

Project Manual

PROJECT NO. SU-020413 Electrical Work

PROJECT TITLE: Acquisition and Installation of
a Synthetic Turf Field- Electric
Work

DATE: February 1, 2013

State University of New York, Purchase College

SUNY Purchase College
735 Anderson Hill Road
Purchase, New York 10577-1400



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213 East Seneca Street
Ithaca, New York 14850

TABLE OF CONTENTS

(Formal Contract for Construction)

SUNY PROJECT NO: **SU-020413**

PROJECT TITLE:

**Acquisition and Installation of
a Synthetic Turf Field- Electric
Work**

AGENCY NUMBER: **28260**

SECTION TITLE

PAGE NO(s).

Bidding Documents

Notice to Bidders NB-1, NB-2

Information for Bidders

1 Definitions	IB-1
2 Issuance of Bidding and Contract Documents	IB-1
3 Proposals	IB-1, IB-2
4 Examination of Bidding and Contract Documents	IB-2
5 Computation of Bid	IB-2
6 Payment of Security	IB-3
7 Qualification of Bidders	IB-3
8 Submission of Post-Bid Information	IB-3, IB-4
9 Award of Contract	IB-4
10 Required Bonds	IB-4, IB-5
11 New York State Business Enterprises	IB-5
12 Examination of Site	IB-5

Proposal P-1 to P-4

Bid Bond BB-1

Acknowledgment for Bid Bond BB-2

Contract Documents

Agreement

Article I General Provisions

Section 1.01 Definitions	A-1, A-2
Section 1.02 Captions	A-2
Section 1.03 Nomenclature	A-2
Section 1.04 Entire Agreement	A-2
Section 1.05 Successors and Assigns	A-2
Section 1.06 Accuracy and Completeness of Contract Documents	A-2
Section 1.07 Organization of Contract Documents	A-2
Section 1.08 Furnishing of Contract Documents	A-2, A-3
Section 1.09 Examination of Contract Documents and Site	A-3
Section 1.10 Invalid Provisions	A-3
Section 1.11 No Collusion or Fraud	A-3
Section 1.12 Notices	A-3
Section 1.13 Singular-Plural; Male-Female	A-3

TABLE OF CONTENTS

(Formal Contract for Construction)

Agreement (continued)

Article II

Contract Administration and Conduct

Section 2.01	Consultant's Status	A-3
Section 2.02	Finality of Decisions	A-4
Section 2.03	Claims and Disputes	A-4
Section 2.04	Omitted Work	A-4
Section 2.05	Extra Work	A-4, A-5
Section 2.06	Contractor to Give Personal Attention	A-5
Section 2.07	Employment of Workers	A-5
Section 2.08	Detailed Drawings and Instructions	A-5
Section 2.09	Contract Documents to Be Kept at Site	A-5
Section 2.10	Permits and Building Codes	A-5
Section 2.11	Surveys	A-5, A-6
Section 2.12	Site Conditions	A-6
Section 2.13	Right to Change Location	A-6
Section 2.14	Unforeseen Difficulties	A-6
Section 2.15	Moving Materials and Equipment	A-6
Section 2.16	Other Contracts	A-6, A-7
Section 2.17	Inspection and Testing	A-7
Section 2.18	Subcontractors	A-7, A-8
Section 2.19	Shop Drawings and Samples	A-8, A-9
Section 2.20	Equivalents - Approved Equal	A-9
Section 2.21	Patents, Trademarks and Copyrights	A-9, A-10
Section 2.22	Possession Prior to Completion	A-10
Section 2.23	Completion and Acceptance	A-10
Section 2.24	Record Drawings	A-10
Section 2.25	Guarantees	A-10, A-11
Section 2.26	Default of Contractor	A-11, A-12
Section 2.27	Termination	A-12, A-13

Article III

Time of Performance

Section 3.01	Commencement, Prosecution and Completion of Work	A-13
Section 3.02	Time Progress Schedule	A-13, A-14
Section 3.03	Time Schedule for Shop Drawings and Samples	A-14
Section 3.04	Notice of Conditions Causing Delay	A-14
Section 3.05	Extension of Time	A-14
Section 3.06	Contractor's Progress Reports	A-14

Article IV

Payment

Section 4.01	Compensation to Be Paid Contractor	A-14, A-15
Section 4.02	Value of Omitted and Extra Work	A-15
Section 4.03	Adjustment for Bond and Insurance Premiums	A-16
Section 4.04	Unit Prices	A-16
Section 4.05	Allowances	A-16
Section 4.06	Deductions for Unperformed and/or Uncorrected Work	A-16
Section 4.07	Liquidated Damages	A-16, A-17
Section 4.08	Contract Breakdown	A-17
Section 4.09	Prompt Payment Requirements	A-17
Section 4.10	Progress Payments	A-17
Section 4.11	Applications for Progress Payments	A-17
Section 4.12	Progress Payments for Materials Delivered to Site	A-17
Section 4.13	Transfer of Title to Materials Delivered to Site	A-17, A-18

