractor or their respective employees or by any other persons at the job site, or
- B) any liability whatsoever by the Engineer to any employees or any Contractor or Sub-contractor or to any other person.

00751.03 NO WAIVER OF RIGHTS

No inspection or approval by the Owner, the Engineer, or any of their employees, nor any order, measurement or certification by the Engineer, nor payment for, nor acceptance of the whole or any part of the work by the Owner or the Engineer, nor any order of the Owner for payment of money, nor any possession taken by the Owner, nor any extension of time shall operate as a waiver of any provision of the Contract, or of any right to damage herein provided or of any power herein reserved. Neither shall a waiver of any breach of the Contract be construed to be a waiver of any other or subsequent breach. All remedies in the Contract shall be construed

SECTION 00751

POWERS AND DUTIES OF ENGINEER

00751.03 NO WAIVER OF RIGHTS - Continued

as being cumulative, in addition to each and every other remedy herein contained. The Owner shall have any and all legal and equitable remedies and recourse which he would in any case have.

END OF SECTION

GENERAL CONDITIONS

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.01 GUARANTEES, PERFORMANCE BONDS, LABOR AND MATERIALS PAYMENT BONDS AND GUARANTEES

The Contractor shall furnish Performance and Labor and Materials Payment Bonds each in an amount not less than the full amount of the accepted bid. The Performance Bond shall guarantee faithful performance of the work in compliance with all Contract Documents. The Labor and Materials Payment Bonds shall guarantee the payment of all persons performing labor or furnishing materials in connection therewith. The Bonds shall be in a form approved by the Owner and dated the same as the executed Agreement. The Surety company or companies shall be designated by the Contractor and shall be authorized to transact business in New York State, and if this is a Federally aided project, shall appear on the U.S. Treasury Department's most current list (Circular 570 as amended). The premium for these Bonds shall be paid by the Contractor and shall be included as a part of his Bid. An Attorney-in-fact who signs Performance or Labor and Materials Payment Bonds shall file with each Bond or copy thereof a certified copy of his Power-Of-Attorney to sign such Bonds.

Cash in the form of United States currency or a certified check payable to the Owner in the full amount of the accepted Bid, deposited with the Owner, will be accepted in lieu of both Bonds. Such deposit shall serve as the Performance, and Labor and Materials Payment Bonds for all purposes specified, and the Contractor agrees that such deposit, or such portion thereof as may be required to satisfactorily complete the work, shall be forfeited to the Owner.

The Owner reserves the right to order or approve additions to, omissions from, or changes in the work without notice to the Surety.

The Contractor guarantees all the work, materials and equipment called for in the Contract against defects in materials or workmanship for a period of twelve months following the date of the Notice of Substantial Completion. Under this guarantee, the Contractor shall make good, at his own expense and without delay, any failure of any part due to poor or faulty materials, construction or installation, or to the failure of any equipment to satisfactorily perform the work required of it by the Specifications. The Contractor shall also make good any damage to any part of the Project, the environment or other property of the Owner caused by such failure.

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SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.01 GUARANTEES, PERFORMANCE BONDS, LABOR AND MATERIALS PAYMENT BONDS AND GUARANTEES - Continued

Any work replaced or rebuilt during the above-mentioned guarantee period shall be similarly guaranteed for a 12-month period starting from the date of acceptance of the repair, reconstruction or replacement.

The Contractor's Performance and Labor and Materials Payment Bonds specified in the above paragraph shall fully cover all guarantees specified.

00752.02 ADDITIONAL SECURITY

At any time the Owner may become dissatisfied with the Surety or Sureties who furnished the Performance Bond and the Labor and Materials Payment Bonds, or if for other reasons the Bond(s) shall, in the opinion of the Owner, cease to be adequate security to the Owner, the Contractor shall, within five days after notice from the Owner, substitute a new Bond(s) acceptable to the Owner in form, amount and Surety. The premium on such Bond(s) shall be paid by the Contractor. No payments on any Monthly Estimate shall become due and none shall be made until the new Surety shall have been approved and the Bond(s) executed and accepted.

00752.03 CONTRACTOR'S INSURANCE

The Contractor, at his own expense, shall procure and maintain until one year after the date of the Notice of Certificate of Substantial Completion or one year after the Contractor or any Subcontractor last performs any work under the Contract, even if the Project is abandoned or deferred, insurance for liability for damages required by law of the kinds and in the amounts stated herein and as may be modified by provisions in the Additional Instructions, through insurance companies authorized to operate in New York State. The insurance shall cover all operations necessary to complete the work, whether performed by the Contractor or Subcontractors. Before starting work, the Contractor shall furnish the Owner one duplicate original policy and five certificates of insurance for each and every type of insurance required.

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

All liability insurance required by this Contract shall be maintained in force during the term of this Contract and until one year after the date of the Notice of Substantial Completion or one year after the Contractor or any Subcontractor last performs any work under the Contract, even if the Project is abandoned or deferred.

- | | |
|---|-----------------------------------|
| 1. Commercial General Liability Insurance | \$1,000,000 Occurrence |
| Bodily Injury & Property Damage | \$2,000,000 Aggregate |
| 2. Automobile Liability | |
| Bodily Injury & Property Damage | \$1,000,000 Combined Single Limit |
| 3. Umbrella Liability | \$4,000,000 Occurrence |
| | \$4,000,000 Aggregate |
| 4. Workers Compensation & Employers Liability | Statutory |
- A. Additional Insured – Contractor shall name Contractor, Owner, the Engineers and any other entity required by contract as additional insured on all liability policies except Workers Compensation and Owners, Contractors Protective Liability with respect to all operations under the Contract by the Contractor, Subcontractor, including suspension and omissions of the Owner. The additional insured status shall be on a primary and non contributing basis over all other valid and collectible insurance, with respect to this Contract.
- B. Additional Conditions
1. Waiver of Subrogation: The Contractor and Subcontractors waive all rights against (1) each other and any of their subcontractors, agents and employees, each of the other, and (2) the Owner, the Engineer, the Engineer's consultants, separate contractors, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by bodily injury, property damage, fire or other causes of loss to the extent covered by insurance provided under the Contract or other insurance applicable to the work, except such rights as they may have to proceeds of such insurance held by the Owner as a fiduciary. The Subcontractor shall require of the Subcontractor's sub-subcontractors, agents and employees, by appropriate

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

agreements, written where legally required for validity, similar waivers in favor of the parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

2. Commercial General Liability (CGL):
 - a. Coverage with limits of Insurance of not less than \$1,000,000 each occurrence and \$2,000,000 Annual Aggregate.
 - b. If the CGL coverage contains a General Aggregate Limit, such General Aggregate shall apply separately to each project/location.
 - c. CGL coverage shall be written on ISO Occurrence Form CG 00 01 1093 or a substitute form providing equivalent coverage and shall cover liability arising from premises, operations, independent contractors, products-completed operations, and personal and advertising injury and contractual liability.
 - d. Contractor, Owner and all other parties required of the Contractor, shall be included as additional insureds on the CGL. Coverage for the additional insureds shall apply as Primary and noncontributing Insurance before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the additional insureds.
 - e. Contractor and Subcontractor shall maintain CGL coverage for itself and all additional insureds for the duration of the project and maintain Completed Operations coverage for itself and each additional insured for at least one year after Contractor or Subcontractor last performs any work under the Contract.
3. Auto Liability:
 - a. Business Auto Liability with a combined single limit of at least \$1,000,000 each accident.
 - b. Business Auto coverage must include coverage for liability arising out of all owned, leased, hired and non-owned automobiles.
 - c. General Contractor, Owner, Engineers and all other parties required of the General Contractor, shall be included as additional insureds on the auto policy.

SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

4. Umbrella Insurance:
 - a. Umbrella limits must be at \$4,000,000 each occurrence and \$4,000,000 aggregate.
 - b. Umbrella coverage for such additional insureds shall apply as primary before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the additional insured other than the CGL, Auto Liability and Employers Liability coverages maintained by Contractor.
5. Workers Compensation and Employers Liability:

Statutory for New York State. All other states Employers Liability/Insurance limits of at least \$500,000 each accident for bodily injury by accident and \$500,000 each employee for injury by disease.
6. Property Insurance (Builders Risk):

The Contractor shall provide and maintain, at his own expense, such property insurance as required by Contract. Policy(s) shall provide cover for fire, extended cover including open (special) perils and theft to insure all work and materials of the Contract against loss or damage. The value of the insurance shall at all times be equal to or greater than the full value of the Contract. Insurance policies shall be in the name of the Owner and payable to the Owner. Any proceeds there to shall be retained by the Owner as security for the performance by the Contractor in making good any loss, damage or injury. Upon such satisfactory performance by the Contractor, the proceeds shall be paid by the Owner to the Contractor.

C. Owners, Contractors Protective Liability Insurance

Owners Protective Liability Insurance at the limits stated in the Additional Instructions issued in the name of the Owner to and covering the liability for damages imposed by law upon the Owner with respect to all operations under the Contract by the Contractor or his Subcontractor, including supervisory acts and omissions of the Owner. Unless otherwise stated in the Additional Instructions, a minimum of \$1,000,000 per occurrence / \$2,000,000 aggregate is required.

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SECTION 00752

INSURANCE, SECURITIES AND GUARANTEES

00752.03 CONTRACTOR'S INSURANCE - Continued

D. Insurance Certificates

Attached to each certificate of insurance shall be a copy of the Additional Insured Endorsement that is part of the Commercial General Liability Policy. These certificates and the insurance policies required shall contain a provision that coverage afforded under the policies will not be cancelled or allowed to expire until at least 30 days prior written notice has been given to the Contractor/Owner.

END OF SECTION

GENERAL CONDITIONS

SECTION 00754

CONTRACTOR'S ORGANIZATION & STAFF

00754.01 SUPERINTENDENTS, FOREMEN & AGENTS

The Contractor shall at all times, except during periods of shut-down or work suspension that have been approved or directed, have a competent superintendent, foreman or other representative on the Site, who shall see that the work is performed in accordance with the Contract Documents and directions of the Engineer given thereunder, and who shall have authority to act for the Contractor and to receive and carry out orders from the Engineer, and who shall receive materials and equipment shipped to the Contractor. The Contractor shall be responsible for the acts of his superintendents, foremen, agents and employees during the life of the Contract.

00754.02 COMPETENCY & CHARACTER OF EMPLOYEES

The Contractor shall employ only competent and skillful persons to perform the work. This provision shall apply equally to common laborers and skilled craftsmen or tradesmen.

Whenever the Engineer informs the Contractor that any person on the work is, in the Engineer's opinion, incompetent, intemperate, unfaithful, insufficiently skillful, or disorderly, or refuses to carry out the provisions of the Contract, or to stop doing unsatisfactory work when so ordered, or who uses threatening or abusive language to, or engages in offensive, hostile, or harassing conduct toward the Owner, Engineer, or any authorized representative(s) thereof, such person shall be discharged from the work by the Contractor and shall not again be employed without written consent of the Engineer.

00754.03 CONTRACTOR'S FIELD OFFICE

Unless waived by provisions within Additional Instructions, the Contractor shall provide, furnish and maintain for his own use a field office, with telephone, on the Site during the entire period of construction. The Contractor shall obtain approval of the Engineer of the type, size and location of such office, shanties or other temporary structures on the Site, prior to their erection.

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SECTION 00754

CONTRACTOR'S ORGANIZATION & STAFF

00754.03 CONTRACTOR'S FIELD OFFICE - Continued

The Contractor will receive no direct payment for providing, maintaining or removing the Contractor's Field Office specified above, and compensation for same shall be included, as part of his overhead, in the prices to be paid for the various items in this Contract.

END OF SECTION

GENERAL CONDITIONS

SECTION 00755

PERMITS, TAXES, ACCESS, OTHER CONTRACTS

00755.01 LAWS, REGULATIONS & PERMITS

The Contractor shall procure at his own expense all necessary permits from the Federal, State, County, Town, municipal or other public agencies that may be involved in the work or the Project or have jurisdiction thereover, and shall serve all notices required by law or ordinance and pay all fees and charges incidental thereto. He shall at all times keep himself fully informed of all laws, ordinances and regulations which in any way affect the work, the materials, methods and equipment used in the work, the conduct of the work, and persons engaged or employed on the work, and of all orders, instructions and decrees of bodies, agencies or tribunals having any authority or jurisdiction over the work or the Project.

If the Contractor should discover any discrepancy or inconsistency in any Contract Documents relating to any permit, law, ordinance, regulation, code, order, decree or instruction, he shall immediately report the same in writing to the Engineer.

The Contractor shall at all times observe and comply with all such existing and all laws which come into existence during the execution of the Contract, as well as permits, codes, decrees, ordinances, regulations, orders and instructions, and shall cause his superintendents, foremen, employees and agents to do likewise.

00755.02 REQUIRED LEGAL PROVISIONS DEEMED INCLUDED

All clauses and provisions of law required by law to be included in the Contract shall be deemed to be included herein, and the Contract shall be interpreted, administered and enforced as though they were included. If, through oversight or otherwise, any such clause or provision is not included, or is not correctly included, the Contract shall immediately be physically amended or corrected, at the request of either party, to provide the necessary compliance.

The inclusion in the Contract Documents of any portion of any law or ordinance or code, regulation, decree, order, permit, instruction or interpretation emanating from a public body or agency, shall not be construed to mean that all such laws or legal requirements deemed necessary, in effect, or applicable to all or any portion of the work or the Contract have been included.

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SECTION 00755

PERMITS, TAXES, ACCESS, OTHER CONTRACTS

00755.03 UNLAWFUL REQUIREMENTS DEEMED EXCLUDED

If the Contract Documents contain any unlawful provision not an essential part of the Contract and which shall not appear to have been a controlling or material inducement to the making of the Contract by the parties thereto, such provision shall be construed to be of no effect and shall, upon written notice by either party, be deemed stricken from the Contract without affecting the binding force of the remainder on both parties.

00755.04 TAXES

The Contractor shall pay all sales, use, excise, transportation and other taxes and fees for which he is liable under the Contract. The cost of such taxes and fees shall be included in the price, or total of several prices, given in the Bid on which the Agreement is based, and no separate payment will be made therefor.

00755.05 ACCESS TO WORK AND CONTRACTOR'S RECORDS

The Owner and the Engineer, and their employees, agents and representatives, shall have access to the work, the Site, and the premises used by the Contractor, and the Contractor shall provide and maintain safe and suitable facilities therefor. Subcontractors, and any other parties who may contract with the Owner to do work on the Site shall, for all purposes which may be required by their contracts, have the same privileges and facilities.

Whenever requested, the Contractor shall give the Engineer access to invoices, bills of lading, trip tickets, lists of employees, survey notes and other such data connected with the work.

END OF SECTION

GENERAL CONDITIONS

SECTION 00756

TIME ELEMENTS

00756.01 COMMENCEMENT & COMPLETION

The Contractor shall begin performance of the work within the time specified in the Information for Bidders, and shall substantially complete the work within the time specified in the Information for Bidders.

00756.02 TIME OF ESSENCE

Since the provisions of this Contract relating to the commencement and completion of the work are to enable the Owner to construct and place in use an improvement or facility in accordance with a pre-determined program, such provisions are of the essence of this Contract. It is agreed that the Owner will suffer damages if the work is not completed in the time specified.

00756.03 PROGRESS

The rate of progress shall be as uniform as practicable and such that all the work will be completed within the time specified, or within any time extensions that may be granted by the Owner.

The Engineer will notify the Contractor in writing if, at any time, he is of the opinion the work is unnecessarily delayed and will not be completed on time. The Contractor shall, within 10 days after receipt of such notice, take such action as will, in the opinion of the Engineer, improve the rate of progress to an extent that will insure completion of the work within the time specified. If the Contractor shall fail or refuse to take such steps within 10 days, the Owner may notify the Contractor to stop work or terminate the Contract in accordance with the provisions of Article 00760.01, OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT.

00756.04 APPROVED WORK SCHEDULES

Unless waived by provision in the Information for Bidders, within three weeks after award of the Contract, the Contractor shall submit to the Engineer for approval three copies of his proposed work schedule. The schedule shall show the Contractor's proposed relative order

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SECTION 00756

TIME ELEMENTS

00756.04 APPROVED WORK SCHEDULES - Continued

and sequence of commencement and completion of all salient portions of the work, including the delivery and installation of equipment, and shall give the estimated dates of commencement and completion of the various portions of the work.

If more than one Contract is to be awarded on the same phase of the project, the General Contractor shall provide the Engineer with additional copies of his work schedule after the schedule shall have been approved. The Engineer will transmit these to the other Contractors for reference in the preparation of their proposed work schedules and submittal of same for approval. In such case each Contractor other than the General Contractor shall submit his proposed schedule for approval within three weeks after receipt of a copy of the General Contractor's approved schedule.

Each Contractor shall adhere to the approved schedule for his Contract. If a Contractor causes one or more other Contractors to be damaged by failing to adhere to his schedule, he shall save harmless the Owner and the Engineer from any and all actions and charges of the other Contractors against the Owner or the Engineer as the result of such failure.

If the Contractor is behind schedule any month, the Contractor shall indicate what measures it will take in the next thirty (30) days to put the work back on schedule. If the Engineer finds the revised schedule not acceptable they may require the Contractor to submit a new revised schedule.

If the Contractor fails to submit a work schedule within the time period described or any revision or update when required, the Owner may withhold payment pursuant to Section 00759.07 of the Contract until such time as the Contractor submits the required work schedule.

See also Article 01012.01, COLLATERAL WORK.

00756.05 WORK SUSPENSION

When, in the opinion of the Engineer, good cause of suspension of the work exists, the Contractor shall suspend the work or any portion thereof, upon written order of the Engineer, for such period of time as the Engineer may direct. If the reason for suspension is beyond the control of the Contractor, the time within which the work is required to be completed shall be extended by the number of calendar days the work is suspended.

9.03

SECTION 00756

TIME ELEMENTS

00756.06 TIME EXTENSIONS

Should the work be obstructed or delayed through the neglect, delay or default of any other Contractor on the Project, or by an Act of God, or by a general strike, or by delays caused by governmental authorities having jurisdiction over the work, or by delay on the part of the Owner in performing any work or furnishing any material or equipment stated in the Contract to be furnished by the Owner, or by any Supplementary Agreement or Change Order issued by the Owner, the Contractor shall have no claim for damages against the Owner or the Engineer, other than the price or prices agreed upon under Supplemental Agreement, or Change Order, but shall be entitled to such an extension of time for completion of the work as the Engineer certifies is equitable because of such obstruction, delay, Supplemental Agreement, or Change Order, provided that claim for a time extension is made by the Contractor, in writing within seven days from the end of the time when the alleged cause therefore shall have occurred. Time necessary for Shop Drawing review, for changes to meet actual conditions, and delays incurred by seasonal and weather limitations for the locality should be normally anticipated and are neither compensatory nor eligible for extensions of time. See also ARTICLE 01012.01, COLLATERAL WORK, and 00757.03, CHANGE ORDERS AND PAYMENT OR CREDIT THEREFOR.

00756.07 ENGINEERING AND INSPECTION CHARGES

When the work embraced in the Contract is not substantially completed on or before the date specified therein, or within any time extensions granted by the Owner, engineering and inspection expenses incurred by the Owner in connection with the work from the specified or extended date of substantial completion until the date of actual Substantial Completion shall be charged to the Contractor. The date of actual substantial completion shall be determined as the date of issuance of the Notice of Substantial Completion.

Supplementary Agreements or Change Orders added to the original Contract, as well as extenuating circumstances beyond the control of the Contractor, will be given due consideration by the Owner prior to assessing engineering and inspection charges against the Contractor.

In addition, should the Contractor apply for and receive dispensation to work more than eight hours per day or forty hours per week by the Industrial Commissioner, the Contractor will be charged the associated overtime premium rate for the Engineer's on-site inspection representative(s).

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SECTION 00756

TIME ELEMENTS

00756.07 ENGINEERING AND INSPECTION CHARGES - Continued

Should the remaining minor punch list items not be completed within sixty (60) days of the Notice of Substantial Completion or within any time extensions granted by the Owner, the Contractor shall pay the Owner for any engineering and inspection expenses incurred by the Owner from the specified or extended date of minor punch list completion until when such punch list items are fully complete.

These additional engineering and inspection charges shall be in the form of agreed-upon damages to the Owner and shall be deducted from moneys due or to become due the Contractor.

00756.08 PER DIEM CHARGES FOR DELAY

For each calendar day or fraction thereof that any work except minor punch list items as listed on the Notice of Substantial Completion shall remain uncompleted after the Contract time specified for the substantial completion of the work in the Information For Bidders or extensions thereof granted by the Owner, the Contractor shall pay the Owner agreed-upon damages as follows, unless modified in the Additional Instructions:

Original Contract Amount		Agreed-Up On Damages Per Calendar Day
From More Than	To and Including	
\$ 0	\$ 25,000	\$ 50
\$ 25,000	\$ 50,000	\$ 100
\$ 50,000	\$ 100,000	\$ 200
\$ 100,000	\$ 500,000	\$ 300
\$ 500,000	\$ 2,000,000	\$ 500
\$ 2,000,000	\$ 5,000,000	\$ 600
\$ 5,000,000	\$10,000,000	\$ 800
\$10,000,000		\$1,000

The date of actual Substantial Completion shall be determined as the date of issuance of the Notice of Substantial Completion.

SECTION 00756

TIME ELEMENTS

00756.08 PER DIEM CHARGES FOR DELAY - Continued

Such sums shall be in addition to engineering and inspection charges as provided for in ARTICLE 00756.07 and shall not be in the nature of a penalty, but agreed-upon damages to the Owner in such case and shall be a part of the consideration of the Contract.

The sums and charges specified above shall be deducted from moneys due or to become due the Contractor and the amount still owing, if any, shall be paid on demand by the Contractor or the Surety. Such payments shall not relieve the Contractor or the Surety from any other obligation under the Contract.

Before assessing engineering and inspection charges, or per diem charges for damages, the Owner will give due consideration to any and all Supplementary Agreements and Change Orders as well as extenuating circumstances beyond control of the Contractor including any delays due to any preference, priority or allocation order duly issued by the Government. Such charges will be assessed, however, in cases in which the Owner considers the Contractor liable as the result of slow work, inefficient operation, insufficient labor, equipment or material, the removal and replacement of poor work, or other unwarranted reasons.

END OF SECTION

GENERAL CONDITIONS

SECTION 00757

CHANGES IN THE WORK

00757.01 RIGHT TO ALTER CONTRACT

The Owner may at any time alter or modify the Contract Documents, and the Contractor shall conform to such alterations or modifications after the Owner and the Contractor shall have entered into a Supplementary Agreement in writing therefor. The Contractor shall perform no work and furnish no material in connection with the alterations or modifications, nor shall he receive any additional payment therefor, unless and until such a Supplementary Agreement has been executed, as required by law. The Owner and the Contractor agree that alterations and modifications thus made shall in no way compromise the validity or coverage of the original Contract or Bond, or the liability of the signers thereof. All work performed under any such Supplementary Agreement shall be subject to all the provisions of the original Contract not expressly altered or modified.

00757.02 MINOR CHANGES

When ordered by the Engineer, the Contractor shall make minor changes in the location of the work, installation of equipment, and other things called for in the Contract, at no additional cost to the Owner. Such minor changes shall be limited to matters that do not alter the character, quantity or cost of the work as a whole. The Engineer shall be the sole judge of what constitutes a minor change.

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR

The Owner, without invalidating the Contract, may make changes by altering, adding to or deducting from the work the contract sum being adjusted accordingly. All such work shall be executed in conformity with the terms and conditions of the original Contract, unless otherwise provided in the order for same. Any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

No instructions, either written or verbal, shall be construed as an order for changes unless it be in the form of a Change Order, bearing the signed approval of the Owner and the signed acceptance of the Contractor, except in the case of disagreement as to value of changes, when the Contractor's signature to the order will not be mandatory. Change Order shall describe or

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

enumerate the work to be performed and state the price, if any, to be added to or deducted from the Contract sum. If the nature of the work is such that a Change Order, as above, cannot be issued until the work has been advanced sufficiently to obtain exact quantities, said work will be authorized in writing by the Owner, with the accompanying statement that a Change Order will be issued when the necessary information is at hand.

Except as provided in the above paragraph, no change shall be made, unless in pursuance of a Change Order, and no claim for an addition to the Contract sum shall be valid unless so ordered. If the Contractor believes that any instructions, by drawing or otherwise, involves extra cost under his Contract, he shall give the Owner and the Engineer written notice and then proceed as indicated in Article 00753.07, Contractor's Claim for Disputed Work.

The value of any Change Order shall be determined by one or more of the following methods and in the following order:

- A. By prices specifically named in the specifications or proposals.
- B. By acceptance of agreed unit prices based on estimated cost plus overhead and profit as applicable.
- C. By estimate of the actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- D. By actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
- E. By estimate of the value as deducible from the approved detailed estimate.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

Overhead shall be defined as an allowance to compensate for all costs, charges and expenses, direct or indirect, except for the actual cost of labor and material as defined by the following paragraph. Overhead shall be considered to include, but not be limited to insurance (other than as mentioned in the following paragraph) bond or bonds, field and office supervisors and assistants above the level of foreman, use of small tools and minor equipment, incidental job burdens, general office expense, etc.

Actual cost of labor and material shall be defined as the amount paid for the following items, to the extent determined reasonable and necessary.

1. Cost of materials delivered to the job site for incorporation into the Contract work.
2. Wage paid to workmen and foremen and wage supplements paid to labor organizations in accordance with current labor agreements.
3. Premiums or taxes paid by the Contractor for Worker's Compensation Insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
4. Sales tax paid as required by law.
5. Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Engineer. The rate on self-owned equipment used for periods of under one week will be the Associated Equipment Distributor's published monthly rate divided by 22 days to establish a daily rate and divided again by eight hours to establish an hourly rate. Equipment used for periods of 5 days or more will be billed at a rate equal to 45% of the published monthly rate. In the alternative, the Engineer may approve for reimbursement a rate representing the allocable costs of ownership. Self-owned equipment is defined to include equipment rented from controlled or affiliated companies. Rented equipment will be paid for at the actual rental cost.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost. When, in the opinion of the Contractor, and as approved by the Engineer, suitable equipment is not available on the Site, the moving of said equipment to and from the Site will be paid for at actual cost.

6. When the material furnished under item (1) is used material, its value shall be prorated to the value of new material, but should be no more than its cost. When, in the opinion of the Engineer, the salvage value of salvageable material furnished under item (1) exceeds the cost of salvage, a suitable credit shall be given the Owner.

Regardless of the method used to determine the value of any change, the Contractor will be required to submit evidence satisfactory to the Engineer to substantiate each and every item that constitutes his proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two following paragraphs.

If the work is done directly by the Contractor, overhead in an amount of 10% may be added if method B, C or D is used, and to the cost of the labor and materials plus overhead there may be added 10% for profit. The percentages for overhead and profit may vary according to the nature, extent and complexity of the work involved, but in no case shall exceed the percentages set forth in this paragraph and in the following paragraph. No percentages for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay.

If the work is done by a Sub-contractor, Sub-contractor's overhead in the amount of 5% may be added to cost of labor and materials if method B, C or D is used and to the cost of labor and materials plus overhead there may be added 10% for the Sub-contractor's profit. To this amount there may be added 10% for the Contractor's combined overhead and profit. No percentage for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay. However, to the extent that the aggregate dollar value of changes under a contract exceeds \$75,000, the 10% overhead applied to total costs of labor and materials incurred by the prime Contractor shall be reduced to 5%, and the combined overhead and profit of 10% applied to sub-contract billings shall be reduced to 5%. In addition, on all individual Change Orders in excess of \$75,000, the overhead shall be no more than 5% of the total actual cost of labor and materials incurred by the prime Contractor, and the combined prime Contractor's overhead and profit allowance applied to Sub-contract billings shall be no more than 5%.

SECTION 00757

CHANGES IN THE WORK

00757.03 CHANGE ORDERS & PAYMENT OR CREDIT THEREFOR - Continued

The Owner shall determine by which of the foregoing methods the value of any changes shall be computed.

00757.04 CORRECTION OF WORK

Any materials, plant or equipment delivered to the Site for use in the work which may be disapproved by the Engineer as unsuitable or not in keeping with the Specifications shall be immediately removed by the Contractor from the Site.

If any portion of the work is damaged in any way, or if defects or faults develop before the Inspection at Substantial Completion and issuance of a Certificate of Substantial Completion, or before the expiration of the 12-month guarantee period, the Contractor shall repair, replace or otherwise make good the damage or defects to the satisfaction of the Engineer, regardless of whether the work may have previously passed the specified inspections and tests. No additional payment will be made for such remedial work.

Failure on the part of the Engineer to condemn defective work shall not imply acceptance of the work, nor act to release the Contractor from his obligations to repair, replace or otherwise make good the work at his own expense, notwithstanding that such work may have been estimated for payment or that partial or full payments may have been made therefor.

00757.05 EMERGENCY POWERS UNIMPAIRED

The provisions of this Section 00757 shall not detract from the authority of the Contractor or the Engineer to act in case of emergency, as provided elsewhere in the Contract Documents.

END OF SECTION

GENERAL CONDITIONS

SECTION 00758

ASSIGNMENT & SUBCONTRACTS

00758.01 SUBCONTRACTS

Should the Contractor desire to subcontract any portion of the work, he shall first submit to the Engineer a statement outlining the nature and amount of the work proposed to be subcontracted and the name of the person, firm or corporation he proposes as Subcontractor. If requested by the Engineer, the Contractor shall also provide a statement as to the proposed Subcontractor's experience, financial ability, insurance certificates, or other qualifications for the nature and scope of the work proposed to be undertaken.

The proposed Subcontractor shall not enter upon the Site nor perform any work, either on or off the Site, until written approval of the Subcontractor has been granted by the Engineer and the Surety.

Subcontracts shall in no way, directly or indirectly, release, compromise or modify the responsibility of the Contractor or the Surety for the satisfactory and full completion of the work. The Owner shall not be liable to any Subcontractor for any lien on structures to be constructed as part of the work or claim on moneys due the Contractor or any other lien, claim or damages whatsoever. The approval of the Engineer and the Surety of a Subcontractor shall in no way create a contractual obligation between the Owner and the Subcontractor.

In the event a Subcontractor shall disregard the directions of the Engineer, or fail in any other way to abide by all conditions of the Contract, the Contractor shall, upon written order of the Engineer, require the Subcontractor to discontinue work under the Contract.

The Contractor shall be responsible for the coordination of all of his Subcontractors engaged upon the work, both in connection with his own work and the work of other contractors, if any, working collaterally on the Project.

The divisions or sections of the various Contract Documents and Bid Items are not intended to define portions of the work to be divided among Subcontractors, nor to influence the Contractor to award Subcontracts, nor to limit or enlarge the work performed by any trade, unless a Subcontractor experienced in providing a certain specialized type of work is specifically required in the Contract.

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SECTION 00758

ASSIGNMENT & SUBCONTRACTS

00758.02 LIMIT OF SUBCONTRACTS VALUE

The Owner reserves the right to limit the total value of all Subcontracts to fifty (50) percent of the total Contract price.

00758.03 ASSIGNMENT

In accordance with the provisions of Section 109 of the General Municipal Law of the State of New York, the Contractor shall not assign, convey, transfer, sublet or otherwise dispose of this Contract, or of his right, title or interest therein, or his power to execute such Contract, to any other person or corporation without the prior written consent of the Owner.

If the Contractor shall, without such consent of the Owner, assign, convey, transfer, sublet or otherwise dispose of this Contract to any other person or corporation, the Owner may revoke and annul the Contract, in which instance the Owner shall be relieved and discharged from any and all liability and obligations to the Contractor arising from the Contract, and to the persons or corporation to which the Contract shall have been assigned, conveyed, transferred, sublet or otherwise disposed of, and the Contractor and his assignees, conveyees, transferees or sublessees shall forfeit and lose all moneys theretofore earned under such Contract, except so much as they may be required to pay his employees.

Nothing herein shall prevent an assignment by the Contractor for the benefit of his creditors made pursuant to the laws of the State of New York.

00758.04 PAYMENT

Payment to Subcontractors and/or material men, shall be in accordance with Section 106b of the General Municipal Law of the State of New York.

END OF SECTION

GENERAL CONDITIONS

SECTION 00759

PAYMENTS

00759.01 ESTIMATED QUANTITIES

The Contractor agrees that the estimated quantities given in the Bid are only for the purpose of comparing bids and that he is satisfied with and will at no time dispute the said estimates as a means of comparing the aforesaid bids, that he will make no claim for loss of profits or anticipated profits because of any difference between the said estimated quantities and the quantities of the various classes of work actually furnished or performed, that the Owner shall not be held responsible if any of the said estimated quantities should be found to not even approximate those actually measured during performance of the work, and that the Engineer may direct an increase, decrease or omission of the quantities of any class or part of the work as may be deemed necessary or desirable.

00759.02 PRICES ALL-INCLUSIVE

The price or prices herein agreed to shall be for the work complete, and shall include the furnishings of all labor, tools, plant, equipment and materials therefor, whether required directly or indirectly, unless otherwise specified.

00759.03 LUMP SUM PRICES

A lump sum price stated in the Bid for an item shall be for the work complete as shown on the Plans and described in the Specifications for the corresponding item and shall include the cost of all labor, tools, plant, equipment and materials, specified or implied, incidental to the work of the item complete and ready for the service intended.

Within three weeks after execution of the Contract, the Contractor shall submit to the Engineer for approval three copies of a detailed schedule showing the breakdown of all lump sum bid prices in the Contract. The schedule shall indicate the quantities and amount estimated for each part of the work. The schedule shall be apportioned by the Contractor for labor and for materials, if so requested by the Engineer. The Contractor shall revise the schedule until it is satisfactory to the Engineer. The approved breakdown will be used in the preparation of monthly estimates and payments to the Contractor.

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SECTION 00759

PAYMENTS

00759.04 UNIT PRICES

A unit price stated in the Bid for an item of the work specified to be measured for payment by units of volume, weight, area, length or number shall be paid for each unit of the net amount of the work of the item actually performed or furnished and incorporated in the finished work in accordance with the Specifications, Plans and as directed, as measured along the payment lines specified or shown, local custom to the contrary notwithstanding. It is agreed that the planimeter shall be considered an instrument of precision for the measurement on drawings and plans of areas in connection with the estimation of quantities in cases where geometric methods would be comparatively laborious.

00759.05 MONTHLY ESTIMATES AND PAYMENTS

Unless otherwise noted in the Additional Instructions or the Specifications once each month, on a day of the month selected by him, the Engineer will make an estimate of the value of the work done during the previous month, provided such value exceeds one thousand dollars. The Engineer shall submit this Monthly Estimate to the Owner for payment. The Owner will pay the Contractor each month, within 30 days of the date of the Monthly Estimate, a sum equal to ninety-five (95) percent of the Monthly Estimate, retaining five (5) percent of each estimate until the work or major portions thereof is substantially completed.

The work will be considered Substantially Complete when the work of the Contract including all alterations or modifications (see Section 00757 - CHANGES IN THE WORK) is at least ninety-nine (99) percent complete and the estimated value of minor items to be completed is equal to or less than one (1) percent.

The Engineer will include in the Monthly Estimates the delivered cost of equipment and non-perishable materials on site and off site which have been tested or inspected by the Engineer and approved by him for incorporation in the work. Only equipment and materials for which the Contractor furnishes the Engineer receipted invoices as evidence that he has unconditional title thereto will be included. Such invoices shall be furnished the Engineer at least ten days in advance of the established date of preparation of Monthly Estimates.

SECTION 00759

PAYMENTS

00759.05 MONTHLY ESTIMATES AND PAYMENTS - Continued

The Contractor shall provide and maintain insurance for the said equipment and materials (on site and off site) as specified in 00752.03.

Payments made for materials and equipment delivered will in no way affect the Contractor's responsibilities regarding the same.

00759.06 WITHDRAWAL OF RETAINED PERCENTAGE

Pursuant to Section 106 of New York State General Municipal Law and notwithstanding any inconsistent provisions of any general, special or local law under any contract made or awarded by any political subdivision, or any officer, board or agency thereof, or of any district therein, the Contractor may, from time to time, withdraw the whole or any portion of the amount retained from payments to the Contractor pursuant to the terms of the Contract, upon depositing with the Fiscal Officer of the Political Subdivision or district therein (1) bonds or notes of the United States of America, or obligations, the payment of which is guaranteed by the United States of America, or (2) bonds or notes of the State of New York, or (3) bonds of any political subdivision of the State of New York, of a market value equal to the amount withdrawn. The Fiscal Officer of the Political Subdivision or of a district therein, from time to time shall pay the same, when and as collected, to the Contractor who deposited such obligations. When the deposit is in the form of coupon bonds, the coupons shall be delivered to the Contractor as they respectively come due. The Contractor shall not be entitled to interest or income on, or the coupons of, any obligations so deposited by him, the proceeds of which shall have been used or applied by the Political Subdivision or district therein pursuant to the terms of the Contract. The Fiscal Officer shall be entitled to charge a reasonable fee for such service.

00759.07 OWNER'S RIGHT TO WITHHOLD PAYMENTS

The Owner may withhold from the Contractor such portions of any approved payments due him as the Owner may judge necessary to:

- A. Protect the Owner from loss due to defective work not remedied;

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SECTION 00759

PAYMENTS

00759.07 OWNER'S RIGHT TO WITHHOLD PAYMENTS - Continued

- B. Failure to provide work schedule or revisions thereto;
- C. Assure the payment of just claims then due and unpaid for labor or materials;
- D. Protect the Owner from loss due to injury to persons or damage to the work or property of other Contractors, Sub-contractors, or others caused by acts of neglect of the Contractor or his Sub-contractors. The Owner shall have the right as agent for the Contractor to apply moneys so withheld as the Owner may deem proper to secure such protection or satisfy such claims, and such payments shall be deemed made for the account of the Contractor.

00759.08 INSPECTION AT SUBSTANTIAL COMPLETION

The Engineer will make an Inspection of the work as soon as possible after the Contractor gives written notice that the work is substantially complete. The Contractor shall assist the Engineer, as may be required, in making the Inspection. Cost to the Contractor, if any, to assist the Engineer in making the Inspection shall be included in the appropriate bid item as selected by the Contractor and no additional payment will be made to the Contractor for his work. After making the Inspection, the Engineer will notify the Contractor in writing of the results, including particulars regarding any part of the work which, in his opinion, is incomplete or requires correction or additional cleaning. The Contractor shall make good any incomplete or defective work before again asking for another Inspection. If in the opinion of the Engineer the work is substantially complete, the Engineer shall issue in writing a Notice of Substantial Completion. Said Notice will list those minor items requiring completion before Final Payment. (See also ARTICLE 00757.04, CORRECTION OF WORK.)

00759.09 CERTIFICATE OF SUBSTANTIAL COMPLETION

Upon issuance of the Notice of Substantial Completion by the Engineer, and the submission by the Contractor of a written statement from Surety that the Performance Bond (Labor & Materials Payment Bonds included) in the amount of one hundred (100) percent of the value of the Contract is in force for a period of one year following the date of Notice of Substantial Completion, the Engineer will file a Certificate of Substantial Completion with the Owner and the Contractor, certifying that the work is substantially complete and setting forth the amount of work performed and compensation earned by the Contractor. All prior estimates of the amount and value of work performed shall be subject to correction in this certification.

SECTION 00759

PAYMENTS

00759.10 PAYMENT AT SUBSTANTIAL COMPLETION

Within 30 days after the filing of the Certificate of Substantial Completion the Owner will pay the Contractor one hundred (100) percent of the full value of the work certified therein, less twice the value of any minor work remaining to be completed and all prior payments and advances to or for the account of the Contractor, and the amount necessary to satisfy any claims, liens or judgements against the Contractor which have not been discharged.

00759.11 FINAL PAYMENT

The Contractor shall fully complete the remaining minor items within sixty (60) days of the issuance of the Notice of Substantial Completion.

Upon certification by the Engineer that the remaining items of the Contract including all corrections, alterations and/or modifications have been completed and that no repairs, renewals or replacements are required of the Contractor, or that, if required, such remedies have been effected, the Engineer shall prepare a Final Payment request recommending to the Owner payment to the Contractor of the amount retained at the time of substantial completion less any amount necessary to satisfy any claims, liens or judgements against the Contractor which have not been discharged.

Within 30 days after the receipt from the Contractor of acceptable affidavits, certificates or waivers as evidence that no right to any claim or lien exists, the Owner will pay the remainder of the Contract as indicated in the Final Payment.

See also Article 00150.06, VERIFICATION OF AMOUNTS DUE FOR WAGES AND SUPPLEMENTS.

00759.12 ACCEPTANCE OF FINAL PAYMENT

Acceptance by the Contractor of the Final Payment shall serve as a release to the Owner of all claims and of all liability to the Contractor for all things done or furnished in connection with the work, and for any and all acts of neglect of the Owner or others relating to or because of the work, except the Contractor's claim for interest upon the Final Payment, if this payment is unduly delayed. No payment whatsoever shall operate to release the Contractor or the Surety from their obligations under the Contract or Bond.

SECTION 00759

PAYMENTS

00759.13 GUARANTEE INSPECTION

On or about one year from and after the date of the Notice of Substantial Completion, the Engineer will again inspect the work. The Contractor shall assist the Engineer, as may be required, to make the one year inspection. Cost to the Contractor, if any, to assist the Engineer in making the one year inspection shall be included in the appropriate bid item as selected by the Contractor and no additional payment will be made to the Contractor for this work. The Contractor shall provide any and all repairs, renewals or replacements which may be revealed as necessary in this Guarantee Inspection and which, in the opinion of the Engineer, are the responsibility of the Contractor. Should the Contractor fail to comply with written instructions of the Engineer regarding these remedies, the Owner will cause the remedies to be made by others and will pay the cost which will be reimbursed by the Contractor and/or his Surety.

The Contractor and his Surety agree that the Contractor's Performance Bond (Labor & Materials Payment Bonds included) shall cover fully all guarantees as specified herein and in ARTICLE 00752.01.

00759.14 ACCEPTANCE OF PORTIONS OF THE WORK

The Owner reserves the right to accept for his service and use any portion of the work at any time during the life of the Contract without prejudice to the Owner in enforcing any provisions of the Contract.

The Owner may accept the portion or portions of the work which is substantially complete under the following agreed procedures:

- A. The Contractor will be notified by the Engineer in advance as to what portion or portions of the work the Owner intends to accept for his use and service.
- B. The retained percentage for the Substantially Completed portion or portions of work shall be released in accordance with ARTICLE 00759.09.
- C. The guarantee period applicable to that portion or portions of the work shall start from the date of acceptance.
- D. The remaining minor items of the portion or portions of substantially completed work shall be finished or corrected to the satisfaction of the Engineer.

SECTION 00759

PAYMENTS

00759.14 ACCEPTANCE OF PORTIONS OF THE WORK - Continued

- E. The Owner will assume responsibility for maintenance, heat, utilities and insurance on accepted portion or portions of the work.
- F. All applicable provisions specified in this Section for work deemed substantially complete shall apply.

00759.15 REPAIR OR REPLACEMENT OF DAMAGED, DEFECTIVE OR FAULTY WORK

If any portion of the work is damaged in any way, or if defects or faults develop before the inspection at Substantial Completion, or before the expiration of the 12-month guarantee period, the Contractor shall repair, replace or otherwise make good the damage or defect to the satisfaction of the Engineer, regardless of whether the work may have previously passed the specified inspections and tests. No additional payment will be made for such remedial work.

Failure on the part of the Engineer to condemn defective work shall not imply acceptance of the work, nor act to release the Contractor from his obligations to repair, replace or otherwise make good the work at his own expense, notwithstanding that such work may have been estimated for payment or that partial or full payments may have been made therefor.

00759.16 PAYMENT TO SUB-CONTRACTORS BY CONTRACTOR

Within fifteen calendar days of the receipt of the payment from the Owner, the Contractor shall pay the Sub-contractors, and/or material men a sum equal to the value of the work performed less any amount necessary to satisfy claims, liens or judgements that have been discharged less any amount retained as hereafter described.

- A. The retained amount shall not exceed more than 5% on each payment except that 10% of each payment may be retained, if the Sub-contractor(s) and/or material men failed to provide a Performance Bond (Labor & Materials Payment Bonds included) in the full amount of the Sub-contract.
- B. The Contractor shall not retain any money from Sub-contractor(s) and/or material men, after receipt of the Certificate of Substantial Completion payment.

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SECTION 00759

PAYMENTS

00759.16 PAYMENT TO SUB-CONTRACTORS BY CONTRACTOR - Continued

Within fifteen calendar days of the receipt of the payment from the Contractor, the Sub-contractor(s) and/or material men shall pay each of his Sub-contractors and/or material men in same manner as the Contractor has paid the Sub-contractor(s) and/or material man.

The Owner shall not be under any obligation to see that the Contractor makes any payment to a Sub-contractor and/or material men.

END OF SECTION

GENERAL CONDITIONS

SECTION 00760

CONTRACT TERMINATION

00760.01 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

The Owner, by seven days written notice to the Contractor and without prejudice to any other rights or remedies it may have, may terminate the employment of the Contractor and his right to proceed, either as to the entire work or any portion thereof on which delay shall have occurred, and may take possession of and complete the work by contract or otherwise, as the Owner may deem expedient, in the event of any of the following:

- A. If the Contractor shall refuse or fail, after being warned by the Engineer, to supply enough competent workmen, equipment or proper materials, or
- B. If the Contractor shall refuse or fail to perform the work or any part thereof with sufficient diligence to insure its completion within the time specified, or shall fail to complete the work within said period, or
- C. If the Contractor shall fail to promptly pay persons supplying labor or materials for the work, or
- D. If the Contractor shall fail or refuse to regard laws, ordinances, permits or orders from the Engineer or otherwise substantially violate any provision of this Contract, or
- E. If the Contractor shall be adjudged bankrupt or make an assignment for the benefit of creditors, or
- F. If a receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within 20 days after such appointment, or the proceedings in connection therewith shall not be stayed on appeal within the said 20 days.

If the Owner so terminates or stops the Contractor, the Contractor shall not be entitled to receive any further payment until the work is completed. If the unpaid balance of moneys to be paid the Contractor hereunder shall exceed the cost of completing the work, including the cost of

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SECTION 00760

CONTRACT TERMINATION

00760.01 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT -
Continued

additional administrative, managerial, engineering, and inspection services and or delay, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor and the Surety shall be liable to the Owner for the excess.

If the right of the Contractor to proceed is terminated as provided herein, the Owner may take possession of and use in completing the work such materials, plant, equipment, supplies and appliances as may be on the Site and necessary to the work, provided that the termination was not made pursuant to paragraphs "E" or "F" above.