Agreement (continued)

Section 4.14	Progress Payments for Materials Stored Off Site	A-18
--------------	---	------

TABLE OF CONTENTS

(Formal Contract for Construction)

Section 4.15	Withholding of Progress Payments.....	A-18
Section 4.16	Lien Law	A-1
Article IV		
Section 4.17	Substitution of Securities for Retainage.....	A-19
Section 4.18	Final Payment	A-19
Section 4.19	Acceptance of Final Payment.....	A-19
Section 4.20	Guarantee Payment	A-19
Section 4.21	Acceptance of Guarantee Payment.....	A-19, A-20
Section 4.22	Contractor Limited to Money Damages	A-20
Section 4.23	No Estoppel or Waiver	A-20
Section 4.24	Limitation of Actions	A-20
Article V		
Protection of Rights and Property		
Section 5.01	Accidents and Accident Prevention	A-20
Section 5.02	Adjoining Property.....	A-20, A-21
Section 5.03	Emergencies	A-21
Section 5.04	Fire Safety	A-21
Section 5.05	Risks Assumed by Contractor	A-21, A-22
Section 5.06	Compensation and Liability Insurance.....	A-22, A-23
Section 5.07	Builder's Risk Insurance	A-23
Section 5.08	Effect of Procurement of Insurance	A-23
Section 5.09	No Third Party Rights.....	A-23
Article VI.....		A-23
Affirmative Action		
Article VII		
Provisions Required by Law		
Section 7.01	Provisions Deemed Inserted	A-23, A-24
Section 7.02	Entire Agreement	A-24
Section 7.03	Hierarchy of Precedent.....	A-24
Section 7.04	Wage Rates	A-24
Section 7.05	Contractor Responsibility	A-24
Signature of Parties and Governmental Approvals.....		A-25
Acknowledgments		A-26
Schedule I		A-27, A-28
Exhibit A Standard Contract Clauses		
Exhibit A-1 Affirmative Action Clauses		
Labor and Material Bond.....		B-1
Performance Bond.....		B-2
Acknowledgment for Bonds		B-3
Forms		
Form 5B Affirmation with respect to State Finance Law 139j and 139k		
Form C Disclosure and Certification with respect to State Finance Law 139j and 139k		

TABLE OF CONTENTS

(Formal Contract for Construction)

Vendor Responsibility Questionnaire and Financial Statement (UF-15)
EEO Policy statement Form 104
Attachment 1 requirement and procedure for minority and women owned business enterprises (MWBE) Participation
Utilization form 107
EEO staffing Plan Form 108
Quarterly MWBE compliance report Form 113
Request for Waiver Form 114

Certificate of Insurance (UF-14)

State University of New York Sub-Contracting Information

Form AC 2947, NY State Labor Law, Section 220-a,
Prime Contractor's Certification

Form AC 2948, NY State Labor Law, Section 220-a
Subcontractor's Certification

Form AC 2958, NY State Labor Law, Section 220-a
Sub-subcontractor's Certification

Form UF-4, Release

Technical Specifications

Division 1 - General Requirements

Section A - Description of Work	0100-1
Section B - Alternates	0100-1
Section C - Special Conditions.....	0100-2 - 0100-8
Price Listing – Electrical Work.....	.000313-1
Equivalent Listing – Electrical Work000323-1
Statement of Bidders Qualifications – Electrical Work000333-2
Contractor's Subcontractor List – Electrical Work.....	.000343-1
Summary of Work 011100-4	
Administrative Requirements013000-7
Submittal Procedures013300-5
Special Inspections and Procedures014111-10
Construction Facilities, Temporary Controls and Maintenance015000-7
Traffic Maintenance and Protection 015510-3	
Contract Closeout017700-4

Division 02 – Existing Conditions

02 05 00 Reports on Exploration
02 41 13 Selective Site Demolition

Division 03 – Structural Concrete

03 30 00 Cast in Place Concrete

Division 05 – Structural Steel

05 12 00 Structural Steel

Division 10 – Traffic Signage

10 14 53 Traffic Signage

Division 11 – Equipment

11 68 33 Athletic Field Equipment

Project Number SU-020413
Acquisition and Installation of a Synthetic Turf Field- Electric Work

Table of Contents - Page 4 of 6

TABLE OF CONTENTS

(Formal Contract for Construction)

11 68 43 Exterior Scoreboards

Division 13 – Special Construction

13 34 14 Angle Frame Bleachers
13 34 24 Modular Pressbox
13 34 27 Precast Pre-Engineered Dugout Structure

Division 26 – Electrical

26 00 10 General Requirements for Electrical Work
26 01 11 Conduit
26 01 23 Building Wire and Cable
26 01 30 Boxes
26 01 70 Grounding and Bonding
26 01 95 Electrical Identification
26 03 75 Underground Pull Boxes
26 04 27 Power Distribution
26 05 03 Poles and Standards
26 05 10 Exterior Lighting
26 56 68 Exterior Athletic Lighting

Division 31 – Earthwork

31 00 00 Earthwork
31 10 00 Site Preparation
31 23 17 Site Trenching
31 25 00 Erosion and Sediment Control

Division 32 – Exterior Improvements

32 12 16 Asphalt Paving
32 13 13 Concrete Paving
32 16 13 Concrete Curbs
32 18 14 Synthetic Grass Surfacing
32 18 25 Infield Skinned Area
32 31 13 Chain Link Fences and Gates
32 92 00 Lawns and Grasses
32 93 00 Exterior Plants

Division 33 – Exterior Utilities

33 40 00 Storm Drainage Utilities

List of Drawings

SITE

	TITLE SHEET
TS1	PROJECT SITE SURVEY AREA 1
TS2	PROJECT SITE SURVEY AREA 2
L01	SITE KEY PLAN
L02	SITE DEMOLITION PLAN
L03	CONSTRUCTION STAGING PLAN
L10	AREA 1 – BASEBALL FIELD LAYOUT PLAN
L11	AREA 2 – PARKING LOT LAYOUT PLAN
L20	AREA 1 – BASEBALL FIELD GRADING AND DRAINAGE PLAN
L21	AREA 2 – PARKING LOT GRADING AND DRAINAGE PLAN AND DETAILS
L30	SYNTHETIC TURF LINE STRIPING PLANS AND DETAILS
L31	SYNTHETIC TURF LINE STRIPING PLANS AND DETAILS
L40	BLEACHER PLANS AND SECTIONS
L41	PRESS BOX PLANS AND DETAILS
L42	PRESS BOX PLANS AND DETAILS
L50	PRE ENGINEERED DUGOUT PLANS AND DETAILS
L51	SITE DETAILS

TABLE OF CONTENTS

(Formal Contract for Construction)

CIVIL

C01	ATHLETIC FIELD SITE DRAINAGE PLANS AND DETAILS
C02	PARKING AREA EROSION AND CONTROL PLAN
C03	EROSION AND SEDIMENT CONTROL DETAILS
C04	SITE DETAILS

STRUCTURAL

S10	BASEBALL BACKSTOP WALL, STRUCTURAL PLANS AND DETAILS
S11	STRUCTURAL DETAILS AND NOTES

ELECTRICAL

E01	AREA 1 – BASEBALL FIELD ELECTRICAL PLAN
E02	AREA 2 – PARKING LOT ELECTRICAL LAYOUT
E03	ELECTRICAL DETAILS AND SCHEDULES

End of Table of Contents

STATE UNIVERSITY OF NEW YORK

NOTICE TO BIDDERS

Purchase College, State University of New York will receive sealed Proposals for **Project SU-020413**, Titled **“Acquisition and Installation of a Synthetic Turf Field - Electrical Work ”** until **1:00 P.M. Local Time on March 6, 2013**, at the Purchasing & Accounts Payable Office, Administration Building, Purchase College, State University of New York, 735 Anderson Hill Road, Purchase, New York 10577-1402, when they will be opened publicly and read. Proposals may be hand delivered or mailed to the above location and must be received by such time.

All work on this Contract is to be completed within **100** calendar days starting **ten (10)** calendar days after the contract approval date.

A **Mandatory** Pre-Bid Conference and site walk-through for prospective Bidders will be held at the Facilities Management conference room at Purchase College, 735 Anderson Hill Road, Purchase, New York 10577-1402 at **10:00AM on February 20, 2013**. Please note: This will be the only guided walk-through of the subject project facilities.

For directions to Purchase College, see <http://www.purchase.edu/AboutPurchase/VisitorsGuide/Directions/>
For a campus map, see <http://www.purchase.edu/sharedmedia/admissions/campus%20map.pdf>

Purchase College is dedicated to environmentally sustainable development. In an effort to conserve resources and reduce waste, the Bidding and Contract Documents will only be available electronically in PDF format for viewing and downloading at the following website: <http://www.purchase.edu/purchasemeansbusiness>

There will be an Open Question and Answer Period from **February 19 – February 26, 2013**. During this time any questions must be submitted in writing (no telephone calls) to the following email address, sayim.malik@purchase.edu. The email should reference the project in the subject line and include bidders contact information and email address. A response to all questions submitted within the Open Question and Answer Period and any required Addendum will be posted no later than **February 27, 2013** at the following website: <http://www.purchase.edu/purchasemeansbusiness>

Bids must be submitted in duplicate in accordance with the instructions contained in the Information for Bidders.