00760.02 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

In the event the work shall be halted by order of a Court or any other public authority having jurisdiction for a period of 90 days or more without act or fault of the Contractor or any Sub-contractor, the Contractor, upon 10 days written notice to the Owner, may terminate the Contract or discontinue performance of the work. In either case the liability of the Owner to the Contractor shall be determined as provided in ARTICLE 00760.01, except that the Contractor shall not be obligated to pay to the Owner any excess of the cost of completing the work over the unpaid balance of the payments to be made to the Contractor hereunder.

00760.03 OTHER TERMINATION PROVISIONS

In addition to the provisions set forth in this Section 00760, specific references relating to termination or cancellation of the Contract are contained elsewhere herein. These include but are not limited to:

00150.03	NON-DISCRIMINATION AND LABOR PRACTICES
00752.03.A	WORKER'S COMPENSATION INSURANCE
00756.03	PROGRESS
00758.03	ASSIGNMENT

END OF SECTION

GENERAL CONDITIONS

SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.01 INTENT OF PLANS AND SPECIFICATIONS

The intent of the Plans, Specifications and other Contract Documents is to provide for the work outlined and delineated therein, complete in every detail for the purpose designated. The Contractor agrees to furnish everything necessary for the work as intended, any omission in the Plans or Specifications notwithstanding.

The Contractor shall furnish all materials, tools, plant equipment and labor, except those specifically set forth herein as to be furnished by the Owner, required to construct and place in complete and satisfactory working order the work contemplated by the Contract Documents. The mention in any part of the Specifications of any specific liability, duty or responsibility of the Contractor will not be construed as a restriction, limitation or waiver of any general liability, duty or responsibility of the Contractor, such mention being merely for explanatory purposes. The Contractor shall be solely responsible for the adequacy of his plant, tools and equipment, approval of the Engineer notwithstanding.

The Contractor shall do the work in a manner judged to best promote rapid construction consistent with due regard for the safety of life and the preservation of property, the satisfaction of the Engineer, and the intent of the Contract Documents.

The Contractor shall:

- a) make all necessary excavations or embankments.
- b) do all clearing and grubbing.
- c) place all sheeting, shoring, bracing and supports.
- d) furnish all underdrains.
- e) provide draining, pumping bailing, ditching and diking for surface or below ground water.
- f) provide all things necessary to protect, support and maintain structures, utilities, drains, conduits, culverts, trees, fences, poles, walls, earth banks, shrubbery, sidewalks, railways, roadways and drives.
- g) repair all damage done to items in (f) above.
- h) do all fencing, lighting and watching.
- i) drive all piles and construct all foundations.

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SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.01 INTENT OF PLANS AND SPECIFICATIONS - Continued

- j) construct all concrete, brick, stone, tile and timber work.
- k) place all iron and steel work and reinforcement.
- l) lay all water pipes, sewers, drains and conduits and make all connections to or between such.
- m) resurface and repave all streets, sidewalks, roads or drives open cut or damaged.
- n) refill all trenches and excavations.
- o) provide all fences, bridges, fills, detours and signs for maintenance of travel in public ways.
- p) make all connections to or between existing structures and utilities.
- q) construct all buildings and structures.
- r) furnish and install equipment.
- s) clean up and dispose of all rubbish and surplus materials.

00761.02 INTERPRETATION OF PLANS & SPECIFICATIONS

The Engineer shall interpret the Plans and Specifications, and any Change Orders or Supplemental Agreements. Anything shown on the Plans but not included in the Specifications, or mentioned in the Specifications but not shown on the Plans, shall have the same effect as if set forth in both. In the event of a conflict between the Plans and Specifications, the Specifications shall govern. The attention of the Engineer shall be called to any discrepancies, as required by ARTICLE 01340.06.

00761.03 CONTRACT DRAWINGS

The location, nature and many details of the work are shown on the Contract Drawings. The work shall be constructed as shown on these Plans and such other drawings as may be issued during the life of the Contract by the Engineer, or furnished by the Contractor and approved by the Engineer.

The purpose of the Contract Drawings together with other Contract Documents, is to provide Bidders with sufficient information to prepare adequate and equitable Bids and to provide an adequate and equitable basis for the Agreement. The Contract Drawings may or may not provide sufficient detail for the actual construction of all segments of the work as shown and

SECTION 00761

DESCRIPTION & DELINEATION OF THE WORK

00761.03 CONTRACT DRAWINGS - Continued

specified. The Contractor shall furnish Construction Drawings or other drawings, as specified or requested, or, as may be required to adequately delineate for his workmen all details necessary for the work.

The Contract Drawings were prepared on 24" x 36" tracings. Reduced-size prints may have been prepared for the convenience of Bidders and others. During construction, the Contractor shall obtain data and information from full-size prints in preference to reduced-size prints.

Unless otherwise stated in the Information For Bidders, the Contractor will be furnished, free of charge, three copies of the Contract Documents, including three sets of Contract Drawings. Any other copies of the Contract Documents which the Contractor may desire can be obtained by him from the Engineer at the cost of duplication thereof.

The Contractor shall keep at least one set of Specifications and one full-size set of Plans on the Site, and shall at all times give the Engineer and the Owner access thereto.

00761.04 ADDITIONAL OR SUPPLEMENTAL DRAWINGS

The Engineer may prepare Additional Drawings or Supplemental Drawings during the course of the work, in connection with minor changes, Change Orders, Supplemental Agreements, or to augment or amplify the Contract Drawings or other drawings, or as part of orders or instructions, and the Contractor shall abide by such drawings in the same manner as specified for the Contract Drawings.

Drawings required by the Contractor are discussed in Article 01340.01.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01012

COLLATERAL WORK

01012.01 COLLATERAL WORK

The Owner may award other contracts in connection with the Project, the work under which may proceed concurrently with the work of this Contract. In this event the Contractor shall coordinate his operations with those of the other contractors, and shall cooperate with them in the arrangement for the storage of materials and performance of the work.

The Contractor and his Sub-contractors shall keep themselves informed of the progress of the work of other contractors and sub-contractors and shall notify the Engineer immediately of defective workmanship or insufficient progress on the part of others, where such will interfere with his own operations. Either failure of the Contractor to keep himself informed of the progress of work under other contracts on the Site, or failure of the Contractor to give proper notice of same, shall be deemed as acceptance by him of the status of the work under other contracts as it may affect his own work.

See also ARTICLE 00756.04, APPROVED WORK SCHEDULES, and ARTICLE 00756.06, TIME EXTENSIONS.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01015

CONTRACTOR USE OF PREMISES

01015.01 AREA AVAILABLE FOR CONTRACTOR'S USE

The Contractor shall confine his operations to those portions of the Owner's property, and to the right-of-ways or easements, temporary or permanent, acquired or designated for the work of the Contract as shown on the Drawings. Private property adjacent the Site shall not be entered upon or used by the Contractor for any purpose without the written consent of the Owner thereof. A copy of such consent shall be filed with the Engineer.

When required, the Contractor shall provide and maintain fences at his own expense, along the roadways and around the grounds occupied by him for the protection of adjoining property and all persons lawfully using same. Fences shall be of materials and construction suitable in the opinion of the Engineer for their intended purpose.

All work within or abutting private property shall be performed in such ways as to create the minimum of inconvenience and disturbance to the private property and its users. Excavated materials or supplies of any kind shall not be stored on off-site public or private property without written consent of the Owner thereof, and all walks and drives shall be kept open to uninterrupted passage. A copy of each such written consent shall be filed with the Engineer.

Materials delivered upon public streets shall be neatly stored between the sidewalk and the curb or ditch line, and at least 10 feet from any fire hydrant. A passageway of at least three feet shall be preserved on the sidewalk line.

01015.02 TRAVEL NOT OBSTRUCTED

The Contractor shall not needlessly hinder or inconvenience travel on any public or private way, nor shall he wholly obstruct same without written permission of the Owner. If he is permitted to obstruct a traveled way, the Contractor shall provide plain and appropriately worded signs and adequate barricades and lighting at the nearest cross streets, and at each end of the obstructed portion, announcing such obstruction and directing traffic to and along an approved detour.

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SECTION 01015

CONTRACTOR USE OF PREMISES

01015.02 TRAVEL NOT OBSTRUCTED - Continued

Unless otherwise specified or permitted, all entrances and exits of fire houses, industrial plants, commercial buildings and public buildings shall be kept open and maintained in passable condition at all times. The Contractor shall give notice to the owner of each traveled way before interfering therewith.

01015.03 CLEANING UP

The Contractor shall remove from the Site and dispose of, at his own expense, all rubbish, refuse and unused materials, as the work progresses. If such work is neglected, the Engineer will give written notice thereof to the Contractor. If the work is not performed within five days thereafter, the Owner will employ other persons to do such work, and the expense thereof shall be deducted from any monies due or to become due the Contractor.

The Contractor shall clean and leave free from obstruction all pipes, buildings, manholes and other structures. This work shall be coordinated with the Engineer's Inspection at Substantial Completion, or as directed. All rubbish, refuse, unused materials, plant and equipment shall be removed from the Site, and the entire Site shall be left in a neat condition. All equipment installed in the work by the Contractor shall be cleaned and left in a bright and new-appearing condition.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01019

SITE CONDITIONS

01019.01 PRE-BID INSPECTION & EXAMINATION

The Contractor warrants and represents that he visited the Site prior to submitting his Bid, and that he has satisfied himself as to the location and nature of the work and the quantity, quality, type and nature of both surface and subsurface structures and materials apt to be encountered.

See also 00753.01.B.

01019.02 BORINGS

Any data on subsurface conditions that may have been obtained by the Owner prior to the advertisement for bids, through test borings, test pits, seismic explorations, or other means, was obtained by the Owner for his sole use and only for his own purposes. Any such data, known or recalled as of the date of advertisement for bids, are shown on separate drawings or in separate schedules and reports which are not any part of the Contract Documents. All such data are made available to Bidders, the Contractor and other interested parties only as a convenience and without express or implied representation, assurance or guarantee that any of the information is complete, correct, or adequate or representative of a true or typical picture of subsurface conditions on the Site.

The Contractor, both during his status as Bidder and after execution of the Contract, shall satisfy himself as to the nature, character, quality and quantity of above ground and below ground conditions apt to be encountered. Any reliance on data made available by the Owner shall be at the Contractor's sole risk.

No claim whatsoever shall be made by the Contractor against the Owner or Engineer for or on account of such data available, or neglected to be made available, by the Owner or Engineer.

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SECTION 01019

SITE CONDITIONS

01019.02 BORINGS - Continued

The Contractor at any time, and any holder of Contract Documents during the period between advertisement for and receipt of bids, will be permitted to make test borings, test pits, soundings or similar subsurface investigations on the Site. Prior to making these investigations the Contractor and/or any holder of Contract Documents must notify the Engineer when and where he proposes to make such investigations.

The locations where test boring samples, if any, may be examined is given in the Additional Instructions.

See also ARTICLES 00753.01.B, 00753.07, 00759.01, 01019.04 and 01019.06.

01019.03 PROTECTION OF EXISTING STRUCTURES

The Contractor shall at all times have on the Site suitable and sufficient plant and materials to adequately protect, support and sustain any and all existing structures and facilities, whether above or below ground, and shall use same as may be necessary or required to protect, support and sustain any and all such structures as may become weakened, endangered, undermined or uncovered.

He shall, at his own expense, support and sustain in their places and protect from direct or indirect damage all water, gas, steam, air or other mains or pipes, sanitary and storm water sewers and drains, conduits, subways, service connections, buildings, poles, wires, fences, pavements, sidewalks, curbs, railways, trees and other structures and property and appurtenances thereto on or in the vicinity of the Site, and shall assume all liability for damage thereto, including damage arising out of settlement or lateral movement of walls of excavations, whether occurring during performance of the work or the 12-month period of guarantee.

In the event of damage or danger to any such structure or facility the Contractor shall immediately notify the Engineer, and shall promptly repair or protect the structure as the Engineer may direct.

SECTION 01019

SITE CONDITIONS

01019.04 EXISTING STRUCTURES BELOW GROUND

The Contract Drawings show the location and character of certain existing subsurface structures and facilities apt to be encountered in excavations or located in such proximity to the work as to require precautions for their protection. The sizes, materials, locations and depths shown are only approximate, and the Contractor shall satisfy himself as to the accuracy and completeness of such information. The Contractor shall not be relieved from any of his obligations, nor be entitled to claim for damages or additional compensation, sustained or arising out of inadequacy or inaccuracy of the information given.

01019.05 ABANDONED STRUCTURES

Any structures, facilities or appurtenances therefor which are abandoned or become so by reason of the work, shall, at the Contractor's expense, be broken up and filled with approved material, if directed by the Engineer.

01019.06 LATENT SUB-SURFACE CONDITIONS

In the event that latent sub-surface conditions are found to materially differ from those on which the Plans and Specifications are based, the Contractor shall immediately notify the Engineer before they are disturbed. After prompt investigation, the Engineer will determine what changes, if any, should be made in the Plans and Specifications because of the revealed conditions, and shall instruct the Contractor accordingly. Any change in the cost of the work resulting therefrom shall be adjusted as provided in Section 00757.

01019.07 ADJUSTMENT OR CHANGES OF EXISTING STRUCTURES

If, in the opinion of the Engineer, an underground pipe or other structure requires realignment or relocation, and such realignment or relocation was not included in the Plans or Specifications, the Engineer will issue a Change Order for such work, and the Contractor shall be compensated therefor as provided in Section 00757. The Contractor shall strip or uncover and support or sustain the structure at his own expense prior to such Change Order, as part of his work under the original Contract, and he shall not be entitled to claim for damage or delay due to its presence or discovery.

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SECTION 01019

SITE CONDITIONS

01019.07 ADJUSTMENT OR CHANGES OF EXISTING STRUCTURES - Continued

Wherever existing utilities come within limits of the work, the Contractor shall notify both the Engineer and the Utility before in any way disturbing same. Any work of realignment, relocation, removal or extension of the utilities shall be done as mutually agreed by the Utility, the Contractor and the Engineer. The Contractor shall maintain satisfactory drainage of the excavation at all times from revelation of the structure until completion of its realignment or readjustment. Interruption of service by utilities shall be kept to a minimum.

The Contractor shall not cause nor permit interference with or hindrance to any municipal department, individual, public service corporation, or other company in protecting its structures and facilities, nor in removing, replacing or relocating same.

01019.08 MAINTENANCE AND RESTORATION OF SERVICE

The Contractor shall, at his own expense, provide for the maintenance of flow in all water courses and all sanitary and storm sewers, drains, connections and appurtenances thereto. The contents of sewers, drains or service connections shall not be permitted to flow into excavations, sewers or other parts of the work without written permission of the Engineer, and the Contractor shall, at his own expense, immediately remove from the Site and adequately dispose of all offensive matter, in an approved manner.

The flow of water, and normal water pressure, in all water mains, conduits and service connections encountered on the Site, shall be provided for and maintained by the Contractor at his own expense. When water mains or service connections must be disturbed to the extent that service must be shut off, the Contractor shall give at least 24 hours notice to the Utility and all customers served by the lines involved. Such notice shall give the estimated times of shut-off, and restoration of service. If fire hydrants are involved, the fire department serving the area shall be similarly notified.

In the event of accidental disruption of water service, it shall be deemed an emergency, and the Contractor shall proceed with the necessary repairs immediately and continuously, giving this work priority over all other operations, until service has been satisfactorily restored. The Contractor shall give immediate notice of such break or service interruption to the Engineer, the Utility, and all customers affected, and shall supply, at his own expense, assistance in supplying

SECTION 01019

SITE CONDITIONS

01019.08 MAINTENANCE AND RESTORATION OF SERVICE - Continued

an emergency source of water when necessary by means of temporary lines, tank trucks, or other means. All lines and connections shall be restored to the satisfaction of the Engineer and the Utility.

All portions of the foregoing provisions regarding water service which are applicable to sewer, gas, telephone or other services shall apply also to maintenance and emergency repair of such services.

01019.09 POLES & POSTS ON-SITE

Poles or posts of any Utility located within the lines of the work which, in the opinion of the Engineer, will impede progress of the work, shall be supported or removed and replaced by the Contractor at his own expense and in accordance with the requirements of the Utility involved. The Contractor shall remove, relocate, replace or support all other poles and posts at his own expense and to the satisfaction of the Engineer.

The Contractor shall employ no equipment which will unduly interfere with wires or other overhead facilities.

01019.10 NOTIFICATION OF OTHER PARTIES

In addition to notices to Utilities and others required elsewhere herein, the Contractor shall give written notice of his proposed construction operations to the owners of all public and private utilities at least seven days in advance of breaking ground in any area in which a utility is located. Copies of each such notice shall be simultaneously sent to the Engineer.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01051

LAYOUT OF WORK

01051.01 INFORMATION PROVIDED BY ENGINEER

The Engineer will provide, on the Contract Drawings, sufficient information for the Contractor to establish baselines, offsets and other survey control points. Unless otherwise noted, no additional survey work will be provided by the Engineer.

01051.02 SERVICES PROVIDED BY CONTRACTOR

Unless otherwise noted in the Additional Instructions or Specification, the Contractor will establish such additional lines, grades and elevations as he deems necessary and will include the following:

- A. Structures & Buildings: Corner stakes at all principal corners of exterior walls or foundations. Two bench marks in the vicinity of the structure or building.
- B. Sewers: Offset grade line stakes, on one side, with stations approximately forty linear feet on centers.
- C. Water Mains & Force Mains: When laid to grade, the same as for sewers. When not laid to grade, none.
- D. Roads & Runways: Offset center line grade stakes, on one side, with stations approximately fifty linear feet on centers.
- E. Embankments: Slope stakes on both sides at approximately one hundred linear feet on centers, with additional stakes at principal breaks in grade.
- F. Tunnels & Borings: Center line and offset baseline on the surface, on starting end. Also one progress check every fifty linear feet of long tunnels.
- G. Other Types of Construction: The Contractor will provide control stakes as he deems necessary to properly layout his work.

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SECTION 01051

LAYOUT OF WORK

01051.02 SERVICES PROVIDED BY CONTRACTOR - Continued

- H. On Traverse or Cross-country type of construction, such as pipelines and roads, a temporary center line may be required for clearing purposes.
- I. The Contractor will issue a grade letter for pipeline and road construction which is to be laid or installed to a predetermined grade. All other stakes will have the information marked on a witness stake beside the hub.

The Contractor shall provide all the necessary materials for control points, including all: stakes, hubs, lath, grade boards, cleats, nails and such other materials as may be required.

The Contractor shall also provide such non-technical assistance as may be required in the establishment of marks, other than primary or basic controls, such as clearing sight lines and driving stakes.

The Contractor shall erect and establish all grade boards, batter boards and construction control lines from the information provided by the Engineer.

The Contractor shall layout the work to best suit his methods of operations, using the Engineer's information provided to assure the construction will be in the position the design anticipated.

01051.03 OBLIGATIONS OF THE CONTRACTOR

The Contractor shall carefully preserve and protect all stakes, marks, monuments and points provided or described by the Engineer, and shall reimburse the Owner for any and all additional engineering costs incurred because of the replacement or reestablishment of any such items which may be moved, removed, obliterated or destroyed due to his construction operations. When directed, the Contractor shall provide suitable barricades for the protection of points.

The Contractor shall bear the entire cost of rectifying work improperly done due to his own negligence in preserving and protecting marks, or to moving or removing same without approval of the Engineer.

SECTION 01051

LAYOUT OF WORK

01051.03 OBLIGATIONS OF THE CONTRACTOR - Continued

He shall inform the Engineer a reasonable time in advance of his operations of the times and places he proposes to work, so that lines, grades and elevations may be established and necessary measurements for record and payment may be made with the minimum of inconvenience or delay to either himself or the Engineer. No additional compensation will be paid the Contractor for any delay caused by insufficient notice.

01051.04 LINES, GRADES AND ELEVATIONS

The terms "invert" or "grade" used in the Contract Documents in connection with pipes, sewers, channels, flumes and similar structures shall mean the inside bottom of the pipe or other surface on which the liquid flows along the center line of the completed work. "Subgrade" refers to the bottom line or surface to which excavations are necessarily made to construct the work as shown or specified, exclusive of any additional depth of excavation required for any special foundation.

The term "Grade Letter" shall mean a data sheet giving the amount of cut or fill from offset stakes to the invert or grade.

All work shall be constructed in accordance with the lines and grades shown, specified or directed. The Contractor shall be responsible for maintaining alignment and grade between points provided or described on the Contract Drawings.

01051.05 MASONRY CHASES, OPENINGS AND INSERTS

If the Owner awards other contracts for collateral work on the Site, it shall be the obligation and responsibility of the General Contractor to provide all openings and chases in his work to fit both his own work and that of the other contractors. The General Contractor shall provide all openings shown on the Contract Drawings, or reasonably implied thereby, as confirmed or modified by Additional Drawings or drawings submitted by Contractors and approved by the Engineer.

Where pipes or conduits pass through slabs or walls, the sleeves or opening forms shall be provided by the installer of the pipes or conduits but shall be placed by the General Contractor.

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SECTION 01051

LAYOUT OF WORK

01051.05 MASONRY CHASES, OPENINGS AND INSERTS - Continued

If hanger inserts or similar items are required, they shall be furnished by the installer of the pipe or other equipment for which the hangers are intended, but shall be placed by the General Contractor.

Any expense resulting from mislocated, defective, or ill-timed work shall be borne by the Contractor responsible therefor. No Contractor shall alter the work of another Contractor without the consent of the Engineer and knowledge of the Contractor involved, and no Contractor shall endanger any work by cutting, excavating or other operations.

01051.06 PAYMENT FOR LAYOUT OF WORK

The cost to the Contractor of providing the services and materials specified in this Section 01051 shall be included in the price, or total of prices, given in the Bid on which the Agreement is based, and no separate payment will be made therefor. Any cost to the Owner for additional engineering layout work, as set forth in ARTICLE 01051.03, will be deducted from monies due or to become due the Contractor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01064

SAFETY AND HEALTH

01064.01 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standard Act (PL 91-54), latest revisions.

In order to protect the general public and the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the latest issues of the Federal Register, Bureau of Labor Standards, Safety and Health Regulations; New York State Industrial Code Rule 30 pertaining to Tunneling Operations; New York State Industrial Code Rule 23 pertaining to Trenching Operations; and the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Contract. In case of a conflict between the above noted authorities, the most stringent shall prevail.

The Contractor shall have on the project site at all times, while work is in progress, at least one person skilled in safety and health procedures and familiar with State and Federal safety and health regulations whose responsibility shall be to observe methods and procedures. He shall have the duty and authority to stop and/or correct all unsafe and unhealthy conditions.

01064.02 SAFETY AND FIRST AID

The Contractor shall at all times exercise caution in his operations and shall be responsible for the safety and protection of all persons on or about the Site. All hazards shall be avoided or guarded in accordance with the provisions of the Manual of Accident Prevention in Construction of the AGCA, unless such provisions contravene local law. The safety provisions of all applicable laws, codes and ordinances shall be observed.

The Contractor shall provide and maintain at the Site, at each location where work is in progress, as part of his plant, an approved first aid kit. Ready access thereto shall be provided at all times when men are employed on the work.

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SECTION 01064

SAFETY AND HEALTH

01064.02 SAFETY AND FIRST AID - Continued

The Contractor shall take due precautions against infectious diseases, and shall arrange for the immediate isolation and removal from the Site of any employee who becomes ill or is injured while engaged on the work.