It is the policy of the State of New York and the State University of New York to encourage minority and women-owned business enterprise participation in its projects by contractors, subcontractors and suppliers, and all bidders are expected to cooperate in implementing this policy. The minority (MBE) and women (WBE) owned business contractor/subcontractor participation goals for this construction procurement are 10% for MBEs and 6% for WBEs.

The rates of wages and supplements determined by the Industrial Commissioner of the State of New York as prevailing in the locality of the site at which the work will be performed can be found at <http://wpp.labor.state.ny.us/wpp/publicViewProject.do?method=showIt&id=839140> . The Prevailing Rate Case (PRC) Number assigned to this project is 2013001155.

Pursuant to State Finance Law §§139-j and 139-k, this solicitation includes and imposes certain restrictions on communications between Purchase College and an Offerer/Bidder during the procurement process. An Offerer/Bidder is restricted from making contacts from the earliest notice of intent to solicit proposals through final award and approval of the Procurement Contract by Purchase College/State University of New York and, if applicable, the Office of the State Comptroller (“restricted period”) to other than designated staff unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law §139-j(3)(a). Pursuant to the statute, Purchase College employees are also required to obtain certain information when contacted during the restricted period and maintain a record of the communication, and make a determination of a knowing and willful contact. Contact made to other than designated staff regarding this procurement may disqualify the vendor from the current award and affect future procurements with government entities in the State of New York.

The State University of New York reserves the right to reject any or all bids.

Designated Contacts:

Sayim Malik
Project Manager, Capital Facilities Planning
Purchase College
State University of New York
735 Anderson Hill Road
Purchase, NY 10577-1402
Tel: (914) 251-4479
Fax: (914) 251-6063
Email: Sayim.Malik@purchase.edu

Sealed bids are to be sent to:
Nikolaus D. Lentner
Director of Purchasing & Accounts Payable
Purchase College
State University of New York
735 Anderson Hill Road
Purchase, NY 10577-1402
Tel: (914) 251-6070
Fax: (914) 251-6075
Email: L@purchase.edu

STATE UNIVERSITY OF NEW YORK

INFORMATION FOR BIDDERS

Section 1 Definitions

All definitions set forth in the Agreement are applicable to the Notice to Bidders, Information for Bidders and the Proposal, all of which documents are hereinafter referred to as the Bidding Documents.

Section 2 Issuance of Bidding and Contract Documents

- (1) Purchase College is dedicated to environmentally sustainable development. In an effort to conserve resources and reduce waste, the Bidding and Contract Documents will only be available electronically in PDF format for viewing and downloading at the following website:
<http://www.purchase.edu/purchasemeansbusiness>

Any initial complete set shall consist of the following:

- a. Two separately bound copies of the Proposal.
- b. Two separately bound copies of an Experience Questionnaire and Financial Statement.
- c. Two separately bound copies of a Bid Bond.
- d. Two separately bound copies of the Contractor's EEO Policy Statement and Subcontracting Information
- e. One copy of the Bidding and Contract Documents.

- (2) Additional complete sets shall consist only of the Bidding and Contract Documents.

Section 3 Proposals

- (1) Sealed Proposals must be submitted in duplicate on the forms provided by the University. Facsimile copies of the Proposal will not be accepted by the University. They shall be addressed to the University in a sealed envelope, marked with the name and address of the bidder, the title of the Project and the Project number to:

Nikolaus D. Lentner
Director of Purchasing & Accounts Payable
Purchase College
State University of New York
735 Anderson Hill Road
Purchase, NY 10577-1402

Proposals must be received in the Purchasing & Accounts Payable Office by the due date and time. Bidders mailing their Proposals must allow sufficient time to ensure receipt of their Proposals by the date and time specified. Bidders are cautioned that, although using a trackable mailing/courier/messenger service, bids must be received in the Purchasing Office by the due date and time. Although bids may be signed for by Purchase College Mail Operations personnel prior to bid opening time on the day of the bid, this does not guarantee that the Purchasing & Accounts Payable Office will receive the bid by bid opening time. No bid will be considered that is not physically received in the Purchase College Purchasing & Accounts Payable Office by the bid opening time.

- (2) All blank spaces in the Proposal must be filled in and, except as otherwise expressly provided in the Bidding Documents, no change is to be made in the phraseology of the Proposal or in the items mentioned therein.
- (3) Proposals that are illegible or that contain omissions, alterations, additions or items not called for in the Bidding Documents may be rejected as informal. In the event any bidder modifies limits or restricts all or any part of its Proposal in a manner other than that expressly provided for in the Bidding Documents, its Proposal may be informal.

- (4) Any Proposal may be considered informal which does not contain prices in words and figures in all of the spaces provided or which is not accompanied by a bid security in proper form. In case any price shown in words and its equivalent shown in figures do not agree, the written words shall be binding upon the bidder. In case of a discrepancy in the prices contained in the Proposal forms submitted in duplicate by the bidder, the Proposal form which contains the lower bid shall be deemed the bid of the bidder; provided, however, the University at its election may consider the Proposal of such bidder informal.
- (5) If the Proposal is made by a corporation, the names and places of residence of the president, secretary and treasurer shall be given. If by a partnership, the names and places of residence of the partners shall be given. If by a joint venture, the names and addresses of the members of the joint venture shall be given. If by an individual, the name and place of residence shall be given.
- (6) No Proposal will be considered which has not been deposited with the University at the location designated in and prior to the time of opening designated in the Notice to Bidders or as extended by Addendum.
- (7) Bids may be modified, withdrawn or canceled only by written, facsimile or telegraphic notice received by the University prior to the time of opening of bids designated in the Bidding and Contract Documents. A written, facsimile or telegraphic notice of modification, withdrawal or cancellation shall be marked by the bidder with the name and address of the bidder, the title of the Project and the Project number, and, upon receipt by the University, shall be sealed in an envelope by a duly authorized employee of the University, who shall sign and note thereon the date and time of receipt and shall thereupon attach said written, facsimile or telegraphic notice of modification, withdrawal or cancellation to the envelope submitted by the bidder pursuant to subdivision (1) of this section.
- (8) Permission will not be given to modify, explain, withdraw or cancel any Proposal or part thereof after the time designated in the Bidding and Contract Documents for the opening of bids, unless such modification, explanation, withdrawal or cancellation is permitted by law and the University is of the opinion that it is in the public interest to permit the same.

Section 4 Examination of Bidding and Contract Documents

- (1) Prospective bidders shall examine the Bidding and Contract Documents carefully and, before bidding, shall make written request to the Consultant (with a copy thereof to the University) for an interpretation or correction of any ambiguity, inconsistency or error therein which should be discovered by a reasonably prudent bidder. Such interpretation or correction as well as any additional Contract provision the University shall decide to include will be issued in writing by the Consultant as an Addendum, which will be sent by certified or registered mail or telegraph or delivered to each person recorded as having received a copy of the Bidding and Contract Documents from the Campus or Consultant, and which also will be available at the places where the Bidding and Contract Documents are available for inspection by prospective bidders. Upon such mailing or delivery and making available for inspection, such Addendum will become a part of the Bidding and Contract Documents and will be binding on all bidders whether or not the bidder receives or acknowledges the actual notice of it. The requirements contained in all Bidding and Contract Documents shall apply to all Addenda.
- (2) Only the written interpretation or correction so given by Addendum shall be binding. Prospective bidders are warned that no trustee, officer, agent or employee of the University or the Consultant is authorized to explain or interpret the Bidding and Contract Documents by any other method, and any such explanation or interpretation, if given, must not be relied upon.

Section 5 Computation of Bid

- (1) In computing their bids, bidders are not to include the sales and compensating use taxes of the State of New York or any city and county in the State of New York for any supplies or materials which are incorporated into the completed Project as the University is exempt from such taxes.
- (2) Any unit prices listed in the Proposal by the University are based upon the Consultant's appraisal of a fair cost for the work involved. Such listed prices will be binding upon both the bidder and the University unless the bidder wishes to change any of such unit prices by crossing out the listed unit price and inserting a revised unit price. Such revised unit price shall not be binding upon the University unless it accepts the same, in writing, before it issues a Contract. In the event the Proposal contains blank spaces for unit prices or the Contractor revises any stated unit price, the amount of such unit prices for additions shall not vary by more than 15 percent from the prices inserted by the bidder for deductions, and, if the variance of such prices exceeds 15 percent, the University may adjust the deduction price inserted by the bidder so that it is only 15 percent lower than the addition price inserted by the bidder. In addition, the University may adjust any unit price filled in by a bidder to an amount agreeable to both the bidder and the University or it may reject any unit prices.
- (3) Alternatives, if any, listed in the Proposal and described in Section A of the Technical Specifications shall be accepted in the order indicated and will be used in combination with the Total Bid to determine the low bidder. Unit prices will not be used to determine the low bidder.