01064.03 DUST HAZARDS

- (a) If, in the construction of the work covered by the Contract, a harmful dust hazard is created for which appliances or methods for the elimination of dust have been approved by the Board of Standards and Appeals, such appliances or methods shall be installed and maintained and effectively operated by the Contractor at his expense.
- (b) The Contract shall be void and of no effect unless the Contractor complies with the provisions of this subdivision of the Contract and Labor Law Section 222-a.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01340

SUBMITTALS

01340.01 DRAWINGS FURNISHED BY THE CONTRACTOR

The Contractor shall prepare, or cause to be prepared by his suppliers or Subcontractors, and submit to the Engineer for review, Shop Drawings, Setting Drawings, Working Drawings and Construction Drawings as may be specified or directed or necessary to the performance of the work. Deviations from the drawings and specifications shall be called to the attention of the Engineer at the time of the first submission of Shop Drawings, or other drawings, for consideration. Corrections or comments made on the Shop Drawings or other drawings during review do not relieve the Contractor from compliance with the requirements of the Contract Drawings and Specifications. Approval is only for general conformance with the design concept of the Project and with information set forth in the Contract Drawings and Specifications. Contractor is responsible for dimensions to be confirmed and correlated at the job site, information that pertains solely to the fabrication process or to the means and methods of construction, coordination with the work of all trades, and performing all work in a safe and satisfactory manner. Approval does not modify Contractor's duty to comply with the Contract Documents.

Within thirty days of the execution of the Agreement, the Contractor shall submit five copies of a schedule of submittals which includes a complete list of products proposed for the work tabulated by Specification Section, including manufacturer or fabricator, model number or other identifying designation.

Shop, Setting or Working Drawings shall be submitted for each type and model of fabricated materials and equipment. They shall provide complete and accurate working dimensions, weights, assembly and sectional views, details necessary to coordinating the work, anchor bolt and installation plans and instructions, parts lists and descriptions, materials and finishes lists, lists of any tools and spare parts required, diagrams of control wiring and piping, the location, sizes and types of connections to other work or other items, and any other data required to comply with the Contract or provide the workmen and the Engineer with information necessary to complete and inspect the work.

Electrical equipment drawings and data shall show physical dimensions, installation details, elementary and connection diagrams for each motor controller, interconnection diagrams for all equipment, identification of components external to electrical equipment, the coordination of control circuits, and definition of the contract arrangement and control action of the primary and final control elements.

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SECTION 01340

SUBMITTALS

01340.01 DRAWINGS FURNISHED BY THE CONTRACTOR - Continued

If the Contractor proposes to furnish and install equipment requiring a layout or arrangement materially changed from that shown on the Contract Drawings as illustrative of one acceptable arrangement, he shall submit, for review, drawings showing the proposed arrangement and the appertaining changes to wiring, piping, structures and other equipment.

Submittals such as pre-printed manufacturers' installation instructions, maintenance data, parts lists, test results, or similar informational material are not considered Shop Drawings and will not be reviewed. Any submittal not required or otherwise requested will be returned to the Contractor.

See also ARTICLE 01340.08, ADDITIONAL ENGINEERING COSTS.

01340.02 TRANSMITTAL, IDENTIFICATION AND RESUBMITTAL

The Contractor shall accompany all drawings and other data submitted to the Engineer with a letter of transmittal in duplicate. Unless otherwise specified elsewhere herein, all other correspondence with the Engineer shall also be in duplicate.

All drawings shall be suitably identified with the name of the Project, Contract Number, Contractor name, name of the equipment or materials manufacturer, specification section designation and item number (if applicable) date, and initials indicating approval of such submittal by the Contractor under the applicable specification.

The Contractor shall submit to the Engineer for review five copies of all drawings and other data, plus the number of copies he wishes returned bearing the Engineer's review stamp, comments, or request for changes, but in no case shall the total number of copies so submitted be less than six. If the Engineer makes comments or corrections, they will be noted on the drawings, or explained in a letter of transmittal, or both, and all but three copies will be returned to the Contractor for revision or other requested action. The Contractor shall make any requested revisions or additions and resubmit the drawings in the same manner as for the initial submittal. If requested by the Engineer, the Contractor shall supply additional copies of submitted data.

SECTION 01340

SUBMITTALS

01340.02 TRANSMITTAL, IDENTIFICATION AND RESUBMITTAL - Continued

The Engineer's review stamp shall indicate one of the following:

- Approved
- Approved as Noted
- Revise as Noted - Resubmit
- Rejected - Resubmit as Specified

Upon return of a submittal marked "Approved" or "Approved as Noted", the Contractor may order, ship or fabricate the materials so noted. A submittal marked "Approved as Noted" should not be resubmitted for further review. Submittals marked "Revise as Noted – Resubmit" include extensive corrections or corrections of major importance affecting other items and require the submittal to be amended and resubmitted for a final review. Submittals marked "Rejected – Resubmit as Specified" are reserved for materials or equipment which are unacceptable. The Contractor shall resubmit for materials or equipment which are acceptable and in accordance with the Specifications.

More than one resubmittal per material or equipment will be considered an additional cost to the Engineer which shall be reimbursed by the Contractor. Refer to Article 01340.08 for method of reimbursement.

01340.03 DELAY THROUGH TARDY SUBMITTAL

All submittals shall be made on such a schedule and at such time as to permit adequate review. The Contractor shall make due allowance for possible revisions and resubmittals. Delays caused by tardy submittal of drawings or data for review shall be the responsibility of the Contractor. No work covered by submitted drawings, or drawings specified to be submitted, shall be performed until such drawings and data have been reviewed.

See also ARTICLE 00756.04, APPROVED WORK SCHEDULES.

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SECTION 01340

SUBMITTALS

01340.04 CONTRACTOR RESPONSIBLE FOR ACCURACY

The Contractor shall be responsible for the accuracy and completeness of the drawings and other data he submits, for their conformity to the Plans and Specifications, and for the proper fit and clearance of all construction work.

The Owner retains for the Engineer the option to refuse to review submitted data that are improperly identified or incomplete or which have not been checked by the Contractor for compliance with the Contract Documents.

01340.05 ADDITIONAL INSTRUCTIONS

The Engineer may from time-to-time issue additional instructions to the Contractor as may be necessary to amplify, augment, modify or clarify the Contract Documents. These may be in the form of drawings, specifications, interpretations, orders and instructions, and may be in connection with or made a part of a Supplemental Agreement, Change Order, or Minor Change.

See also SECTION 00757, CHANGES IN THE WORK.

01340.06 DRAWINGS TO BE CHECKED BY CONTRACTOR

The Contractor shall check all dimensions, quantities and representations in the Specifications, Contract Drawings, Additional Drawings and all Supplemental Agreements, Change Orders and Instructions, and shall immediately notify the Engineer of any and all errors, omissions, or discrepancies therein which he may find. The Contractor will not be permitted to take advantage of any such error, omission or discrepancy in any Contract Document or subsequent document, as full instructions will be provided by the Engineer in such case.

01340.07 SUBSTITUTES AND "OR-EQUAL" ITEMS

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item, the Specification or description is intended to establish the type, function and quality required. Unless the Specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment may be accepted by the Engineer under the following circumstances:

SECTION 01340

SUBMITTALS

01340.07 SUBSTITUTES AND “OR-EQUAL” ITEMS - Continued

“Or-Equal”: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor is of similar quality and functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed equal items.

Substitute Items: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item, it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below in advance to provide adequate time to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the Engineer will include the following or as the Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or 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 first make written application to Engineer for review thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation of the proposed substitute will prejudice Contractor’s achievement of Substantial Completion on time, whether or not 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 or credits 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 will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

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SECTION 01340

SUBMITTALS

01340.08 ADDITIONAL ENGINEERING COSTS

In the event that the Contractor fails to submit acceptable Shop Drawings (i.e., Shop Drawings which are returned marked “Approved” or “Approved as Noted”) within two submittals, further review of the Shop Drawings will be considered an Additional cost. Similarly, all Engineering Costs associated with the review of a substitution will be considered an Additional cost.

Additional Engineering Costs include redesign, additional Shop Drawing reviews, investigations, consultant fees and revisions to the Contract Documents required because of the proposed substitution. Additional Engineering Costs will be the total of:

- a. Billing Rates Schedule
- b. Direct Expenses Plus 10%
- c. Consultant Fees Plus 10%

Additional Engineering Costs shall be deducted from Contractor Payments by the Owner, in accordance with the Agreement for Engineering Services between the Owner and the Engineer.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01506

WORK UNDER UNUSUAL CONDITIONS

01506.01 WORK AFTER DARK

Unless specifically required elsewhere herein, the Contractor shall perform no work after dark except in emergencies. When time permits, he shall inform the Engineer in advance of such work and shall obtain the Engineer's approval. When time does not permit advance notice to the Engineer, he shall inform the Engineer at the earliest possible moment.

The placing of concrete shall be so scheduled as to be started early enough in daylight hours to allow sufficient time for the completion of the section under construction before dark, including the work of finishers.

When, in order to minimize interference with existing structures or utilities, or maintain traffic, it may, in the opinion of the Engineer, be expedient or necessary to do work after dark, such work shall be performed by the Contractor at no additional cost to the Owner, and the Contractor shall provide adequate lighting therefor.

01506.02 WORK ON SUNDAYS OR HOLIDAYS

Unless specifically required elsewhere herein, the Contractor shall do no work on Sundays or locally recognized legal Holidays except in an emergency, and then shall confine his operations to only the work considered necessary to be performed at such time.

01506.03 WORK IN STORMS

If required by the Engineer, masonry work and the mixing and placing of concrete shall be halted during rain storms, and all fresh work shall be immediately protected with suitable coverings. The Contractor shall keep a sufficient quantity of such coverings at the Site as part of his plant and equipment.

No paving, exterior painting, fine grading, seeding or roofing shall be done during rain or snow storms.

01506-2

SECTION 01506

WORK UNDER UNUSUAL CONDITIONS

01506.04 WORK IN COLD WEATHER

Certain Specifications contain provisions prohibiting the performance of certain work in cold weather, or outlining the conditions under which such work may be so performed. In the absence of specific mention elsewhere in the Contract Documents, the judgement of the Engineer shall govern in any case where temperature may adversely affect or prevent the performance of good work.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.01 SANITARY FACILITIES

The Contractor shall provide on the Site, at his own expense, one or more toilets, suitably screened from public observation for the use of all persons employed on the work. They shall be provided, maintained and removed, when directed, by the Contractor, in such quantity, locations and manner as approved by the Engineer. Contents shall be removed and disposed of in a manner and at such times as shall be approved. Chemical toilets are to be preferred.

The Contractor shall not permit or condone the committance of nuisances on or about the Site. Any employee found violating these provisions shall be discharged in accordance with the provisions of ARTICLE 00754.02.

The Contractor shall comply with any and all sanitary regulations as may have been established for the locality.

If the Owner awards other contracts for collateral work on the Project, the provision of sanitary convenience shall be the responsibility of the General Contractor, and all such facilities shall be made available to other Contractors and all Subcontractors until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor, however, shall be individually responsible for the acts of his employees and Sub-contractors, and for all provisions of this Section after completion of the General Contract.

01510.02 WATER

The Contractor shall provide at all times sufficient drinking water from an approved source and by approved means, for all persons having reason to be on the Site in connection with the work.

If an ample supply is owned or controlled by the Owner, and is available at or near the Site, such supply will be made available to the Contractor, subject at all times to the requirements of the Owner established therefor, and at a cost to the Contractor as determined by the current schedule of charges filed by the Utility for all customers. Permission to use the water must be obtained in writing.

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SECTION 01510

SERVICES DURING CONSTRUCTION

01510.02 WATER - Continued

If water is obtained from a public or private supply not owned or controlled by the Owner, the Contractor shall make such arrangement for service with the owners thereof as they may require.

Non-potable water for other than drinking purposes may be obtained at the Site from the ground or surface sources, at the Contractor's own expense. The water must, however, be suitable for the purpose intended and shall be approved by the Engineer. The Specifications, for instance, contain requirements for water for making concrete and mortar.

If the Owner awards other contracts for collateral work on the Project, it shall be the responsibility of the General Contractor to obtain potable water for drinking purposes, and such water shall be made available to all Contractors, until the date of the Certificate of Substantial Completion for the General Contract. Each Contractor, however, shall be individually responsible for providing potable water for his own employees and his Sub-contractors after completion of the General Contract.

If the General Contractor provides water, whether potable or non-potable, for his own purposes during construction of the work, besides drinking water, such water shall be made available to other Contractors and their Sub-contractors during the life of the General Contract. Removal of temporary facilities shall be by the General Contractor, but such installation and meters shall remain until need therefor by each Contractor has ceased, or until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor shall provide his own services after completion of the General Contract.

01510.03 TEMPORARY HEAT

If the Owner awards other contracts for collateral work on the Project, it shall be the obligation and responsibility of the General Contractor to provide and maintain temporary heat in all above ground structures, and in all below ground structures other than manholes and similar pipeline appurtenances, by means of portable electric, oil or gas-fired appliances. The General Contractor shall provide and pay for all fuel and electric power used by such appliances, and any wiring or connections required, and shall provide suitable smoke pipes or other devices to prevent the deposit of smoke or smudge on building components or equipment.

SECTION 01510

SERVICES DURING CONSTRUCTION

01510.03 TEMPORARY HEAT - Continued

After their installation by the Heating & Ventilating Contractor, the permanent heating system facilities may be used for temporary heating purposes, the operation thereof, and any temporary wiring or piping required and all power consumed shall be the obligation and responsibility of the General Contractor, who shall also be responsible to the Heating & Ventilating Contractor for the repair of any damage of work of the Heating & Ventilating Contract suffered as the result of use by the General Contractor.

After enclosure of all spaces to be heated, except for doors, windows and similar apertures, temporary enclosures for all apertures shall be provided. Temperatures in the entirety of such spaces shall be continuously maintained at not less than 50°F between October 15 and May 15, unless written permission is granted otherwise by the Engineer. The General Contractor shall securely install on each floor of each building near the center of the building, a suitable thermometer. Either the temporary or the permanent heating system shall be available for around-the-clock use during the season specified above.

The Owner will supply all heat after the date of the Certificate of Substantial Completion of the General Contract.

No portion of the Temporary Heat provisions herein contained shall be construed to waive or modify any provisions regarding maintenance of air or materials temperatures for the protection of the work contained elsewhere in the Contract Documents.

01510.04 TEMPORARY ELECTRIC LIGHT AND POWER

If the Owner awards other contracts for collateral work on the Project, it shall be the obligation and responsibility of the General Contractor to provide and maintain temporary facilities for furnishing light and power necessary for operations under the General Contract, and to make all necessary arrangements therefor, including all required conductors, outlets and connections, ordering the meter, paying all fees and inspection charges and pay for all power bills until the date of the Certificate of Substantial Completion of the General Contract.

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SECTION 01510

SERVICES DURING CONSTRUCTION

01510.04 TEMPORARY ELECTRIC LIGHT AND POWER - Continued

The facilities shall be available to other Contractors and their Sub-contractors for their use in connection with their work. The installation and meters shall remain until need for same by each Contractor has ceased, or until the date of the Certificate of Substantial Completion of the General Contract. Each Contractor shall provide his own services after completion of the General Contract.

It shall be the responsibility of the General Contractor to provide, prior to the completion of his Contract, temporary power of proper voltage and capacity necessary to test and operate all equipment installed under this Contract.

01510.05 PAYMENT FOR SERVICES DURING CONSTRUCTION

The General Contractor will receive no direct payment for providing, maintaining or removing any of the temporary facilities or services specified in this Section 01510, and compensation for same shall be included, in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.01 GENERAL

The Contractor shall control erosion and sediment caused by construction activities through the use of scheduling, phased construction and restoration, berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains and other erosion control devices or methods.

In the event of conflict between these specification requirements and pollution control laws, rules or regulations of other Federal, State or local agencies, the more restrictive laws, rules or regulations shall apply.

01568.02 CONTROL SCHEDULE

At the pre-construction conference, or prior to the start of the applicable construction, the Contractor shall be required to submit, for acceptance, his schedules for the accomplishment of erosion and sediment control. He shall also submit, for acceptance, his proposed method of erosion and sediment control on haul roads and borrow pits and his plan for disposal of waste materials or control details for other potential sources of pollution.

The Contractor shall schedule and conduct his operations to minimize erosion of soils and to prevent silting and muddying of streams, rivers, irrigation systems, impoundments (lakes, reservoirs, etc.) and lands adjacent to or affected by the work. Construction of drainage facilities and performance of other contract work which will contribute to the control of erosion and sedimentation shall be carried out prior to earthwork operations and maintained in conjunction with earthwork operations. The area of bare soil exposed at any one time by construction operations shall not exceed the maximum acreage allowable under applicable State and Federal laws.

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.03 CONTROL MEASURES

In carrying out erosion control measures, the Contractor will be guided by, but not limited to, the following controls:

- A. When borrow material is obtained from other than commercially operated sources, erosion of the borrow site shall be so controlled both during and after completion of the work that erosion will be minimized and sediment will be prevented from entering streams or other bodies of water. Waste or disposal areas and construction roads shall be located and constructed in a manner that will prevent sediment entering streams.
- B. Frequent fording of live streams will not be permitted; therefore, temporary bridges or other structures shall be used wherever an appreciable number of stream crossings are necessary. Unless otherwise approved in writing by the Engineer, mechanized equipment shall not be operated in live streams.
- C. When work areas or gravel pits are located in or adjacent to live streams or other bodies of water, such areas shall be separated from the main stream by a dike or other barrier to prevent entry of sediment into a flowing stream. Care shall be taken during the construction and removal of such barriers to prevent the muddying of a stream or body of water.
- D. All waterways shall be cleared as soon as practicable of falsework, piling, debris or other obstructions placed during construction operations and not a part of the finished work.

Ditches which are filled, or partly inoperative shall be cleaned, stabilized, and made operative before the Contractor stops work for any day, and shall be maintained in a condition satisfactory to the Engineer for the duration of the Contract.

- E. Water from aggregate washing, dewatering or other operations containing sediment shall be treated by filtration, settling basin or other means sufficient to reduce the turbidity so as not to cause a substantial visible contrast to natural conditions in the receiving waters.

SECTION 01568

EROSION AND SEDIMENT CONTROL

01568.03 CONTROL MEASURES - Continued

- F. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing operations shall not be allowed to enter live streams or other bodies of water.
- G. All applicable regulations of environmental protection agencies, conservation agencies, and fish and wildlife agencies and statutes relating to the prevention and abatement of pollution shall be complied within the performance of the Contract.
- H. Slopes exceeding 15 percent require special treatment such as water diversion berms, straw bale sediment barriers, sodding, fabric blankets or mesh, or the use of an approved mulch tacking agent over straw or hay mulch applied over seeded areas.

The erosion and sediment control features installed by the Contractor shall be acceptably maintained by the Contractor throughout the Contract period. When it becomes necessary, the Engineer will inform the Contractor of unsatisfactory construction procedures and operations insofar as erosion control, water and air pollution are concerned. If the unsatisfactory construction procedures and operations are not corrected promptly, the Engineer may suspend the performance of any or all of other construction until the unsatisfactory condition has been corrected.

01568.04 PAYMENT

Unless a specific payment item is included in the Bid, payment for Erosion and Sediment Control shall be included in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01577

BASIC MAINTENANCE OF TRAFFIC

01577.01 GENERAL

This work shall consist of basic maintenance and protection of traffic within the limits of and for the duration of the Contract.

01577.02 TRAVEL NOT OBSTRUCTED DURING EXCAVATION

The Contractor shall not needlessly hinder or inconvenience travel on any public or private way, nor shall he wholly obstruct same without written permission of the Owner. If he is permitted to obstruct a traveled way, the Contractor shall provide plain and appropriately worded signs and adequate barricades and lighting at the nearest cross streets, and at each end of the obstructed portion, announcing such obstruction and directing traffic to and along an approved detour.

Unless otherwise specified or permitted, all entrances and exits of fire houses, industrial plants, commercial buildings and public buildings shall be kept open and maintained in passable condition at all times. The Contractor shall give notice to the Owner of each traveled way before interfering therewith. A minimum of 24 hours notice shall also be given to local police and fire control agencies.

01577.03 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC

Traffic shall be maintained over a reasonably smooth traveled way which shall be so marked by signs, delineators, guiding devices and other methods that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience ride, drive or walk, day or night, over all or any portion of the highway and/or structure under construction where traffic is to be maintained.

- | | |
|--------------|--|
| A. Surface. | Maintain the surface condition of the traveled way so it is consistent with the appropriate speed limit. |
| B. Drainage. | Maintain the drainage facilities and other highway elements, old or new, including detours. |

SECTION 01577

BASIC MAINTENANCE OF TRAFFIC

01577.03 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC - Continued

- C. Bus Stops. Maintain existing bus stops, if any, so bus passengers are reasonably accommodated.
- D. Pedestrian Traffic. Provide adequate protection for pedestrian traffic during all phases of construction.
- E. Intersecting Highways. Provide ingress and egress to and from intersecting highways, homes, businesses and commercial establishments.
- F. Dust Control and Spillage. Control dust and keep the traveled way free from materials spilled from hauling equipment. This shall also apply to dust control and spilled material resulting from the Contractor's operations in the areas outside the Contract limits. The Contractor shall provide for the control of dust, as necessary, during the construction period. Dust shall be controlled by water spray, or as approved by Engineer. Exposed soils shall be graded, seeded and mulched as soon as practicable.
- G. Flagmen. Provide the necessary traffic control equipment and flagmen for adequate traffic control on the traveled way.
- H. Repairs. Make the necessary repairs to existing pavement and structure wearing surfaces as required to provide a reasonably smooth traveled way where vehicle operation is maintained.
- I. Responsibility to the Public. Protect the public from damage to person and property which may result directly or indirectly from any construction operation.
- J. Snow and Ice Control. Maintain the traveled way in such a condition and conduct operations in such a manner that snow and ice may be readily controlled by others as and when necessary, and in such a manner that proper drainage is provided for the melting of snow in the banks resulting from normal plowing. The Contractor shall not, however, be responsible for snow and ice control on the pavement or traveled way.

SECTION 01577

BASIC MAINTENANCE OF TRAFFIC

01577.04 PAYMENT

Unless a specific payment item is included in the Bid, payment for Basic Maintenance of Traffic shall be included in the price, or total of prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01580

PROJECT SIGN

01580.01 GENERAL

If directed in the Additional Instructions, the Contractor shall provide and erect a project sign or signs at the project site identifying the project and the applicable funding agencies participating in the project. The project sign(s) shall also indicate the title and description of the project, Owner, Engineer and Contractor. The sign(s) shall be erected within twenty-one (21) days after the construction contract is awarded, and shall be in accordance with the specifications and detailed drawing included in the Additional Instructions.

01580.02 SIGN PANEL

Each sign panel shall be constructed of 3/4" minimum thickness marine plywood rabbetted into a 2" x 4" lumber frame. All fasteners used in the construction of each sign shall be of a rustproof nature.

01580.03 PAINTING

Each sign face shall be painted with the proper paint colors for the background, lettering and emblem as specified in the Additional Instructions. All supports, trim and the back of the sign panel, shall be painted with at least two coats of the same color paint as used for each sign face. All paint used shall be exterior grade paint, suitable for use on wood signs.

01580.04 MISCELLANEOUS

Sign(s) shall be located in a prominent position and aligned as determined by the Engineer. Adequate support for the project sign(s) shall be provided by the Contractor. The bottom edge of each sign shall be a minimum of 3 feet above grade. The project sign(s) shall be maintained in good condition by the Contractor for the duration of construction. The removal of the project sign(s) from the construction site by the Contractor shall be at the completion of construction, when ordered by the Engineer.