Section 6 Payment of Security

- (1) Each Proposal must be accompanied by the required amount of the bid security in the form of a bank draft or certified check, payable at sight to the University and drawn on a bank authorized to do business in the United States, or by a Bid Bond, on the form provided, duly executed by the bidder as principal and having as surety thereon a surety company or companies, approved by the University, authorized to do business in the State of New York as a surety. Attorneys-in-fact who execute a Bid Bond on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.
- (2) The University will return, without interest, bid securities in accordance with the following procedure:
 - a. Bid securities in the form of bank drafts or certified checks, to all bidders except the apparent three (3) lowest bidders within two (2) working days after the opening of bids.
 - b. To any bidder submitting a Bid Bond, meeting the requirements of paragraph (1) hereof, after the opening of bids, as a substitute for a bank draft or certified check within two (2) working days after the University's approval of such Bid Bond.
 - c. To the apparent three (3) lowest bidders, unless their bid security was previously returned, within two (2) working days after delivery to the University by the successful bidder of the executed Agreement and required Bonds, or within two (2) working days of the University's rejection of all bids or within two (2) working days after the expiration of forty-five (45) calendar days after the bid opening, whichever event shall occur first.
 - d. Bid Bonds, due to their nature, will not be returned.
- (3) The University reserves the right to deposit bid security drafts or checks pending final disposal of them.

Section 7 Qualifications of Bidders

- (1) All prospective bidders are hereby notified that, on request of the University, they must be able to prove to the satisfaction of the University that they have the skill and experience, as well as the necessary facilities, ample financial resources, organization and general reliability to do the work to be performed under the provisions of the Contract in a satisfactory manner and within the time specified.
- (2) Each bidder must be prepared to show to the satisfaction of the University that it has working capital available for the Project upon which it is bidding in an amount equal to 15 percent of the first \$100,000 of the amount of its Total Bid plus 10 percent of the next \$900,000 plus 5 percent of the remainder of its Total Bid. Working capital is defined as the excess of current assets over current liabilities. The University defines current assets as assets which can be reasonably expected to be converted into cash within a year, and current liabilities as debts which will have to be paid within a year.
- (3) A bidder must also be prepared to prove, to the satisfaction of the University, that it has successfully completed a contract of similar work in an amount of not less than 50 percent of the amount of its Total Bid.

Section 8 Submission of Post-Bid Information

- (1) Within forty-eight (48) hours after the opening of bids, each of the apparent three lowest bidders, unless otherwise directed by the University or otherwise provided in the Bidding and Contract Documents, shall submit to both the University and the Consultant:
 - a. A New York State Uniform Contracting Questionnaire with all requested information furnished.
 - b. The names of the bidder's proposed subcontractors for the Electrical Work, the Heating, Ventilating and Air Conditioning Work and the Plumbing Work for each of said work categories valued at more than \$20,000. Only one proposed subcontractor should be named for each of such trades and the naming of the bidder itself for any of such work is not acceptable and may result in rejection of the bidder unless the bidder can demonstrate to the University that it has successfully completed a contract for the designated work in an amount not less than 50 percent of the value thereof. The bidder will be required to establish, to the satisfaction of the Consultant and the University, the reliability and responsibility of each of their said proposed subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to each of such proposed subcontractors' respective trades. The bidders must submit to the University, within seven (7) calendar days after the bid opening, a Contracting Questionnaire, on the form provided by the University, with all of the applicable blank spaces filled in, for each of the aforesaid proposed subcontractors. In the event that the University and the Consultant reject any of said proposed subcontractors, the bidder, within five (5) working days after receipt of notification of such rejection, shall again submit to the University and the Consultant the name of another proposed subcontractor in place of the one rejected and it will be required to establish to the satisfaction of the University and the Consultant the reliability and responsibility of said proposed subcontractor; provided, however, that the bidder will not be permitted to submit another proposed subcontractor if it designated itself for any of the aforesaid categories of work.

Proposed subcontractors of the bidder, approved by the University and the Consultant, must be used on the work for which they were proposed and approved and they may not be changed except with the specific written approval of the University.

c. A breakdown of the amount of the bidder's Proposal. Such breakdown shall be prepared in accordance with industry standards. No bidder shall be barred from revising, in the Contract breakdown required under the provisions of Section 4.08 of the Agreement, the various amounts listed in the bid breakdown required under the provisions of this Section. The amount set forth in said bid breakdown will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

- (2) Notwithstanding the foregoing, any bidder or any of the proposed subcontractors referred to in paragraph (1) b, who, within the past year immediately preceding the bidding date, had submitted to the State or the University a Contracting Questionnaire, need not complete a new Questionnaire; provided, however, that they execute an Affidavit of No Change, and deliver the same together with the Questionnaire previously submitted.
- (3) Within 10 calendar days after the bid opening date each of the apparent three lowest bidders must complete the CONTRACTOR'S EEO POLICY STATEMENT and SUBCONTRACTING INFORMATION forms contained in the Project Manual and forward copies of the same to the University and the Consultant. This requirement applies only to Contracts in excess of \$100,000, and contracts which contain subcontracts that are in excess of \$25,000, regardless of their total value.

Contractor compliance with the Non-Discrimination Requirements indicated on Exhibit A of the Agreement and the University's Affirmative Action Policy as indicated on Exhibit A-1, of the Agreement is a precondition to entering into a valid and binding Contract with the University.