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SECTION 01580

PROJECT SIGN

01580.05 PAYMENT

Unless a specific payment item is included in the Bid, payment for Project Sign, including fabrication, erection, maintenance and removal of each sign, shall be included in the price, or total prices, given in the Bid on which this Agreement is based, and no separate payment will be made therefor.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01590

ENGINEER'S FIELD OFFICE TRAILER

01590.01 DESCRIPTION

Unless waived by provisions within the Additional Instructions, the Contractor shall provide a field office trailer for the exclusive use of the Engineer and his assistants. The trailer shall be separate from that of the Contractor, and shall be ready for occupancy within ten days following execution of the Contract.

01590.02 FACILITIES TO BE PROVIDED

The name of the supplier and proposed layout shall be submitted to the Engineer and approved prior to delivery of the trailer.

The trailer office shall be new or in first class condition and shall be not less than 12 feet by 56 feet, excluding the tongue.

Washroom with hot water supply and toilet facilities within the trailer shall be supplied with potable water and connected to a sanitary sewage disposal system. The trailer shall be fully air conditioned. A gas or oil heat system shall be provided within the field office. A minimum of one month's fuel storage shall be provided, together with the necessary appurtenances to control heat and check fuel storage. Heating and air conditioning equipment shall be capable of maintaining an air temperature of 70°F.

An individual, unlisted, direct line telephone service shall be provided for the exclusive use of the Engineer. Telephone service, local and toll charge calls, shall be paid by the Contractor.

It shall be the responsibility of the Contractor to maintain the field office trailer and all facilities furnished with it. Maintenance shall include removal of snow, janitorial services, and adequate protection of pipes.

It shall be the Contractor's responsibility to furnish adequate heat, electric power and light to the field office trailer at his expense. Adequate lighting shall consist of a minimum, of four, two lamp, 4' fluorescent lights.

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SECTION 01590

ENGINEER'S FIELD OFFICE TRAILER

01590.02 FACILITIES TO BE PROVIDED - Continued

The following office furniture and equipment shall be furnished with the trailer:

- Two 8' flat top double desks with 2 sets of two drawer metal file cabinets in each desk.
- 1 built-in drafting table 36" x 72" with double storage cabinets underneath.
- 4 swivel chairs.
- 2 drafting stools.
- 1 four drawer, fireproof legal size filing cabinet with lock.
- 2 plan racks with space for 5 plan hangers each.
- 4 wall coat hooks.
- 2 large metal waste baskets.
- 1 refrigerator, minimum 2 cubic feet.

01590.03 LOCATION

The trailer shall be erected on an approved location convenient for inspection of the work, as directed by the Engineer. The field office trailer shall be moved once if directed by the Engineer.

01590.04 PAYMENT

Payment for the Engineer's Field Office Trailer, and all services to be provided with it, not included under other unit or lump sum price items shall be made at the price stated in the Bid.

END OF SECTION

GENERAL REQUIREMENTS

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.01 MATERIALS AND WORKMANSHIP - GENERAL REQUIREMENTS

All workmanship, materials, equipment and appliances shall comply in all respects with the applicable Specifications, unless specific exception is made.

All materials furnished or incorporated in the work shall be new, unused and of the quality and characteristics specified. Used materials may be furnished or incorporated in the work only under special circumstances and only with the Engineer's prior written approval. If the quality or characteristics of any material are not specifically set forth in the Contract Documents, the material used shall be that customarily used in first class work of a similar nature and character.

All workmanship in manufacture and construction not specifically covered in the Specifications shall be of the first class order and equal to that customarily used in first class work of a similar nature and character. The Contractor shall exercise special care during construction to make all structures watertight.

See also ARTICLE 00754.02 and 00753.08.

01640.02 SAMPLES, TESTS AND INSPECTIONS

All materials, equipment and workmanship shall be subject to inspection, examination and tests by the Engineer, or persons or corporations designated by him, at any and all times during manufacture or construction and at any place or places where manufacture or construction are performed.

If required by the Specifications, or if requested by the Engineer, the Contractor shall submit to the Engineer for examination, testing and approval, typical samples of materials and appliances. Samples shall be submitted sufficiently in advance of the time they are proposed to be used in the work so that neither rejections and re-submittals nor the time reasonably required for testing shall cause delay. Each unit, lot or batch of materials submitted shall be properly tagged or labeled and identified with the portion of the work for which they are intended. Transmittals shall be covered by a letter of transmittal in the manner specified for the submittal of drawings ARTICLE 01340.02.

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SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.02 SAMPLES, TESTS AND INSPECTIONS - Continued

All laboratory tests called for in the Specifications or requested by the Engineer shall be performed at the Owner's expense. Documentary evidence that materials pass the required inspection and tests shall be furnished to the Engineer prior to the use of the materials in the work. Bureaus, laboratories and agencies used for the inspection and testing of materials, equipment and appliances will be selected by the Owner, who will submit their names to the Engineer for approval prior to the performance by them of any tests.

01640.03 REMOVAL OF FINISHED WORK FOR INSPECTION

If, at any time prior to the date of the Certificate of Substantial Completion, the Engineer considers it necessary or advisable to examine any portion of the work already completed by removing or tearing out materials or coverings, or by excavating or otherwise exposing the portion of the work to be examined, the Contractor, upon receipt of a written request from the Engineer, shall promptly perform such work as is necessary so to do.

If the work in question is found to be defective, or not in conformance with the Specifications, due to the fault of or omission of the Contractor, or if any work shall be covered over without the consent or approval of the Engineer, whether or not defective, the Contractor shall bear all the expense of such removal, tearing out, excavating or exposing and of satisfactory reconstruction.

If, however, such consent or approval shall have been given, and the work exposed is found to be satisfactory and in conformance with the Specifications, the Contractor shall be compensated for the expenses of such removal, examination and reconstruction as provided in ARTICLE 00757.03.

01640.04 FIELD TESTS

The Contractor, at his own expense, shall conduct all tests specified or required by law or permit of installed equipment and materials, when ordered by and under the supervision of the Engineer. The Engineer at his own discretion may make additional field tests of materials and equipment on the Site. The Contractor shall furnish, at his own expense, the materials required for all field tests and reasonable labor and plant to assist the Engineer in conducting the tests.

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.05 MANUFACTURERS AND SUPPLIERS

Within 30 days following the execution of the Contract, the Contractor shall submit to the Engineer the name or names of the manufacturers or vendors from whom he proposes to purchase the equipment and materials specified for the work. Following approval of the manufacturer or supplier by the Engineer, the Contractor shall submit complete and detailed drawings, bulletins, specifications and other data in connection with the equipment and materials and arrangement thereof he proposes. See also ARTICLES 01340.01 through 01340.04 and 01340.06.

No award shall be made by the Contractor, and no work in connection with the equipment or materials shall proceed prior to review of the submitted data. All items of equipment of like type shall be the product of one manufacturer, unless specified otherwise or specifically permitted by the Engineer.

01640.06 EXPERIENCE AND EQUIVALENT CLAUSES

Unless otherwise specified, shown or permitted, all equipment and materials shall be the product of manufacturers who have built equipment or produced materials of a like or similar type, character, size and capacity for at least three years prior to submittal for approval and who, if requested by the Engineer, shall submit evidence thereof.

Wherever reference is made in the Contract Documents to any specific material, equipment, appliance or model, it is understood that any product considered to be equivalent by the Engineer may be used, and such reference is for the purpose of illustration and establishment of a standard. This provision is understood to hold true in all instances, use or omission of the term "or equal" notwithstanding.

01640.07 INSTALLATION OF EQUIPMENT

All equipment shall be installed in a neat and workmanlike manner as shown on the Plans or as directed, and shall be accurately leveled, aligned and adjusted for satisfactory operation and so installed that all necessary connections can be readily made.

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SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.07 INSTALLATION OF EQUIPMENT - Continued

The Contractor shall furnish, install and protect all necessary bearing plates, guides, rails, anchor and attachment bolts and fastenings and all other appliances and appurtenances required for the installation of all components of the equipment specified. Adequate templates and installation drawings and instructions shall be provided. Anchor bolts shall be of the size, type and material recommended by the manufacturer or directed by the Engineer.

The Contractor shall furnish all oils and greases for initial operation, and shall provide the Engineer with a list of the lubricants used on each item of equipment. Insofar as possible, all lubricants shall be obtained from one manufacturer, approved by the Engineer and by the equipment manufacturers. Each piece of equipment shall bear a substantial metal or plastic nameplate, securely fastened in a convenient place inscribed with the name of the manufacturer, the year of manufacture, model number, serial number and basic rating data.

01640.08 TOOLS, ACCESSORIES AND MANUALS

Unless otherwise specified, the Contractor shall furnish for each type, model or size of equipment a complete set of any special tools and accessories, suitably identified, which may be required to adjust, operate, repair or maintain the equipment.

The Contractor shall also furnish and deliver to the Engineer five complete sets of bulletins, diagrams, parts lists, instructions, manuals and other data required for operation, maintenance and repair of the equipment.

01640.09 CARE AND PROTECTION OF THE WORK

During the life of the Contract, the Contractor shall be solely responsible for the care and protection of the work and for all materials, appliances, supplies and equipment to be used in the work, both during storage and after installation or incorporation in the work. He shall protect all materials to be used in the work, all work in progress, and all completed work from damage by flood, fire, freezing or other undesirable results of weather, accident, theft and vandalism. Any damage or loss shall be made good by the Contractor at his own expense before a Certificate of Substantial Completion will be issued.

See also ARTICLES 00759.07, 00759.08 and 00757.04.

SECTION 01640

MATERIALS, EQUIPMENT AND WORKMANSHIP

01640.10 ABSENCE OF ENGINEER

The Contractor shall perform no backfilling or covering operations of any underground portions of the work until after the Engineer or his inspector shall have inspected or tested and approved the work. If such work is covered in absence of an inspector, it shall be exposed by the Contractor for inspection as specified in ARTICLE 01640.03.

END OF SECTION

SECTION 02050

DEMOLITION AND REMOVAL

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Demolition and Removal, as shown on the Plans, as specified and/or directed.

1.2 REFERENCES: The publications listed below and their latest revisions form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.2.1 American National Standards Institute, Inc. (ANSI) Publications:

A10.4 Safety Requirements for Personnel Hoists and Employee Elevators for Construction and Demolition Operations

A10.6 Demolition Operations - Safety Requirements

1.2.2 National Fire Protection Association (NFPA) Publication:

241 Safeguarding Construction, Alteration and Demolition Operations

1.2.3 New York Code Rule and Regulations/Department of Labor:

12 NYCRR Part 23 Protection in Construction, Demolition and Excavation Operations

1.2.4 Occupational Safety and Health Administration (OSHA) Regulations:

29 CFR Part 1926 Regulations for Construction

1.3 GENERAL REQUIREMENTS: Do not begin demolition until authorization is received from the Engineer. Remove rubbish and debris from the project site daily; do not allow accumulations inside or outside the building. Store materials that cannot be removed daily in areas specified by the Engineer.

SECTION 02050

DEMOLITION AND REMOVAL

1.4 SUBMITTALS: Submit the following.

1.4.1 Statements:

a. Demolition plan

Submit proposed salvage, demolition and removal procedures to the Engineer for approval before work is started. Include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress and, disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations.

1.5 REGULATORY AND SAFETY REQUIREMENTS: Comply with Federal, State, and local hauling and disposal regulations. In addition to the requirements of the "General Requirements", safety requirements shall conform with ANSI A10.4, ANSI A10.6, NFPA 241, 12 NYCRR Part 23 and OSHA 29 CFR Part 1926.

1.6 DUST CONTROL: Prevent the spread of dust and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Vacuum and dust the work area daily.

1.7 PROTECTION:

1.7.1 Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Engineer prior to beginning such work.

1.7.2 Existing Work: Protect existing work which is to remain in place, be reused, or remain the property of the Owner. Repair items which are to remain which are to be salvaged and which are damaged during performance of the work to their original condition, or replace with new. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Engineer approval.

1.7.3 Weather Protection: For portions of the building to remain, protect building interior and materials and equipment from the weather at all times. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas so as to ensure effectiveness and to prevent displacement.

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DEMOLITION AND REMOVAL

1.7.4 Facilities: Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.8 BURNING: Burning will not be permitted.

1.9 RELOCATIONS: Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the Engineer.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED:

3.1.1 Structures: Remove existing filter media, underdrains and valves as indicted on the plans.

3.1.2 Patching: Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:

- a. Holes and depressions caused by previous physical damage or left as a result of removals in existing masonry walls to remain shall be completely filled with an approved masonry patching material, applied in accordance with the manufacturer's printed instructions.
- b. Where existing partitions have been removed leaving damaged or missing resilient tile flooring, patch to match the existing floor tile.

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DEMOLITION AND REMOVAL

- c. Patch acoustic lay-in ceiling where partitions have been removed. The transition between the different ceiling heights shall be effected by continuing the higher ceiling level over to the first runner on the lower ceiling and closing the vertical opening with a painted sheet metal strip.

3.2 FILLING: Fill holes, open basements, and other hazardous openings as indicated.

3.3 DISPOSITION OF MATERIAL:

3.3.1 Title to Materials: Except where specified in other sections or Contract Drawings, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from Owner's property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Engineer of the Contractor's demolition and removal procedures, and authorization by the Engineer to begin demolition. The Owner will not be responsible for the condition or loss of, or damage to, such property after notice to proceed. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.3.2 Reuse of Materials and Equipment: Remove and store materials and equipment indicated on plans to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.3.3 Salvaged Materials and Equipment: Remove materials and equipment that are specified to be removed by the Contractor and that are to remain the property of the Owner, and deliver to a storage site, as directed within the work site.

3.4 CLEANUP:

3.4.1 Debris and Rubbish: Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Limit to 3/8-cubic yard capacity buggies or other conveyances used on roofs and within the building to transport removed debris. Clean up spillage from pavements, streets and adjacent areas.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT - DEMOLITION AND REMOVAL:

4.1.1 Measurement for Demolition and Removal shall include the cost of all materials, equipment, labor, submittals and testing for the work indicated in this Section.

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DEMOLITION AND REMOVAL

4.2 PAYMENT - DEMOLITION AND REMOVAL:

4.2.1 For Demolition and Removal, not included in other unit or lump sum price items, payment for Demolition and Removal will be made at the applicable price stated in the Bid.

END OF SECTION

SECTION 02080

REMOVAL AND DISPOSAL OF ASBESTOS

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 This Section specifies the Removal and Disposal of Asbestos-containing materials (ACM), and asbestos-contaminated materials to accommodate the demolition of the existing filter underdrains.

1.2 WORK INCLUDED:

1.2.1 The Contractor shall furnish all labor, materials, supervision, construction tools, and equipment necessary to perform the following work:

- a. Provide continuous on-site supervision by personnel knowledgeable in all aspects of asbestos removal and disposal.
- b. Provide and maintain environmental protective measures, equipment, and procedures at the work site.
- c. Provide and maintain personnel protective measures, equipment, and procedures at the work site.
- d. Provide and maintain personnel and waste decontamination facilities as required. Coordinate location of these facilities with Owner's personnel or representative.
- e. Package, transport, and dispose of all asbestos in accordance with all applicable Federal, State and local regulations.
- f. Contractor and his employees and subcontractors shall cooperate with the Owner's site specific policies and procedures. Additionally, Contractor shall fully cooperate with designated representatives with regard to air monitoring and observation of procedures.
- g. Clean the work site to completely remove all asbestos-containing and asbestos-contaminated materials as specified herein. Work includes the selective removal and disposal of asbestos and asbestos-contaminated materials from the existing filter underdrains. Asbestos-containing existing filter underdrains as illustrated on Construction Drawings shall be removed in their entirety. The referenced drawings indicate approximate location of identified asbestos materials. Contractor shall locate, access, and remove all ACM to accommodate demolition.

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REMOVAL AND DISPOSAL OF ASBESTOS

- h. Contractor must satisfy himself as to quantities and conditions, and base his bid accordingly. Coordination of all removals with other trades, if necessary, shall be the responsibility of the Contractor.

1.3 RELATED WORK:

1.3.1 Coordinate all removals with Owner, Construction Manager, Engineer, and other trades as applicable.

PART 2 - SUBMITTALS

2.1 BIDDING:

2.1.1 At the time of bidding, the Contractor evidence of the following:

- a. Contractor's NYSDOL Asbestos License.
- b. The Contractor shall submit a **notarized statement**, signed by an officer of the company, containing the following information:
 - 1. A record of any citations, penalties, orders to comply, notices of deficiency, or notices of violations issued by Federal, State, or local regulatory agencies relating to asbestos abatement activity. Include projects, dates and resolutions.
 - 2. Situations in which an asbestos related contract has been terminated including projects, dates and reasons for terminations.
 - 3. A listing of any asbestos related legal proceedings/claims in which the Contractor (or employees scheduled to participate in this project) have participated or are currently involved. Include descriptions of role, issue and resolution to date.

2.2 PRIOR TO CONSTRUCTION:

2.2.1 Prior to commencement of work, the Contractor shall submit the following:

- a. Abatement work plan, including the following:

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REMOVAL AND DISPOSAL OF ASBESTOS

1. Phase, area, sequencing and timetable.
 2. Size, length and number of work shifts per day/per week.
 3. Mobilization Schedule.
 4. Use of applicable variances or approved specific variances obtained by the Contractor.
 5. Work plan shall additionally identify detailed aspects of how the Contractor will handle, containerize, transport, and dispose of materials.
-
- b. Satisfactory proof that written notification has been provided to the EPA regional office with jurisdiction over the project area in accordance with Title 40 CFR Part 61 Sub-parts A & M, National Emission Standards for Hazardous Air Pollutants, U.S. EPA, and the New York State Department of Labor in accordance with Part 56, Title 12 of the New York Code of Rules and Regulations.
 - c. A written description and plan of an emergency alarm system which would alert workers in the work area to fire or other emergency situation.
 - d. Documentation certifying that all employees have received appropriate medical examinations and have successfully passed a fit test for the respirator to be worn. As a minimum, medical exams must be consistent with requirements in OSHA Regulation 1926.1101.
 - e. Provide copies of valid Asbestos Handling Certificates for all personnel, including independent air sampling technician, demonstrating compliance with Code Rule Part 56, Title 12 of the New York State Department of Labor. Provide evidence of each employee's most recent training in accordance with Federal regulations. All employees must have completed initial or refresher training within one year of the dates of this work.
 - f. Written approval and/or permits, as necessary, from the local sanitary district office for the discharging of wastewater into the sanitary sewer system. Documentation must be submitted if permits are not required.
 - g. A written Hazard Communication Program that complies with the OSHA Regulation 29 CFR 1910.1200. Material Safety Data Sheets (OSHA Form 174, or equivalent) for all chemicals used during work performed under this Section.
 - h. A written description of plans for providing temporary power.
 - i. Manufacturers' certification that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to HEPA filtration requirements.

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REMOVAL AND DISPOSAL OF ASBESTOS

- j. Manufacturers' certification for all materials used in the abatement project meet the requirements of these Specifications (as applicable).
- k. A copy of the form(s) used by the Contractor for maintenance of waste shipment records in compliance with EPA NESHAPS regulations.

PART 3 - EXECUTION

3.1 REMOVAL OF ASBESTOS-CONTAINING MATERIALS:

- a. All asbestos abatement work to be done under this Contract shall be in compliance with but not limited to all Federal Regulations and Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York (cited as 12 NYCRR Part 56), and Title 40 CFR Part 61 Sub-parts A & M, National Emission Standards for Hazardous Air Pollutants and local laws and regulations.
- b. The Contractor is responsible for obtaining any variance not issued to date that he feels may be applicable to the policies/procedures as set forth in Code Rule 12 NYCRR Part 56 to complete this work in an efficient and timely manner. Any variance obtained by the Contractor shall be reviewed and approved by the Owner, Construction Manager, and Engineer prior to use.
- c. It is the responsibility of the Contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply fully with these regulations, all appropriate U.S. Department of Transportation, EPA and Federal, State and local entities' regulations and all other current legal requirements.

3.2 AIR MONITORING REQUIREMENTS:

- a. The Owner shall hire an independent air monitoring firm to conduct air monitoring as required by NYSDOL Industrial Code Rule (ICR) 56. All costs associated with these samples and analyses shall be assumed by the Owner.
- b. Air Monitoring Tests: The Owner shall employ the services of an independent testing laboratory to perform air sample monitoring tests. The laboratory shall use the methods described in standards referenced in ICR 56.

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REMOVAL AND DISPOSAL OF ASBESTOS

- c. The Contractor shall be responsible to conduct all personal air sampling and analysis as required by the OSHA Construction Standard. All costs associated with these samples and analyses shall be assumed by the Contractor.

3.3 PROJECT MONITORING:

- a. The Owner reserves the right to hire an independent project monitor to advise the Owner in matters pertaining to the work performed in accordance with these and related specifications and requirements.
- b. The project monitor is authorized by the Owner to have free access to all asbestos and related work areas, to assist in interpretation of procedures, and to advise on provisions of the Contract Documents pertaining to the control of asbestos and related work.
- c. The project monitor may stop the Abatement Contractor's work if in the course of performing their monitoring duties, they observe an instance of non-conformance with the Contract Documents and/or a situation presenting a health hazard to workers or Owner's employees. Work shall not resume until corrective measures have been carried out.
- d. Any stop work orders issued by the Owner or the project monitor pursuant to the above provisions will not be grounds for claims to be made by the Contractor for damages caused by the associated delay nor will it extend the Contract completion date.
- e. The project monitor will act as the Owner's liaison in technical matters involving the work.
- f. The project monitor's role in advising the Owner on environmental health matters does not relieve the Contractor's obligation to comply with all applicable health and safety regulations promulgated by the Federal, State, and local governments.
- g. When visual inspections are required, the Contractor shall notify the Owner and the project monitor 24 hours, excluding weekends and holidays, in advance of the day and time when the Contractor will be ready for such inspections.

3.4 PROJECT CLOSEOUT:

- a. Prior to the final payment, and before the issuance of a final certificate for payment in accordance with the provisions of the Contract Documents, Contractor shall comply with the requirements set forth herein.

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REMOVAL AND DISPOSAL OF ASBESTOS

- b. The work under this Section shall include but is not limited to the execution of the following principal items as they apply to Prime Contractors for Project Closeout:
 - 1. Submittal of all waste shipment record forms signed by the Contractor, transporter, and landfill operator for each shipment of asbestos waste.
 - 2. Assurance, satisfactory to the Owner, that unsettled claims will be settled and that work not actually be completed and accepted will be completed without any undue delay.
 - 3. Guarantees, Warrantees and Bonds required by the General Conditions and any other extended guaranties or warranties stated in the Specifications.
 - 4. Temporary facilities, services, surplus materials, rubbish and similar appurtenances have been removed and/or restored.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - REMOVAL AND DISPOSAL OF ASBESTOS:

4.1.1 Measurement for Removal and Disposal of Asbestos shall include the cost of all materials, equipment, labor, submittals and testing for the work indicated in this Section.

4.2 PAYMENT - REMOVAL AND DISPOSAL OF ASBESTOS:

4.2.1 For Removal and Disposal of Asbestos, not included in other unit or lump sum price items, payment for Removal and Disposal of Asbestos will be made at the applicable price stated in the Bid.

END OF SECTION

SECTION 03302

CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION)

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for plain and reinforced Cast-In-Place Concrete (Minor Construction) work including accessory items of work herein described, as shown on the Plans, as specified, and/or directed.

1.2 APPLICABLE SPECIFICATIONS, CODES AND STANDARDS:

1.2.1 Reference to standard specifications for the following organizations is intended to specify minimum standards for quality of materials and performance of workmanship, and for standard test methods.

- a. American Society for Testing and Materials (ASTM) Latest Edition.
- b. American Concrete Institute (ACI) Standards, Latest Edition.
- c. American Welding Society, Inc. (AWS) Publications Latest Edition.
- d. Standard Specifications - Construction and Materials, New York State Department of Transportation, Latest Edition, including Addenda thereto.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 All materials shown, specified or required to be incorporated in cast-in-place concrete shall be of finest quality, and shall be delivered, stored and handled so as to prevent damage.

2.1.2 Portland Cement shall be a standard brand in compliance with ASTM C150 Type I. Only one brand shall be used for exposed work. Generally, Type I cement shall be used; however, Types II or III may be employed with the approval of the Engineer or if shown, or specified.

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2.1.3 Fine Aggregates shall be clean, sharp, natural sand, free from loam, clay, organic impurities or frozen materials and shall conform to ASTM C33 in all respects. Sand shall be tested for impurities in accordance with ASTM C40.

2.1.4 Coarse Aggregates shall consist of strong, clean, crushed limestone or crushed gravel, free from harmful material and meeting all of the requirements of ASTM C33. Coarse aggregate shall also comply with New York State Department of Transportation Material Designation 703-02. Crushed limestone and crushed gravel shall meet the Physical Requirements (Testing) Designation 703-0201 and 703-0202, respectively.

2.1.5 Water used in mixing concrete shall be clean and free from all acid, alkali or organic matter and shall be obtained from a public water supply unless specifically permitted otherwise by the Engineer.

2.1.6 Ready Mix Concrete shall comply with ASTM Specification C94, this Specification, and used subject to the Engineer's approval.

2.1.7 Admixtures, where shown or specified, shall be as follows:

- a. Air entraining agent shall be "Daravair" or "Darex AEA" as manufactured by W.R. Grace Co., or Master Builder's "MBVR", or equal.
- b. Water reducing agent shall be Sika "Plastiment", Master Builder's "Pozzolith", W.R. Grace's "WRDA", or equal.
- c. High range water reducers or superplasticizers shall be Sika "Sikament-FF", W.R. Grace's "Daracem-100" or "WRDA-19", or equal.

2.1.8 Bonding Agent, where shown or specified, shall be "Dural 104" bonding compound manufactured by Dural International Corporation, "Sikadur 32 Hi Mod" by Sika Corporation, or equal.

2.1.9 Forms shall be wood, metal, or other approved materials as follows:

- a. Plywood shall be Commercial Standard Douglas Fir, moisture resistant, concrete form plywood, at least 5-ply 5/8" thick.

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- b. Metal forms shall be as approved, and must produce surfaces equal to those specified for wood forms.
- c. Form oil shall be an approved non-staining mineral oil, such as "Duogaurd II" by W.R. Meadows, or equal.
- d. Form ties shall be of approved design, adjustable length and free of devices that will leave hole or depression larger than 7/8" diameter. When forms are removed no metal shall be left within 1" of finished surface.

2.1.10 Premolded Filler, where shown or specified, shall be premolded, resilient, non-extruding type, 1/2-inch thick unless shown otherwise, full depth of concrete section as manufactured by Celotex Corporation, "Fibre Expansion Joint Filler" by W.R. Meadows, or equal.

2.1.10.1 Sample of the premolded filler proposed to be used shall be submitted to the Engineer for approval.

2.1.11 Joint Sealant, where shown or specified, shall be elastomeric polyurethane sealant material, black in unexposed locations, and grey in exposed locations, and have balanced properties of elongation recovery and tensile strength, and shall be Sonneborn "Sonolastic NP1", Sika "Sikaflex 1A", or equal.

2.1.12 Protective Covering for concrete finish slabs, where shown or specified, shall be "Orange Label Sisalkraft", Polyethylene Film as manufactured by Fortifiber Corp., or equal.

2.1.13 Non-Shrink Grout, where shown or specified, shall be non-metallic, natural aggregate such as "Masterflow" as manufactured by Master Builders, "SikaGrout 212" as manufactured by Sika, or approved equal.

2.1.13.1 Non-Shrink grout shall be used under structural steel column baseplates and all equipment baseplates. All work shall be done in strict accordance with the manufacturer's recommendations. At the request of the Engineer, the manufacturer's representative shall be called to the job site for consultation regarding detailed use of the grout.

2.1.14 Liquid Hardener, where shown or specified, shall be "Lapidolith" as manufactured by Sonneborn, "Emery Top" as manufactured by L&M Construction Chemicals, Inc., or equal, and shall be compatible with later finishes.

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2.1.15 Curing Compound shall be acrylic based "Kure-N-Seal" as manufactured by Sonneborn, acrylic based "CS-309", or water based "VOCOMP-20" as manufactured by W.R. Meadows, or equal.

2.1.16 Vapor Retarder, where shown or specified, shall be "Moistop" as manufactured by Fortifiber Corp. Vapor Barrier shall be "Premoulded Membrane Vaporseal" as manufactured by W.R. Meadows, or equal.

2.1.17 Perimeter Insulation, where shown or specified, shall be "Styrofoam Square Edge" as manufactured by the Dow Chemical Corporation, "Foamular 250" as manufactured by UC Industries, or equal.

2.1.18 Abrasive Grits, where shown or specified, shall be "Korundum" by Concrete Service Materials Company, or equal.

2.1.19 Metal Slab Joints, where shown or specified, shall be keyed type, minimum 18 gauge, galvanized steel by Heckmann Building Products, or equal.

2.2 SUBMITTALS: Submit the following:

2.2.1 Certificates of Compliance:

- a. Cement, mill test reports
- b. Aggregates, sieve analyses

2.2.2 Product Data and Samples:

- a. Submit manufacturer's information for any material listed under Section 2.1 that will be incorporated into this project.
- b. Submit samples as indicated in Section 2.1.

2.2.3 Concrete mix design and compressive strength results of field trial batches for each class of concrete incorporated into the work.

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2.3 CONCRETE TESTING:

2.3.1 The Contractor shall employ an approved commercial testing laboratory at his own expense to provide field sampling, testing and inspection of all concrete. Continuous inspection by the approved testing laboratory shall be provided during all concrete pours. The Contractor shall maintain a record set of plans at the site showing date and amount of each pour, test results and temperature. If any portion of the work shows low test results, the Engineer may require additional testing, load tests, cored samples, and/or replacement of the faulty work, etc., at the Contractor's expense.

2.3.2 Field concrete inspection: The Contractor, thru its approved testing laboratory, shall provide a competent field concrete inspector whose minimum duties shall be as follows:

- Collect and verify with each batch of concrete, before unloading at the site, a delivery ticket on which is printed, stamped, or written, information concerning said concrete. Have available for Engineer to review if requested.
- Check each truck on arrival to make sure that the concrete is not retempered.
- Make necessary slump tests for uniformity control.
- Make air tests and yield tests as required.
- Make any and all test cylinders as may be required in the Specifications.
- Transport cylinders from the site to the laboratory.
- Notify the Engineers and/or his representative if any test results vary from the specified limits.

2.3.3 Tests:

2.3.3.1 Concrete shall be tested by an approved testing laboratory as follows:

- Standard 6" x 12" compression cylinders shall be in compliance with C-39 in sets of four and shall be moist cured. Break 2 at 7 days, and 2 at 28 days. One set shall be made for approval of each mix design, one set for first pour of 50 cubic yards or less, and one set for each additional pour of 50 cubic yards. If less than 50 cubic yards are placed in one day, one set shall be made for each day's pour.

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- All test cylinders shall be cast, moist cured and broken under laboratory conditions in accordance with the ASTM C31 and ASTM C39. All four cylinders of a test shall be taken from the middle third of a single load. Each cylinder shall be properly labeled with an identifying mark, the mix proportions, air content, amount of water, slump, and the location in the structure where the concrete was placed. Test reports shall include all this information. Distribute copies of reports as requested by the Engineer. Should any results be questionable, the Engineer shall be notified immediately so that corrective measures can be taken. Any test cylinder which has broken and fails to meet requirements shall be preserved for inspection by the Engineer.

2.4 INSPECTION:

2.4.1 Before each pour, forms and reinforcing shall be inspected and approved by the Engineer. The Contractor shall give at least 24 hours notice before such an inspection is required. No pour shall be started until the Engineer has given approval. No concreting may be done in the absence of the Engineer without written permission of the Engineer.

2.5 CONCRETE MIX DESIGN:

2.5.1 The various classes of concrete shall be designated as follows:

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS FOR CONCRETE (WHEN STRENGTH DATA FROM TRIAL BATCHES OR FIELD EXPERIENCE ARE NOT AVAILABLE)					
CLASS	MIN. 28-DAY COMPRESSIVE STRENGTH IN PSI*	NON-AIR-ENTRAINED CONCRETE		AIR-ENTRAINED CONCRETE	
		ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT	ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT
A	5,000	**	**	**	**
B	4,000	0.44	5.0	0.35	4.0
C	3,000	0.58	6.6	0.46	5.2
D	2,500	0.67	7.6	0.54	6.1
E	2,000	0.71	8.0	-	-

* 28-day strength. With most materials, water/cement ratios shown will provide average strengths greater than indicated in Section 5.4 of A.C.I. 318R-89 as being required.

** For strength above 4,500 psi (non-air-entrained concrete) and 4,000 psi (air-entrained concrete) proportions shall be established by methods of Sections 5.3 or 5.4 of A.C.I. Building Code (A.C.I. 318R-89).

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Unless otherwise specified, all concrete shall be Class "B", non-air-entrained except exposed concrete which shall be air-entrained. When foundation walls or grade beams are exposed to weather above grade, the entire wall shall be considered exposed concrete.

2.5.2 Maximum size aggregates shall be used as follows unless otherwise designated by the Engineer.

1-1/2"	general work
3/4"	thin sections; heavy reinforcing; slabs
3/8"	floor toppings

2.5.3 Slump - Maximum:

Reinforced concrete - general	4"
Reinforced concrete - thin walls, columns	5"
Non-reinforced concrete	3"
Pavements, including sidewalks	3"

2.5.4 Air Content: Use an approved air entraining admixture. The entrained content shall be controlled between 4% - 6%. See Plans for concrete work requiring air entrainment.

2.5.4.1 For mixes containing coarse aggregate with a top size of 3/4" or smaller and for exposed concrete subject to frost and salt action, air contents shall be increased to the range of 5% - 7%.

PART 3 - EXECUTION

3.1 BATCHING AND MIXING:

3.1.1 The Contractor shall have available at all times sufficient approved materials such that, when once started, concreting shall be a continuous operation until the placing of the panel or section is completed. The top surface shall be generally level. When construction joints become necessary, they shall be made as hereinafter specified.

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3.1.2 All concrete shall be mixed not less than 60 revolutions in the drum of a modern power mixer, at the rated speed of rotation. Mix not less than an additional 30 revolutions after the addition of any further water to the mix.

3.1.3 Transit-mixed concrete shall be transported to the job site unmixed and only after arrival at the job site shall mixing begin. All concrete shall be unloaded from the mixer within 45 minutes after completion of mixing. All concrete still remaining in the truck shall be rejected.

3.1.4 The total time interval from the time the cement makes contact with the aggregate to the complete unloading from the mixer shall not exceed 90 minutes, unless such time is extended by the Engineer. The time may be reduced in hot weather or under unusual conditions, if unsatisfactory results are obtained.

3.2 FORMWORK:

3.2.1 The Contractor shall design and construct suitable and adequate formwork in conformance with A.C.I. 347R-88. All shoring shall be properly braced to safely withstand all vertical, moving and lateral forces during the construction period. Responsibility for adequacy and safety rests with the Contractor. Materials shall be as stated in Paragraph 2.1.

3.2.2 Set forms true to line and grade and make mortar-tight. Chamfer above grade exposed joints, edges, and external corners of concrete 3/4-inch, unless otherwise indicated. Before concrete placement, coat the contact surfaces of forms with a non-staining form coating compound. Do not use mineral oil on formed surfaces to be painted. Prevent concrete damage during form removal. Concrete for footings may be placed in excavations without forms upon inspection and approval by the Engineer. Excavation width shall be a minimum of 4 inches greater than finished dimensions indicated.

3.2.3 It shall be the Contractor's responsibility to determine the time at which forms may be removed without endangering the structure, subject to the following limitations, unless documentation is provided to modify these requirements:

Footing forms - 24 hours minimum; continue curing as specified.

Wall forms - 2 days minimum for ten (10) feet high. Add one (1) day for each additional five (5) feet of height; continue curing as specified.

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3.3 JOINTS FOR CONCRETE:

3.3.1 Expansion Joints:

3.3.1.1 Expansion joints shall be constructed where shown and as directed. Reinforcement, corner protection angles or other fixed items embedded or bonded into concrete shall not be run continuously through expansion joints. Reinforcement shall be discontinued 2 inches from the joint face. A slightly rounded edging shall be provided to finish neatly all edges around expansion joints.

3.3.1.2 Preformed expansion joint filler material and sealant, where shown on the drawings, shall be as specified in Paragraph 2.1.

3.3.2 Construction Joints:

3.3.2.1 The location of construction joints shall be chosen by the Contractor and shall be subject to the Engineer's approval except where specifically located on the Plans. Horizontal construction joints in walls will not be permitted.

3.3.2.2 Reinforcing shall be discontinuous through a construction joint, unless otherwise noted on drawings. As shown or specified on the drawings, additional No. 3 reinforcing bars spaced at 12-inches on center shall be placed horizontally in each construction joint at the center of the section. These bars shall be 4-feet long and shall extend 2-feet on each side of the joint. Reinforcement projecting through joint shall be kept clean. As indicated on the drawings, all construction joints shall be provided with a keyway.

3.3.2.3 As indicated on drawings, a metal keyed floor slab joint may be used.

3.3.3 Contraction (Control) Joints.

3.3.3.1 Contraction joints shall be located as shown on the drawings or as directed. Reinforcement through the joint shall be continuous as shown on the drawings and/or as directed by the Engineer.

3.3.3.2 Sawcut contraction joints (Type "A") shall be made by cutting the concrete surface and filling with the sealant material as specified under paragraph 2.1. Cutting shall be done after the surface is firm enough not to be damaged by the cutting blade. Time of cutting shall be approved by the Engineer.

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3.3.3.3 Formed contraction joints (Type "B") shall be made by tooling with a 1/4-inch radius edging tool and filled with the sealant material as specified under paragraph 2.1.

3.3.3.4 Premolded Contraction Joints (Type "C") shall be "Kold-Seal Zipper Strip" by Vinylex or "Zip Cap Control Joint" by Greenstreak Products, or equal.

3.4 INSERTS AND SLEEVES:

3.4.1 The Contractor shall cooperate with all other Contractors in permitting the placing of all necessary sleeves, conduit, or inserts for hangers for their trades. The Contractor shall notify the trades of all pours in ample time for the responsible Contractor to place all embedded items, sleeves, slots, holes or chases.

3.4.2 Accurately set all slots, chases, anchor bolts, opening, etc. All inserts for hanging mechanical equipment shall be provided and set by the Contractor for the trade involved. All sleeves for piping passing through floors and walls shall be provided by the Contractor for the trade involved and set by the General Contractor.

3.4.3 All conduit which must be placed in concrete slabs shall be installed after, and above the bottom reinforcing, but before, and under the top reinforcing. Where conduit cross-overs are necessary, they shall be located so that reinforcing is not displaced from its specified position.

3.4.4 If, in the judgement of the Engineer, embedded items are located or grouped in a manner that will weaken the structure, the Contractor shall take the necessary corrective steps.

3.4.5 All inserts and sleeves where the outside diameter is greater than the spacing between the reinforcing steel, the reinforcing bars shall be warped around such inserts and sleeves. Unless shown otherwise on the drawings, provide, as a minimum, two #4 diagonal bars per face at 90 degrees to each other all around the inserts and sleeves.

3.4.6 Where openings are left in new concrete or are made in existing concrete for the insertion of wall castings, pipes or other fixtures, the space around these fixtures shall be made watertight by completely filling with a non-shrinking concrete containing an admixture of "SikaSet-C", "Anti-Hydro" Concrete Waterproofing Agent, or equal.

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3.5 CONVEYING AND PLACING CONCRETE:

3.5.1 The placing or depositing of all concrete shall be done in accordance with A.C.I. 304R-89 "Guide for Measuring, Mixing, Transporting and Placing Concrete" and as modified herein.

3.5.2 Before placing concrete, all debris, water, snow and ice shall be removed from places to be occupied by concrete. Wood forms shall be wetted except in freezing weather or oiled, and the reinforcement cleaned of ice or other coatings.

3.5.3 Conveying, transporting, and placing shall be done as rapidly as practicable and without segregation, loss of ingredients, and without unnecessary rehandling. The tempering of concrete will not be permitted.

3.5.4 Spade and work the coarse aggregate away from forms and work concrete around reinforcement to avoid air pockets, voids, and honeycombed sections. The use of a mechanical vibrator is mandatory, but concrete must not be over-vibrated. Hand spading will be required in addition to mechanical vibration. Maintain spare vibrator(s) at site for use in case of breakdowns.

3.5.5 Screed all work to level surfaces at the proper elevations. Rake surfaces to provide bond for floor finishes where specified.

3.5.6 No concrete shall be deposited under water without written permission of the Engineer and then only in accordance with his directions. Proper tremie equipment and techniques must be used, should the need arise.

3.6 PROTECTION AND CURING:

3.6.1 All concrete shall be protected against injury by sun, rain, freezing, mechanical damage, or premature drying. All concrete shall be maintained above 50°F in a moist or wet condition for at least the first 7 days after placement.

3.6.2 On vertical surfaces keep forms on, or cover with burlap blankets, kept wet.

3.6.3 On horizontal surfaces and floors to receive later finishes, cover with wet burlap, wet sand, or curing paper and keep saturated. Cement finish floors shall be covered with protective covering material with lapped and sealed edges after the concrete has set sufficiently to carry worker's weight. Covering shall remain in place until floor is cleaned. Weight covering with planks as required to hold it in place.

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3.6.4 Cold weather protection shall conform to A.C.I. 306R-88 "Cold Weather Concreting" except as herein modified.

3.6.4.1 Prior to pouring, it shall be the Contractor's responsibility to keep the forms free from snow, ice, mud or debris at all times, by means of covers, enclosures, live steam or heating below the forms, as necessary. Use of torches, open flames, salts, straw, hay or chemical is prohibited.

3.6.4.2 When air temperature is 40°F, or less, use only heated concrete, delivered to the forms at temperatures between 65°F and 85°F. All portions of freshly poured concrete shall be continually maintained at a temperature of not less than 50°F for seven days. Specified temperature shall be maintained by heated enclosures, insulating blankets, insulated forms, or whatever approved methods are required to attain the specified result.

3.6.4.3 Concrete shall not be poured on frozen soil. After pouring, protect against freezing and heaving of subgrade. Any frozen concrete will be rejected and removed at the Contractor's expense. Accelerating admixtures shall not be accepted in lieu of winter protection.

3.6.5 Hot weather protection shall conform to A.C.I. 305R-89 "Hot Weather Concreting" except as modified herein.

3.6.5.1 During warm dry weather special care and precautions should be taken to prevent premature setting which may cause shrinkage and surface checking. No concrete shall be placed at temperatures above 90°F without approval of the Engineer.

3.6.6 No water (except curing spray) shall be allowed to come in contact with the concrete or masonry surface for a minimum of 24 hours. Should the rising water place a stress on the concrete, proper bracing shall be provided. Loading shall not occur without prior approval by the Engineer, and proper safety precautions shall be the responsibility of the Contractor.

3.6.7 Curing compound may be used as specified in Paragraph 2.1 provided discoloration does not occur and application is in accordance with manufacturer's direction and is compatible with concrete finish.

3.7 SLABS ON GROUND:

3.7.1 Subgrade and base to be prepared as specified in Contract Documents.

3.7.2 Form depressed ribs under partitions as required by sloping gravel, or provide permanent side forms to retain gravel.

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3.7.3 Trench subgrade for electric conduit as detailed on Plans. All reinforcing shall be above electric conduit.

3.7.4 Place slabs of thickness shown on Plans, vibrate, screed, float level, and finish as specified below.

3.8 CONCRETE FINISHES - FORMED SURFACES:

3.8.1 After the forms are removed, all concrete surfaces shall be inspected, and any poor joints, voids, stone pockets or other defective areas noted by the Engineer shall be repaired immediately at the Contractor's expense by cutting away the unsound area to a minimum depth of 1 inch, and refilling with mortar mixed using the same brand of cement as the original pour. Edges of the patch shall be square with the face, with feather-edging prohibited. Obtain approval of corrective action prior to repair.

3.8.2 Care shall be taken to saturate the patched area and holes shall be filled in 1/2-inch layers with a delay for an initial set to take place before the succeeding layer is applied. If, in the opinion of the Engineer, improper consolidation is too extensive, or if the structure appears weakened by the voids, complete removal of the concrete in question may be required. Patches shall be kept moist for a minimum of three days.

3.9 FLOOR AND SLAB FINISHING:

3.9.1 Finished floors and slabs shall be level to within 1/8" of finish floor elevation in ten feet. If this variation occurs, it must not be abrupt, but must taper so that the 1/8" variation takes place in not under 4 feet. Areas with drains shall have the surfaces sloped uniformly and true to the effect that no surface ponding occurs. If required by the Engineer, replace, grind or furnish underlayment to correct the variation, at the Contractor's expense. All floors and slabs shall be cured and protected as specified.

3.9.2 Under quarry tile and ceramic tile screed and float top surface of slab, after concrete has been compacted, to accurate lines and levels as required to receive these materials. Floors receiving a tile finish are indicated on the Plans.

3.9.3 Where exposed concrete finish is specified, provide a steel trowelled finish. After concrete has set sufficiently to carry the weight of the workman, float with motor-driven rubber disc machine to thoroughly compact and close any surface voids.

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3.9.4 Dusting with dry cement or cement sand mixtures, to hasten drying, is prohibited. Dry time shall be controlled by controlling the water content and slump of the concrete when placed.

3.9.5 Liquid hardener, as specified in Paragraph 2.1, shall be applied to exposed concrete finish floors where shown on the Contract Drawings. Cure floors thoroughly. Hardener shall be applied in accordance with Manufacturer's directions in at least two coat application, allowing 24 hours between coats. Coverage, for each coat, shall be one gallon per 100 square feet. After final coat is complete and dry, remove surplus hardener by scrubbing and mopping with water.

3.9.6 A float finish shall be applied to all exterior concrete and those areas not intended for occupancy, such as culvert inverts, bottoms of manholes and catch basins, pads, etc. Sidewalks, walkways, or exterior ramps shall be given a broom finish, perpendicular to traffic, sufficient to leave marks without appreciable disturbance of the surface.

3.10 MISCELLANEOUS CONCRETE WORK:

3.10.1 Pour all sump pits, canopies, copings and provide all other miscellaneous concrete and cement work shown on the drawings. All such concrete shall be reinforced as shown. Provide all cement filled stair treads as detailed. Place bottoms and walls of pits and trenches monolithically.

3.10.2 Concrete Walks: Provide 4 inches thick minimum. Provide contraction joints spaced every 5 linear feet, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide 1/2-inch thick transverse expansion joints at changes in direction, where sidewalk abuts curb, steps, rigid pavement, or other similar structures. Provide a transverse slope of 1/4-inch per foot and limit variation in cross section to 1/4-inch in 5 feet unless otherwise indicated.

3.10.3 Curbs and Gutters: Provide contraction joints spaced every 10 feet maximum, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced every 100 feet maximum, unless otherwise indicated. Provide a broom finish.