Successful contractors with contracts meeting the above criteria will be required to submit to the University a work force utilization report, in a form and manner required by the University. The form, contained in Project Manual, will indicate the work force actually utilized on the Contract, broken down by specified ethnic background, gender and Federal occupational categories or other appropriate categories specified by the University.

- (4) The above information and such other information as the University or the Consultant may request or obtain will be used by the University in determining the reliability and responsibility of the bidder. Each bidder must comply promptly with all requests by the University and the Consultant for information and must actively cooperate with the University and the Consultant in their efforts to determine the qualifications of the bidder. All information required to be furnished to the University under this Section shall be sent to the State University of New York campus where the work is to be performed.

Section 9 Award of Contract

- (1) The award of the Contract shall be made to the bidder submitting the lowest bid who, in the opinion of the University, is qualified to perform the work involved and is responsible and reliable. The University shall determine the lowest bid by adding to or deducting from the Total Bid of the bidders the additive or deductive alternates, if any, the University elects to accept after the opening of the Proposals. Alternatives will be accepted in the order they are set forth in the Proposal. The unit prices set forth in the Proposal for additions to or deductions from the work shall not be considered in determining the lowest bid.
- (2) Subject to the rights hereinafter reserved, the work will be awarded within forty-five (45) calendar days after the opening of bids to a single responsible bidder or any combination of bidders whose Proposal conforms to the requirements of the Bidding Documents.
- (3) The right is reserved, if, in the University's judgment, the public interest will be promoted thereby, to reject any or all Proposals, to waive any informality in any Proposal received or to afford any bidder an opportunity to remedy any deficiency resulting from a minor informality or irregularity. Without limiting the generality of the foregoing:
 - a. A Proposal may be rejected if the bidder fails to furnish the required bid security or to submit the data required with or after its Proposal.
 - b. A Proposal may be rejected if the bidder cannot show to the satisfaction of the University: (i) that it has the necessary capital, skill and experience; or (ii) that it owns, controls or can procure the necessary plant and equipment to commence the work at the time prescribed in the Contract and thereafter to prosecute and complete the work at the rate, or within the time specified; or (iii) that it is not already obligated by the performance of so much other work as is likely to delay the commencement, prosecution or completion of the work contemplated by the Contract.
 - c. A Proposal will be rejected if it does not provide for the completion of the work by the date of completion specified in the Proposal.
- (4) The University also expressly reserves the right to reject any Proposal if, in its opinion, considering the work to be performed, the facts, as to the bidder's business or technical organization, plant, financial and other sources of business

experience compared with the work bid upon, justify rejection.

- (5) The award of the Contract shall not be construed as a guarantee by the University that the plant, equipment and the general scheme of operations and other data submitted by the bidder with or after its Proposal is either adequate or suitable for the satisfactory performance of the work.

Section 10 Required Bonds

- (1) Within ten (10) calendar days after the receipt of Notice of Award, the Contractor shall procure, execute and deliver to the Consultant and maintain, at its own cost and expense, a Performance Bond and a Labor and Material Bond, both of which Bonds shall be on the form prescribed by the University and in an amount not less than 100 percent of the total amount of the Contract awarded to the Contractor by the University. Said Bonds must be issued by a surety company approved by the University and authorized to do business in the State of New York as a surety.
- (2) Attorneys-in-fact who execute said Bonds on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.

Section 11 New York State Business Enterprises

- (1) It is the policy of New York State and the University to maximize opportunities for the participation of New York State Business Enterprises, including Minority and Women's Business Enterprises as bidders, subcontractors and suppliers on its procurement contracts.
- (2) Information on the availability of New York State subcontractors and suppliers is available from: Empire State Development Corporation (<http://www.empire.state.ny.us/default.asp>).
- (3) A directory of Minority and Women's Business Enterprises is available from: Empire State Development Corporation, Minority and Women's Business Development Division (<http://www.empire.state.ny.us/default.asp>).
- (4) The minimum MWBE goals for this will be:
MBE= 10%
MWBE=6%

Section 12 Examination of Site

- (1) A **Mandatory** pre-bid conference and project walk-through will be held on **February 20, 2013**, with all contractors assembled **at the Facilities Conference Room 735 Purchase Street, Purchase, New York 10577-1402**. The bidder can make arrangements to verify the quantity of pile at campus and can reach out to sayim.malik@purchase.edu.
- (2) No individual or additional walk-through will be performed under the pre-bid time period. Failure to attend a walk-through shall not be the cause for extra payment.