3.10.4 Equipment Bases: Unless otherwise shown, all equipment shall be erected on bases of Class "B" concrete. Thickness shall be as noted on the Plans, but at no time shall it measure less than 1 inch.

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3.10.5 Concrete Stairs, Steps and Platforms: Stairs, steps and platforms shall be formed to required profiles shown on the Plans. Place reinforcing as required. Finish of stairs and steps shall be monolithic. Where shown on Plans, provide for nosings. Exterior stairs, steps and platforms shall have a non-slip finish. Before final troweling, embed abrasive grits, as specified in Paragraph 2.1, in the surface.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION):

4.1.1 The quantity of Cast-In-Place Concrete (Minor Construction) for which payment will be made will be the actual number of cubic yards measured in place within the lines shown, specified, or ordered.

4.2 PAYMENT - CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION):

4.2.1 For Cast-In-Place Concrete (Minor Construction), not included in other unit or lump sum price items, payment for Cast-In-Place Concrete (Minor Construction) will be made at the applicable price stated in the Bid.

END OF SECTION

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CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION)

PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for plain and reinforced Cast-In-Place Concrete (Minor Construction) work including accessory items of work herein described, as shown on the Plans, as specified, and/or directed.

1.2 APPLICABLE SPECIFICATIONS, CODES AND STANDARDS:

1.2.1 Reference to standard specifications for the following organizations is intended to specify minimum standards for quality of materials and performance of workmanship, and for standard test methods.

- a. American Society for Testing and Materials (ASTM) Latest Edition.
- b. American Concrete Institute (ACI) Standards, Latest Edition.
- c. American Welding Society, Inc. (AWS) Publications Latest Edition.
- d. Standard Specifications - Construction and Materials, New York State Department of Transportation, Latest Edition, including Addenda thereto.

PART 2 - PRODUCTS

2.1 MATERIALS:

2.1.1 All materials shown, specified or required to be incorporated in cast-in-place concrete shall be of finest quality, and shall be delivered, stored and handled so as to prevent damage.

2.1.2 Portland Cement shall be a standard brand in compliance with ASTM C150 Type I. Only one brand shall be used for exposed work. Generally, Type I cement shall be used; however, Types II or III may be employed with the approval of the Engineer or if shown, or specified.

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2.1.3 Fine Aggregates shall be clean, sharp, natural sand, free from loam, clay, organic impurities or frozen materials and shall conform to ASTM C33 in all respects. Sand shall be tested for impurities in accordance with ASTM C40.

2.1.4 Coarse Aggregates shall consist of strong, clean, crushed limestone or crushed gravel, free from harmful material and meeting all of the requirements of ASTM C33. Coarse aggregate shall also comply with New York State Department of Transportation Material Designation 703-02. Crushed limestone and crushed gravel shall meet the Physical Requirements (Testing) Designation 703-0201 and 703-0202, respectively.

2.1.5 Water used in mixing concrete shall be clean and free from all acid, alkali or organic matter and shall be obtained from a public water supply unless specifically permitted otherwise by the Engineer.

2.1.6 Ready Mix Concrete shall comply with ASTM Specification C94, this Specification, and used subject to the Engineer's approval.

2.1.7 Admixtures, where shown or specified, shall be as follows:

- a. Air entraining agent shall be "Daravair" or "Darex AEA" as manufactured by W.R. Grace Co., or Master Builder's "MBVR", or equal.
- b. Water reducing agent shall be Sika "Plastiment", Master Builder's "Pozzolith", W.R. Grace's "WRDA", or equal.
- c. High range water reducers or superplasticizers shall be Sika "Sikament-FF", W.R. Grace's "Daracem-100" or "WRDA-19", or equal.

2.1.8 Bonding Agent, where shown or specified, shall be "Dural 104" bonding compound manufactured by Dural International Corporation, "Sikadur 32 Hi Mod" by Sika Corporation, or equal.

2.1.9 Forms shall be wood, metal, or other approved materials as follows:

- a. Plywood shall be Commercial Standard Douglas Fir, moisture resistant, concrete form plywood, at least 5-ply 5/8" thick.

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- b. Metal forms shall be as approved, and must produce surfaces equal to those specified for wood forms.
- c. Form oil shall be an approved non-staining mineral oil, such as "Duogaurd II" by W.R. Meadows, or equal.
- d. Form ties shall be of approved design, adjustable length and free of devices that will leave hole or depression larger than 7/8" diameter. When forms are removed no metal shall be left within 1" of finished surface.

2.1.10 Premolded Filler, where shown or specified, shall be premolded, resilient, non-extruding type, 1/2-inch thick unless shown otherwise, full depth of concrete section as manufactured by Celotex Corporation, "Fibre Expansion Joint Filler" by W.R. Meadows, or equal.

2.1.10.1 Sample of the premolded filler proposed to be used shall be submitted to the Engineer for approval.

2.1.11 Joint Sealant, where shown or specified, shall be elastomeric polyurethane sealant material, black in unexposed locations, and grey in exposed locations, and have balanced properties of elongation recovery and tensile strength, and shall be Sonneborn "Sonolastic NP1", Sika "Sikaflex 1A", or equal.

2.1.12 Protective Covering for concrete finish slabs, where shown or specified, shall be "Orange Label Sisalkraft", Polyethylene Film as manufactured by Fortifiber Corp., or equal.

2.1.13 Non-Shrink Grout, where shown or specified, shall be non-metallic, natural aggregate such as "Masterflow" as manufactured by Master Builders, "SikaGrout 212" as manufactured by Sika, or approved equal.

2.1.13.1 Non-Shrink grout shall be used under structural steel column baseplates and all equipment baseplates. All work shall be done in strict accordance with the manufacturer's recommendations. At the request of the Engineer, the manufacturer's representative shall be called to the job site for consultation regarding detailed use of the grout.

2.1.14 Liquid Hardener, where shown or specified, shall be "Lapidolith" as manufactured by Sonneborn, "Emery Top" as manufactured by L&M Construction Chemicals, Inc., or equal, and shall be compatible with later finishes.

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2.1.15 Curing Compound shall be acrylic based "Kure-N-Seal" as manufactured by Sonneborn, acrylic based "CS-309", or water based "VOCOMP-20" as manufactured by W.R. Meadows, or equal.

2.1.16 Vapor Retarder, where shown or specified, shall be "Moistop" as manufactured by Fortifiber Corp. Vapor Barrier shall be "Premoulded Membrane Vaporseal" as manufactured by W.R. Meadows, or equal.

2.1.17 Perimeter Insulation, where shown or specified, shall be "Styrofoam Square Edge" as manufactured by the Dow Chemical Corporation, "Foamular 250" as manufactured by UC Industries, or equal.

2.1.18 Abrasive Grits, where shown or specified, shall be "Korundum" by Concrete Service Materials Company, or equal.

2.1.19 Metal Slab Joints, where shown or specified, shall be keyed type, minimum 18 gauge, galvanized steel by Heckmann Building Products, or equal.

2.2 SUBMITTALS: Submit the following:

2.2.1 Certificates of Compliance:

- a. Cement, mill test reports
- b. Aggregates, sieve analyses

2.2.2 Product Data and Samples:

- a. Submit manufacturer's information for any material listed under Section 2.1 that will be incorporated into this project.
- b. Submit samples as indicated in Section 2.1.

2.2.3 Concrete mix design and compressive strength results of field trial batches for each class of concrete incorporated into the work.

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2.3 CONCRETE TESTING:

2.3.1 The Contractor shall employ an approved commercial testing laboratory at his own expense to provide field sampling, testing and inspection of all concrete. Continuous inspection by the approved testing laboratory shall be provided during all concrete pours. The Contractor shall maintain a record set of plans at the site showing date and amount of each pour, test results and temperature. If any portion of the work shows low test results, the Engineer may require additional testing, load tests, cored samples, and/or replacement of the faulty work, etc., at the Contractor's expense.

2.3.2 Field concrete inspection: The Contractor, thru its approved testing laboratory, shall provide a competent field concrete inspector whose minimum duties shall be as follows:

- Collect and verify with each batch of concrete, before unloading at the site, a delivery ticket on which is printed, stamped, or written, information concerning said concrete. Have available for Engineer to review if requested.
- Check each truck on arrival to make sure that the concrete is not retempered.
- Make necessary slump tests for uniformity control.
- Make air tests and yield tests as required.
- Make any and all test cylinders as may be required in the Specifications.
- Transport cylinders from the site to the laboratory.
- Notify the Engineers and/or his representative if any test results vary from the specified limits.

2.3.3 Tests:

2.3.3.1 Concrete shall be tested by an approved testing laboratory as follows:

- Standard 6" x 12" compression cylinders shall be in compliance with C-39 in sets of four and shall be moist cured. Break 2 at 7 days, and 2 at 28 days. One set shall be made for approval of each mix design, one set for first pour of 50 cubic yards or less, and one set for each additional pour of 50 cubic yards. If less than 50 cubic yards are placed in one day, one set shall be made for each day's pour.

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- All test cylinders shall be cast, moist cured and broken under laboratory conditions in accordance with the ASTM C31 and ASTM C39. All four cylinders of a test shall be taken from the middle third of a single load. Each cylinder shall be properly labeled with an identifying mark, the mix proportions, air content, amount of water, slump, and the location in the structure where the concrete was placed. Test reports shall include all this information. Distribute copies of reports as requested by the Engineer. Should any results be questionable, the Engineer shall be notified immediately so that corrective measures can be taken. Any test cylinder which has broken and fails to meet requirements shall be preserved for inspection by the Engineer.

2.4 INSPECTION:

2.4.1 Before each pour, forms and reinforcing shall be inspected and approved by the Engineer. The Contractor shall give at least 24 hours notice before such an inspection is required. No pour shall be started until the Engineer has given approval. No concreting may be done in the absence of the Engineer without written permission of the Engineer.

2.5 CONCRETE MIX DESIGN:

2.5.1 The various classes of concrete shall be designated as follows:

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS FOR CONCRETE (WHEN STRENGTH DATA FROM TRIAL BATCHES OR FIELD EXPERIENCE ARE NOT AVAILABLE)					
CLASS	MIN. 28-DAY COMPRESSIVE STRENGTH IN PSI*	NON-AIR-ENTRAINED CONCRETE		AIR-ENTRAINED CONCRETE	
		ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT	ABSOLUTE RATIO BY WEIGHT	US GAL. PER 94-LB. BAG OF CEMENT
A	5,000	**	**	**	**
B	4,000	0.44	5.0	0.35	4.0
C	3,000	0.58	6.6	0.46	5.2
D	2,500	0.67	7.6	0.54	6.1
E	2,000	0.71	8.0	-	-

* 28-day strength. With most materials, water/cement ratios shown will provide average strengths greater than indicated in Section 5.4 of A.C.I. 318R-89 as being required.

** For strength above 4,500 psi (non-air-entrained concrete) and 4,000 psi (air-entrained concrete) proportions shall be established by methods of Sections 5.3 or 5.4 of A.C.I. Building Code (A.C.I. 318R-89).

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Unless otherwise specified, all concrete shall be Class "B", non-air-entrained except exposed concrete which shall be air-entrained. When foundation walls or grade beams are exposed to weather above grade, the entire wall shall be considered exposed concrete.

2.5.2 Maximum size aggregates shall be used as follows unless otherwise designated by the Engineer.

1-1/2"	general work
3/4"	thin sections; heavy reinforcing; slabs
3/8"	floor toppings

2.5.3 Slump - Maximum:

Reinforced concrete - general	4"
Reinforced concrete - thin walls, columns	5"
Non-reinforced concrete	3"
Pavements, including sidewalks	3"

2.5.4 Air Content: Use an approved air entraining admixture. The entrained content shall be controlled between 4% - 6%. See Plans for concrete work requiring air entrainment.

2.5.4.1 For mixes containing coarse aggregate with a top size of 3/4" or smaller and for exposed concrete subject to frost and salt action, air contents shall be increased to the range of 5% - 7%.

PART 3 - EXECUTION

3.1 BATCHING AND MIXING:

3.1.1 The Contractor shall have available at all times sufficient approved materials such that, when once started, concreting shall be a continuous operation until the placing of the panel or section is completed. The top surface shall be generally level. When construction joints become necessary, they shall be made as hereinafter specified.

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3.1.2 All concrete shall be mixed not less than 60 revolutions in the drum of a modern power mixer, at the rated speed of rotation. Mix not less than an additional 30 revolutions after the addition of any further water to the mix.

3.1.3 Transit-mixed concrete shall be transported to the job site unmixed and only after arrival at the job site shall mixing begin. All concrete shall be unloaded from the mixer within 45 minutes after completion of mixing. All concrete still remaining in the truck shall be rejected.

3.1.4 The total time interval from the time the cement makes contact with the aggregate to the complete unloading from the mixer shall not exceed 90 minutes, unless such time is extended by the Engineer. The time may be reduced in hot weather or under unusual conditions, if unsatisfactory results are obtained.

3.2 FORMWORK:

3.2.1 The Contractor shall design and construct suitable and adequate formwork in conformance with A.C.I. 347R-88. All shoring shall be properly braced to safely withstand all vertical, moving and lateral forces during the construction period. Responsibility for adequacy and safety rests with the Contractor. Materials shall be as stated in Paragraph 2.1.

3.2.2 Set forms true to line and grade and make mortar-tight. Chamfer above grade exposed joints, edges, and external corners of concrete 3/4-inch, unless otherwise indicated. Before concrete placement, coat the contact surfaces of forms with a non-staining form coating compound. Do not use mineral oil on formed surfaces to be painted. Prevent concrete damage during form removal. Concrete for footings may be placed in excavations without forms upon inspection and approval by the Engineer. Excavation width shall be a minimum of 4 inches greater than finished dimensions indicated.

3.2.3 It shall be the Contractor's responsibility to determine the time at which forms may be removed without endangering the structure, subject to the following limitations, unless documentation is provided to modify these requirements:

Footing forms - 24 hours minimum; continue curing as specified.

Wall forms - 2 days minimum for ten (10) feet high. Add one (1) day for each additional five (5) feet of height; continue curing as specified.

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3.3 JOINTS FOR CONCRETE:

3.3.1 Expansion Joints:

3.3.1.1 Expansion joints shall be constructed where shown and as directed. Reinforcement, corner protection angles or other fixed items embedded or bonded into concrete shall not be run continuously through expansion joints. Reinforcement shall be discontinued 2 inches from the joint face. A slightly rounded edging shall be provided to finish neatly all edges around expansion joints.

3.3.1.2 Preformed expansion joint filler material and sealant, where shown on the drawings, shall be as specified in Paragraph 2.1.

3.3.2 Construction Joints:

3.3.2.1 The location of construction joints shall be chosen by the Contractor and shall be subject to the Engineer's approval except where specifically located on the Plans. Horizontal construction joints in walls will not be permitted.

3.3.2.2 Reinforcing shall be discontinuous through a construction joint, unless otherwise noted on drawings. As shown or specified on the drawings, additional No. 3 reinforcing bars spaced at 12-inches on center shall be placed horizontally in each construction joint at the center of the section. These bars shall be 4-feet long and shall extend 2-feet on each side of the joint. Reinforcement projecting through joint shall be kept clean. As indicated on the drawings, all construction joints shall be provided with a keyway.

3.3.2.3 As indicated on drawings, a metal keyed floor slab joint may be used.

3.3.3 Contraction (Control) Joints.

3.3.3.1 Contraction joints shall be located as shown on the drawings or as directed. Reinforcement through the joint shall be continuous as shown on the drawings and/or as directed by the Engineer.

3.3.3.2 Sawcut contraction joints (Type "A") shall be made by cutting the concrete surface and filling with the sealant material as specified under paragraph 2.1. Cutting shall be done after the surface is firm enough not to be damaged by the cutting blade. Time of cutting shall be approved by the Engineer.

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3.3.3.3 Formed contraction joints (Type "B") shall be made by tooling with a 1/4-inch radius edging tool and filled with the sealant material as specified under paragraph 2.1.

3.3.3.4 Premolded Contraction Joints (Type "C") shall be "Kold-Seal Zipper Strip" by Vinylex or "Zip Cap Control Joint" by Greenstreak Products, or equal.

3.4 INSERTS AND SLEEVES:

3.4.1 The Contractor shall cooperate with all other Contractors in permitting the placing of all necessary sleeves, conduit, or inserts for hangers for their trades. The Contractor shall notify the trades of all pours in ample time for the responsible Contractor to place all embedded items, sleeves, slots, holes or chases.

3.4.2 Accurately set all slots, chases, anchor bolts, opening, etc. All inserts for hanging mechanical equipment shall be provided and set by the Contractor for the trade involved. All sleeves for piping passing through floors and walls shall be provided by the Contractor for the trade involved and set by the General Contractor.

3.4.3 All conduit which must be placed in concrete slabs shall be installed after, and above the bottom reinforcing, but before, and under the top reinforcing. Where conduit cross-overs are necessary, they shall be located so that reinforcing is not displaced from its specified position.

3.4.4 If, in the judgement of the Engineer, embedded items are located or grouped in a manner that will weaken the structure, the Contractor shall take the necessary corrective steps.

3.4.5 All inserts and sleeves where the outside diameter is greater than the spacing between the reinforcing steel, the reinforcing bars shall be warped around such inserts and sleeves. Unless shown otherwise on the drawings, provide, as a minimum, two #4 diagonal bars per face at 90 degrees to each other all around the inserts and sleeves.

3.4.6 Where openings are left in new concrete or are made in existing concrete for the insertion of wall castings, pipes or other fixtures, the space around these fixtures shall be made watertight by completely filling with a non-shrinking concrete containing an admixture of "SikaSet-C", "Anti-Hydro" Concrete Waterproofing Agent, or equal.

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3.5 CONVEYING AND PLACING CONCRETE:

3.5.1 The placing or depositing of all concrete shall be done in accordance with A.C.I. 304R-89 "Guide for Measuring, Mixing, Transporting and Placing Concrete" and as modified herein.

3.5.2 Before placing concrete, all debris, water, snow and ice shall be removed from places to be occupied by concrete. Wood forms shall be wetted except in freezing weather or oiled, and the reinforcement cleaned of ice or other coatings.

3.5.3 Conveying, transporting, and placing shall be done as rapidly as practicable and without segregation, loss of ingredients, and without unnecessary rehandling. The tempering of concrete will not be permitted.

3.5.4 Spade and work the coarse aggregate away from forms and work concrete around reinforcement to avoid air pockets, voids, and honeycombed sections. The use of a mechanical vibrator is mandatory, but concrete must not be over-vibrated. Hand spading will be required in addition to mechanical vibration. Maintain spare vibrator(s) at site for use in case of breakdowns.

3.5.5 Screed all work to level surfaces at the proper elevations. Rake surfaces to provide bond for floor finishes where specified.

3.5.6 No concrete shall be deposited under water without written permission of the Engineer and then only in accordance with his directions. Proper tremie equipment and techniques must be used, should the need arise.

3.6 PROTECTION AND CURING:

3.6.1 All concrete shall be protected against injury by sun, rain, freezing, mechanical damage, or premature drying. All concrete shall be maintained above 50°F in a moist or wet condition for at least the first 7 days after placement.

3.6.2 On vertical surfaces keep forms on, or cover with burlap blankets, kept wet.

3.6.3 On horizontal surfaces and floors to receive later finishes, cover with wet burlap, wet sand, or curing paper and keep saturated. Cement finish floors shall be covered with protective covering material with lapped and sealed edges after the concrete has set sufficiently to carry worker's weight. Covering shall remain in place until floor is cleaned. Weight covering with planks as required to hold it in place.

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3.6.4 Cold weather protection shall conform to A.C.I. 306R-88 "Cold Weather Concreting" except as herein modified.

3.6.4.1 Prior to pouring, it shall be the Contractor's responsibility to keep the forms free from snow, ice, mud or debris at all times, by means of covers, enclosures, live steam or heating below the forms, as necessary. Use of torches, open flames, salts, straw, hay or chemical is prohibited.

3.6.4.2 When air temperature is 40°F, or less, use only heated concrete, delivered to the forms at temperatures between 65°F and 85°F. All portions of freshly poured concrete shall be continually maintained at a temperature of not less than 50°F for seven days. Specified temperature shall be maintained by heated enclosures, insulating blankets, insulated forms, or whatever approved methods are required to attain the specified result.

3.6.4.3 Concrete shall not be poured on frozen soil. After pouring, protect against freezing and heaving of subgrade. Any frozen concrete will be rejected and removed at the Contractor's expense. Accelerating admixtures shall not be accepted in lieu of winter protection.

3.6.5 Hot weather protection shall conform to A.C.I. 305R-89 "Hot Weather Concreting" except as modified herein.

3.6.5.1 During warm dry weather special care and precautions should be taken to prevent premature setting which may cause shrinkage and surface checking. No concrete shall be placed at temperatures above 90°F without approval of the Engineer.

3.6.6 No water (except curing spray) shall be allowed to come in contact with the concrete or masonry surface for a minimum of 24 hours. Should the rising water place a stress on the concrete, proper bracing shall be provided. Loading shall not occur without prior approval by the Engineer, and proper safety precautions shall be the responsibility of the Contractor.

3.6.7 Curing compound may be used as specified in Paragraph 2.1 provided discoloration does not occur and application is in accordance with manufacturer's direction and is compatible with concrete finish.

3.7 SLABS ON GROUND:

3.7.1 Subgrade and base to be prepared as specified in Contract Documents.

3.7.2 Form depressed ribs under partitions as required by sloping gravel, or provide permanent side forms to retain gravel.

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3.7.3 Trench subgrade for electric conduit as detailed on Plans. All reinforcing shall be above electric conduit.

3.7.4 Place slabs of thickness shown on Plans, vibrate, screed, float level, and finish as specified below.

3.8 CONCRETE FINISHES - FORMED SURFACES:

3.8.1 After the forms are removed, all concrete surfaces shall be inspected, and any poor joints, voids, stone pockets or other defective areas noted by the Engineer shall be repaired immediately at the Contractor's expense by cutting away the unsound area to a minimum depth of 1 inch, and refilling with mortar mixed using the same brand of cement as the original pour. Edges of the patch shall be square with the face, with feather-edging prohibited. Obtain approval of corrective action prior to repair.

3.8.2 Care shall be taken to saturate the patched area and holes shall be filled in 1/2-inch layers with a delay for an initial set to take place before the succeeding layer is applied. If, in the opinion of the Engineer, improper consolidation is too extensive, or if the structure appears weakened by the voids, complete removal of the concrete in question may be required. Patches shall be kept moist for a minimum of three days.

3.9 FLOOR AND SLAB FINISHING:

3.9.1 Finished floors and slabs shall be level to within 1/8" of finish floor elevation in ten feet. If this variation occurs, it must not be abrupt, but must taper so that the 1/8" variation takes place in not under 4 feet. Areas with drains shall have the surfaces sloped uniformly and true to the effect that no surface ponding occurs. If required by the Engineer, replace, grind or furnish underlayment to correct the variation, at the Contractor's expense. All floors and slabs shall be cured and protected as specified.

3.9.2 Under quarry tile and ceramic tile screed and float top surface of slab, after concrete has been compacted, to accurate lines and levels as required to receive these materials. Floors receiving a tile finish are indicated on the Plans.

3.9.3 Where exposed concrete finish is specified, provide a steel trowelled finish. After concrete has set sufficiently to carry the weight of the workman, float with motor-driven rubber disc machine to thoroughly compact and close any surface voids.

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3.9.4 Dusting with dry cement or cement sand mixtures, to hasten drying, is prohibited. Dry time shall be controlled by controlling the water content and slump of the concrete when placed.

3.9.5 Liquid hardener, as specified in Paragraph 2.1, shall be applied to exposed concrete finish floors where shown on the Contract Drawings. Cure floors thoroughly. Hardener shall be applied in accordance with Manufacturer's directions in at least two coat application, allowing 24 hours between coats. Coverage, for each coat, shall be one gallon per 100 square feet. After final coat is complete and dry, remove surplus hardener by scrubbing and mopping with water.

3.9.6 A float finish shall be applied to all exterior concrete and those areas not intended for occupancy, such as culvert inverts, bottoms of manholes and catch basins, pads, etc. Sidewalks, walkways, or exterior ramps shall be given a broom finish, perpendicular to traffic, sufficient to leave marks without appreciable disturbance of the surface.

3.10 MISCELLANEOUS CONCRETE WORK:

3.10.1 Pour all sump pits, canopies, copings and provide all other miscellaneous concrete and cement work shown on the drawings. All such concrete shall be reinforced as shown. Provide all cement filled stair treads as detailed. Place bottoms and walls of pits and trenches monolithically.

3.10.2 Concrete Walks: Provide 4 inches thick minimum. Provide contraction joints spaced every 5 linear feet, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide 1/2-inch thick transverse expansion joints at changes in direction, where sidewalk abuts curb, steps, rigid pavement, or other similar structures. Provide a transverse slope of 1/4-inch per foot and limit variation in cross section to 1/4-inch in 5 feet unless otherwise indicated.

3.10.3 Curbs and Gutters: Provide contraction joints spaced every 10 feet maximum, unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced every 100 feet maximum, unless otherwise indicated. Provide a broom finish.

3.10.4 Equipment Bases: Unless otherwise shown, all equipment shall be erected on bases of Class "B" concrete. Thickness shall be as noted on the Plans, but at no time shall it measure less than 1 inch.

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3.10.5 Concrete Stairs, Steps and Platforms: Stairs, steps and platforms shall be formed to required profiles shown on the Plans. Place reinforcing as required. Finish of stairs and steps shall be monolithic. Where shown on Plans, provide for nosings. Exterior stairs, steps and platforms shall have a non-slip finish. Before final troweling, embed abrasive grits, as specified in Paragraph 2.1, in the surface.

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION):

4.1.1 The quantity of Cast-In-Place Concrete (Minor Construction) for which payment will be made will be the actual number of cubic yards measured in place within the lines shown, specified, or ordered.

4.2 PAYMENT - CAST-IN-PLACE CONCRETE (MINOR CONSTRUCTION):

4.2.1 For Cast-In-Place Concrete (Minor Construction), not included in other unit or lump sum price items, payment for Cast-In-Place Concrete (Minor Construction) will be made at the applicable price stated in the Bid.

END OF SECTION

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PART 1 - GENERAL

1.1 DESCRIPTION:

1.1.1 Under this Section, the Contractor shall furnish all labor, materials and equipment for Painting as shown on the Plans, as specified and/or directed.

1.2 REFERENCES: The publications listed below and their latest revisions form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.2.1 Code of Federal Regulations (CFR) Publications:

29 1910.1000	Occupational Safety and Health Standards
29 1910.1025	Occupational Safety and Health Standards (Lead)

1.2.2 Federal Standard (FED-STD):

313	Material Safety Data Sheets Preparation and Submission of
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1.2.3 Steel Structures Painting Council (SSPC) Publications:

Paint-1	Shop, Field, and Maintenance Painting
Paint-3	A Guide to Safety in Paint Application
Paint-20	Zinc-Rich Primers (Type I, Inorganic, and Type II Organic)
SP 1	Solvent Cleaning
SP 2	Hand Tool Cleaning
SP 3	Power Tool Cleaning
SP 6	Commercial Blast Cleaning
SP 7	Brush-Off Blast Cleaning

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SP 10	Near-White Blast Cleaning
VIS1	Pictorial Surface Preparation Standards for Painting Steel Surfaces, Guide to

1.3 SUBMITTALS: Submit the following.

1.3.1 Manufacturer's Instructions:

- a. Paint application instructions
- b. Manufacturer's material safety data sheets

Submit Manufacturer's material safety data sheets for coatings, solvents, and other potentially hazardous materials, as defined in FED-STD-313.

1.4 REGULATORY REQUIREMENTS:

1.4.1 Lead Content: Do not use coatings having a lead content over 0.06 percent by weight of nonvolatile content.

1.4.2 Chromate Content: Do not use coatings containing zinc-chromate or strontium-chromate.

1.4.3 Asbestos Content: Materials shall not contain asbestos.

1.4.4 NSF International (NSF) Standard: ANSI/NSF Standard 61, Drinking Water System Components – Health Effects.

1.5 DELIVERY AND STORAGE: Deliver materials in sealed, labeled containers bearing the manufacturer's name, brand designation, specification number, batch number, color, and date of manufacture. Restrict storage and mixing of materials to locations designated by the Engineer.

1.6 SAFETY METHODS: Apply coating materials using safety methods and equipment in accordance with the following:

1.6.1 Safety Methods Used During Coating Application: Comply with the requirements of SSPC Paint-3.

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1.6.2 Toxic Materials: To protect personnel from overexposure to toxic materials, conform to the most stringent guidance of:

- a. The chemical manufacturer when using mineral spirits, or other chemicals. Use impermeable gloves, chemical goggles or face shield, and other recommended protective clothing and equipment to avoid exposure of skin, eyes, and respiratory system. Conduct work in a manner to minimize exposure of building occupants and the general public.
- b. The appropriate OSHA standard in 29 CFR 1910.1025 for surface preparation on painted surfaces containing lead, zinc-chromate, strontium-chromate, asbestos, or other toxic ingredients.
- c. 29 CFR 1910.1000.
- d. Threshold Limit Values (R) of the American Conference of Governmental Industrial Hygienists.
- e. Manufacturer's Material Safety Data Sheets (MSDS).

1.7 ENVIRONMENTAL CONDITIONS:

1.7.1 Exterior Coatings: Do not apply coating to surfaces during foggy or rainy weather, or under the following surface temperature conditions:

- a. Less than 5 degrees F above the dew point;
- b. Below 40 degrees F (for oil-based paints), 50 degrees F (for latex paints), or over 95 degrees F, unless approved by the Engineer.

1.7.2 Interior Coatings: Apply coatings when surfaces to be painted are dry and the following surface temperatures can be maintained:

- a. Between 65 and 95 degrees F during the application of enamels and varnishes;
- b. Between 50 and 95 degrees F during the application of other coatings.

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1.8 COLOR SELECTION: Colors of finish coats shall be as indicated or specified. Where not indicated or specified, colors shall be selected by the Engineer.

1.9 LOCATION AND SURFACE TYPE TO BE PAINTED:

1.9.1 Painting Included: Where a space or surface is indicated to be painted, include the following unless indicated otherwise.

- a. Surfaces behind portable objects and surface mounted articles readily detachable by removal of fasteners, such as screws and bolts.
- b. New factory finished surfaces that require identification or color coding and factory finished surfaces that are damaged during performance of the work.
- c. Existing coated surfaces that are damaged during performance of the work.

1.9.2 Painting Excluded: Do not paint the following unless indicated otherwise.

- a. Surfaces concealed and made inaccessible by panelboards, fixed ductwork, machinery, and equipment fixed in place.
- b. Surfaces in concealed spaces. Concealed spaces are defined as spaces above suspended ceilings, furred spaces, attic spaces, crawl spaces, and chases.
- c. Steel to be embedded in concrete.
- d. Copper, stainless steel, aluminum, brass, and lead except existing coated surfaces.

1.9.3 Exterior Painting: Includes new surfaces and existing coated surfaces, of the building site work items and appurtenances. Also included are existing coated surfaces made bare by cleaning operations.

1.9.4 Interior Painting: Includes new surfaces, and existing coated surfaces of the building and appurtenances as indicated and existing coated surfaces made bare by cleaning operations. Where a space or surface is indicated to be painted, include the following items, unless indicated otherwise.

- a. Exposed columns, girders, beams, joists, and metal deck; and
- b. Other contiguous surfaces.

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1.9.5 Mechanical and Electrical Painting: Includes field coating of interior and exterior surfaces.

- a. Where a space or surface is indicated to be painted, include the following items unless indicated otherwise.
 - (1) Exposed piping, conduit, and ductwork;
 - (2) Supports, hangers, air grilles, and registers;
 - (3) Miscellaneous metal work and insulation coverings.
- b. Do not paint the following, unless indicated otherwise:
 - (1) New zinc-coated, aluminum, and copper surfaces under insulation;
 - (2) New aluminum jacket on piping; and
 - (3) New interior ferrous piping under insulation.

PART 2 - PRODUCTS

2.1 MATERIALS: Provide as far as practical, pretreatments, primers and top coats from one coating manufacturer. Coatings shall be applied as a complete system and must be compatible with the substrate and each coating component. Coating systems shall be the manufacturer's industrial or commercial systems and are specified by generic type only. Residential coating systems shall not be permitted.

2.1.1 All coating that shall be in contact with potable water shall be ANSI/NSF Standard 61 approved.

PART 3 - EXECUTION

3.1 PROTECTION OF AREAS AND SPACES: Prior to surface preparation and coating applications, remove, mask, or otherwise protect, hardware, hardware accessories, machined surfaces, radiator covers, plates, lighting fixtures, public and private property, and other such

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items not to be coated that are in contact with surfaces to be coated. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Restore surfaces contaminated by coating materials, to original condition and repair damaged items.

3.2 SURFACE PREPARATION: Remove dirt, splinters, loose particles, grease, oil, disintegrated coatings, and other substances deleterious to coating performance as specified for each substrate.

3.2.1 Existing Coating Surfaces With No Defects: Before application of coatings, perform the following on surfaces covered by soundly-adhered coatings, defined as those which cannot be removed with a putty knife:

- a. Wipe previously painted surfaces to receive solvent-based coatings, except stucco and similarly rough surfaces clean with a clean, dry cloth saturated with mineral spirits, FS TT-T-291. Allow surface to dry. Wiping shall immediately precede the application of the first coat of any coating, unless specified otherwise.
- b. Sand existing enamel and other glossy surfaces to remove gloss. Brush and wipe clean with a dry cloth.
- c. The requirements specified are minimum. Comply also with the instructions and recommendations of the paint manufacturer for preparation and application.

3.2.2 Existing Coated Surfaces with Minor Defects: Sand, spackle, and treat minor defects to render them smooth. Minor defects are defined as scratches, nicks, cracks, gouges, spalls, alligating, chalking, and irregularities due to partial peeling of previous coatings.

3.2.3 Removal of Existing Coatings: Remove existing coatings from the following surfaces:

- a. Surfaces containing large areas of minor defects;
- b. Surfaces containing more than 20 percent peeling area; and
- c. Surfaces designated by the Engineer, such as surfaces where rust shows through existing coatings.

3.3 PREPARATION OF METAL SURFACES:

3.3.1 Existing and New Ferrous Surfaces:

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- a. Shop-coated Surfaces and Small Areas That Contain Rust, Mill Scale and Other Foreign Substances: Solvent clean in accordance with SSPC SP 1 to remove oil and grease. Where shop coat is missing or damaged, clean according to SSPC SP 2 or SSPC SP 3.
- b. Surfaces With More Than 20 Percent Rust, Mill Scale, and Other Foreign Substances: Clean entire surface in accordance with SSPC SP 6.
- c. Galvanized steel shall be prepared for painting in accordance with ASTM D6386.

3.3.2 Final Ferrous Surface Condition: Cleaned surface shall be similar to photographs in SSPC VIS1 as follows:

DEGREE OF CLEANING	ADHERENT MILL SCALE	RUSTING MILL SCALE	RUSTED	PITTED AND RUSTED
Hand Tool Cleaning SSPC SP 2	(1)	B St 2	C St 2	D St 2
Power Tool Cleaning SSPC SP 3	(1)	B St 3	C St 3	D St 3
Commercial Blast Cleaning SSPC SP 6	(1)	(1)	C Sa 2	D Sa 2
Brush-Off Blast Cleaning SSPC SP 7	(1)	B Sa 1	C Sa 1	D Sa 1
[Near White Blast Cleaning SSPC SP 10	A Sa 2-1/2	B Sa 2-1/2	C Sa 2-1/2	D Sa 2-1/2]
Note: (1) No photograph is available or recommended for comparison				

3.4 PREPARATION OF CONCRETE AND CEMENTITIOUS SURFACE:

3.4.1 Concrete and Masonry:

- a. Surface Cleaning: Remove the following deleterious substances.
 - (1) Dirt, Chalking, Grease, and Oil: Wash new and existing uncoated surfaces with a solution composed of 3 ounces (2/3 cup) trisodium phosphate, 1 ounce (1/3

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cup) household detergent, and 3 quarts of warm water. Then rinse thoroughly with fresh water. Wash existing coated surfaces with a suitable detergent and rinse thoroughly. For large areas, water blasting may be used.

- (2) Fungus and Mold: Wash, existing coated surfaces with a solution composed of 3 ounces (2/3 cup) trisodium phosphate, 1 ounce (1/3 cup) household detergent, 1 quart 5 percent sodium hypochlorite solution and 3 quarts of warm water. Rinse thoroughly with fresh water.
 - (3) Glaze and Loose Particles: Remove by wire brushing.
 - (4) Efflorescence: Remove by scraping or wire brushing followed by washing with a 5- to 10-percent by weight aqueous solution of hydrochloric (muriatic) acid. Do not allow acid to remain on the surface for more than five minutes before rinsing with fresh water. Do not acid clean more than 4 square feet of surface, per workman, at one time.
 - (5) Removal of Existing Coatings: For surfaces to receive textured coating FS TT-C-555, remove existing coatings including soundly adhered coatings if recommended by textured coating manufacturer.
- b. Cosmetic Repair of Minor Defects: Repair or fill mortar joints and minor defects, including but not limited to spalls, in accordance with manufacturer's recommendations and prior to coating application.

3.4.2 Gypsum Board:

- a. Surface Cleaning: Gypsum board shall be dry. Remove loose dirt and dust by brushing with a soft brush or rubbing with a dry cloth prior to application of the first coat material.
- b. Repair of Minor Defects: Prior to painting, repair joints, cracks, holes, surface irregularities, and other minor defects with spackling compound and sand smooth.

3.5 PREPARATION OF WOOD AND PLYWOOD SURFACE:

3.5.1 New Surfaces, Except Floors:

- a. Surface Cleaning: Surfaces shall be free from dust and other deleterious substances

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and in a condition approved by the Engineer prior to receiving paint or other finish. Do not use water to clean uncoated wood.

- b. Removal of Fungus and Mold: Wash existing coated surfaces with a solution composed of 3 ounces (2/3 cup) trisodium phosphate, 1 ounce (1/3 cup) household detergent, 1 quart 5 percent sodium hypochlorite solution and 3 quarts of warm water. Rinse thoroughly with fresh water.
- c. Cosmetic Repair of Minor Defects:
 - (1) Knots and Resinous Wood: Prior to application of paint, treat with an application of [commercially available] knot sealer.
 - (2) Open Joints and Other Openings: Fill with whiting putty. Sand smooth after putty has dried.
 - (3) Checking: Where checking of the wood is present, sand the surface, wipe and apply a coat of pigmented orange shellac. Allow to dry before paint is applied.
- d. Prime Coat For New Exterior Surfaces: Prime coat before wood becomes dirty, warped, or weathered.
- e. Cracks and Nailheads: Set and putty stop nailheads and putty cracks after the prime coat has dried.

3.6 APPLICATION:

3.6.1 Coating Application: Apply coating materials in accordance with SSPC Paint-1. SSPC Paint-1 methods are applicable to all substrates, except as modified herein. Thoroughly work coating materials into joints, crevices, and open spaces. Touch up damaged coatings before applying subsequent coats. Interior areas shall be broom clean and dust free before and during the application of coating material.

- a. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Provide each coat in specified condition to receive the next coat.
- b. Primers, and Intermediate Coats: Do not allow primers or intermediate coats to dry

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more than 30 days, or longer than recommended by the manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover the surface of the preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.

- c. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in colors.

3.6.2 Equipment: Apply coatings with approved brushes, approved rollers, or approved spray equipment, unless specified otherwise. Spray areas made inaccessible to brushing by items such as ducts and other equipment.

3.6.3 Thinning of Paints: Reduce paints to proper consistency by adding fresh paint, except when thinning is mandatory for the type of paint being used. Obtain written permission from the Engineer to use thinners. The written permission shall include quantities and types of thinners to use.

3.6.4 Coating Systems:

- a. Systems by Substrates: Apply coatings that conform to the respective specifications listed in the following Tables:

Table

I	Exterior Metal Surfaces
II	Interior Metal Surfaces
III	Exterior Concrete Surfaces
IV	Interior Concrete Surfaces
V	Exterior Masonry Surfaces
VI	Interior Masonry Surfaces
VII	Interior Gypsum Wallboard Surfaces
VIII	Exterior and Interior Wood Surfaces

- b. Minimum Dry Film Thickness (DFT): Apply paints, primers, varnishes, enamels, undercoats, and other coatings to a minimum dry film thickness of 1.5 mil each coat unless specified otherwise in the Tables. Coating thickness where specified, refers to the minimum dry film thickness.

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- c. Coatings for Surfaces Not Specified Otherwise: Coat surfaces which have not been specified, the same as surfaces having similar conditions of exposure.
- d. Existing Surfaces Damaged During Performance of the Work, Including New Patches In Existing Surfaces: Coat surfaces with the following:
 - (1) One coat of primer.
 - (2) One coat of undercoat or intermediate coat.
 - (3) One top coat to match adjacent surfaces.
- e. Existing Coated Surfaces To Be Painted: Apply coatings conforming to the respective specifications listed in the Tables herein, except that pretreatments, sealers, fillers, and primers need not be provided on surfaces where existing coatings are soundly adhered and in good condition.

3.7 COATING SYSTEMS FOR METAL:

- a. Primer: Apply specified ferrous metal primer on the same day that surface is cleaned. If flash rusting occurs, re-clean the surface prior to application of primer.
 - (1) Inaccessible Surfaces: Prior to erection, use two coats of the specified primer on metal surfaces that will be inaccessible after erection.
 - (2) Shop-primed Surfaces: Touch up exposed substrates and damaged coatings to protect from rusting prior to applying field primer.
 - (3) Pipes and Tubing: The semitransparent film applied to pipes and tubing at the mill is not to be considered a shop coat. Apply specified ferrous metal primer prior to application of subsequent coats.
 - (4) Exposed Nails, Screws, Fasteners, and Miscellaneous Ferrous Surfaces: On surfaces to be coated with water thinned coatings, spot prime exposed nails and other ferrous metal with latex primer.
- b. Apply coatings of Tables I and II. "DFT" means dry film thickness in mils.

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3.8 COATING SYSTEMS FOR WOOD AND PLYWOOD:

- a. Apply coatings of Tables VII and VIII.
- b. Prior to erection, apply two coats of the specified primer to treat and prime wood [and plywood] surfaces which will be inaccessible after erection.

3.9 INSPECTION AND ACCEPTANCE: In addition to meeting the previously specified requirements, demonstrate the mobility of moving components, including but not limited to swinging and sliding doors, cabinets, and windows with operable sash, for inspection by the Engineer. Perform this demonstration after appropriate curing and drying times of the coatings have elapsed and prior to invoicing for final payment.

TABLE I EXTERIOR METAL SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	SSPC SP 6	Epoxy-Polyamide	4.0	Aliphatic Polyester Polyurethane	1.5	-	-
Mild	SSPC SP 6	Alkyd-Phenolic Primer	2.0	Alkyd	1.5	Alkyd	1.5

TABLE II INTERIOR METAL SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	SSPC SP 6	Epoxy-Polyamide Primer	3.0	Epoxy-Polyamide	4.0	-	-
Mild	SSPC SP 6	Alkyd-Phenolic Primer	2.0	Alkyd	1.5	Alkyd	1.5
Immersion	SSPC SP 10	Coal-Tar Epoxy	14.0	-	-	-	-

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TABLE III EXTERIOR CONCRETE SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	Clean and Dry	Modified Epoxy	8.0	-	-	-	-
Mild	Clean and Dry	Emulsified Acrylic	2.0	Emulsified Acrylic	2.0	-	-

TABLE IV INTERIOR CONCRETE SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	Brush Blast	Epoxy-Polyamide Water-Borne	4.0	Epoxy-Polyamide Water-Borne	4.0	-	-
Moderate	Brush Blast	Acrylic-Epoxy	2.0	Acrylic-Epoxy	2.0	--	-
Mild	Clean and Dry	Emulsified Acrylic	2.0	Emulsified Acrylic	2.0	-	-
Concrete Floors	Acid Etch or Brush Blast	Epoxy-Polyamide (skid resistant)	2.0	Epoxy-Polyamide	2.0	-	-

TABLE V EXTERIOR MASONRY SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
All	Clean and Dry	Modified Epoxy	60 sf/gal	Modified Epoxy	8.0	-	-

TABLE VI INTERIOR MASONRY SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	Clean and Dry	Epoxy-Polyamide Filler	75 sf/gal	Epoxy-Polyamide	4.0	Epoxy-Polyamide	4.0
Mild	Clean and Dry	Modified Epoxy Filler	60 sf/gal	Emulsified Acrylic	2.0	Emulsified Acrylic	2.0

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TABLE VII INTERIOR GYPSUM WALL BOARD SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
Severe	Clean and Dry	Vinyl-Acrylic Latex Sealer	1.0	Epoxy-Polyamide	4.0	Epoxy-Polyamide	4.0
Moderate	Clean and Dry	Vinyl-Acrylic Latex Sealer	1.0	Water-Borne Acrylic-Epoxy	2.0	Water-Borne Acrylic-Epoxy	2.0
Mild	Clean and Dry	Emulsified-Acrylic	2.0	Emulsified-Acrylic	2.0	-	-

TABLE VIII EXTERIOR AND INTERIOR WOOD SURFACES							
CONDITION	PREPARATION	FIRST COAT	DFT	SECOND COAT	DFT	THIRD COAT	DFT
All	Clean and Dry	Alkyd Primer	2.0	Alkyd	1.5	Alkyd	1.5

PART 4 - MEASUREMENT & PAYMENT

4.1 MEASUREMENT - PAINTING:

4.1.1 Measurement for Painting shall include the cost of all materials, equipment, labor, submittals and testing for the work indicated in this Section.

4.2 PAYMENT - PAINTING:

4.2.1 For Painting, not included in other unit or lump sum price items, payment for Painting will be made at the applicable price stated in the Bid.

END OF SECTION

SECTION 16999

PAYMENT ITEM FOR CONTRACT NO.1B -
ELECTRICAL CONSTRUCTION FOR
WATER TREATMENT PLANT FILTER REHABILITATION

PART 1 - DESCRIPTION

1.1 Under this Item, the Contractor shall furnish all labor, materials and equipment for the completion of Contract No. 1B - Electrical Construction for Water Treatment Plant Filter Rehabilitation.

In addition to the applicable provisions of Sections 00100 thru and including 01640, and other Divisions of this project, the following sections describe the principal items of work to be performed under this payment item:

SECTION

16011	Electrical General Requirements
16060	Minor Electrical Demolition For Remodeling
16321	Interior Transformers
16402	Interior Wiring Systems
16450	Grounding

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - PAYMENT

4.1 Payment for Contract No. 1B - Electrical Construction for City of Saratoga Springs Water Treatment Plant Filter Rehabilitation, will be included in the lump sum price items stated in the Bid.

END OF SECTION