NAME OF BIDDER

ADDRESS OF BIDDER

PROPOSAL FOR

SUNY PROJECT NO.: SU 020413 Electrical Work Contract

PROJECT TITLE: Acquisition and Installation of a
Synthetic Turf Field-Electrical Work

SUNY CAMPUS: Purchase College

TO THE STATE UNIVERSITY OF NEW YORK:

1. The Work Proposed Herein Will Be Completed Within 100 Calendar Days, Starting 10 Calendar Days After The Contract Approval Date Of The New York State Comptroller. In the event the bidder fails to complete such work by said date or dates, or within the time to which such completion may have been extended in accordance with the Contract Documents, the bidder agrees to pay the University liquidated damages in an amount equal to the values indicate in the Liquidated Damages Schedule below for each calendar day of delay in completing the work.

LIQUIDATED DAMAGES SCHEDULE

<u>Contract Amount</u>	<u>Liquidated Damages</u>
Under \$100,000	\$100/day
\$100,000-\$499,999.....	\$200/day
\$500,000-\$999,999.....	\$300/day
\$1MM-\$1,999,999	\$400/day
\$2MM-\$3,499,999	\$500/day
\$3.5MM-\$5MM	\$700/day
Over \$5MM (to be determined by the University in each instance)	\$____/day

2. The bidder hereby declares that it has carefully examined all Bidding and Contract Documents and that it has personally inspected the actual location of the work, together with the local sources of supply, has satisfied itself as to all the quantities and conditions, and understands that in signing this Proposal, it waives all right to plead any misunderstanding regarding the same.
3. The bidder further understands and agrees that it is to do, perform and complete all work in accordance with the Contract Documents and to accept in full compensation therefore the amount of the Total Bid.
4. The bidder further agrees to accept the unit prices, if any, set forth in paragraph (5) hereof, except as the same may be modified pursuant to the provisions of Section 5 of the Information to Bidders, as full payment for the amount of the credit to the University for any deletions, additions, modifications or changes to the portion or portions of work covered by said unit prices.
5. a. TOTAL BID \$ _____
(in numbers)

(in words)

- b. **ALTERNATIVES:** Reference Section B of the General Requirements. The bidder proposes the following additions to or deductions from the Total Bid for the alternatives listed below:

Not Required

- c. **UNIT PRICES:** Reference Section 5, paragraph (2) of the Information to Bidders, and Schedule I, page A-29 of the Agreement.

Not Required

6. **ALLOWANCES:** Reference page A-29 of the Agreement. The bidder further agrees that its Total Bid includes the following allowances:

Not Required

7. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (a) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (b) unless otherwise required by law, the prices have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (c) no attempt has been made or will be made by the bidder to include any person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

A bid shall not be considered for award nor shall any award be made where (a), (b) and (c) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (a), (b), and (c) above shall have not been complied with, the bid shall not be considered for award nor shall any award be made unless the Campus President, or designee, or Assistant Vice Chancellor for Capital Facilities, or designee, determines that such disclosure was not made for purposes of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of this Section.

8. The bidder agrees that if awarded the Contract, it will commence work within (10) calendar days after date of receipt of a fully executed Agreement and that it will fully complete the work by the date stated herein.
9. The bidder acknowledges the receipt of the following addenda, but agrees that it is bound by all addenda whether or not listed herein.

Addendum Number	Date	Addendum Number	Date
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____
_____	____/____/____	_____	____/____/____

10. The bidder submits herewith bid security in an amount not less than five (5) percent of the Total Bid. In the event that (a) the bidder's Total Bid is the lowest one submitted and the bidder does not timely provide the Post-Bid Information required by the Information for Bidders or (b) this Proposal is accepted by the University and the bidder shall refuse or neglect, within ten (10) calendar days after date of receipt of Agreement, to execute and deliver said Agreement in the form provided herein, or to execute and deliver a Performance Bond and a Labor and Material Bond in the amounts required and in the form prescribed, the bidder shall be liable to the University, as liquidated damages, for the amount of the bid

security or the difference between the Total Bid of the bidder and the Total Bid of the bidder submitting the next lowest bid, whichever sum shall be higher, otherwise the total amount of the bid security will be returned to the bidder in accordance with the provisions set forth in the Information for Bidders. The University may apply the bid security in full or partial payments, as the case may be, of said liquidated damages and in the event the bid security is less than the amount of liquidated damages to which the University is entitled, the bidder shall pay the difference, upon demand, to the University.

11. The bidder certifies that all wood products that are to be used in the performance of this Contract shall be in accordance with the Specifications and provisions of Section 167 b. of the State Finance Law which Section prohibits the purchase and use of tropical hardwoods.

Dated ____/____/____

(If corporation, affix
corporate seal)

Firm's Federal ID Number or
Social Security Number as applicable _____

Legal name of person, partnership, joint venture or corporation:

By _____
(signature)

Title _____

ACKNOWLEDGMENT FOR THE PROPOSAL

THE LEGAL ADDRESS OF THE BIDDER

Telephone No. _____ Facsimile No. _____

If a Corporation

Name

Address

_____	PRESIDENT _____
_____	SECRETARY _____
_____	TREASURER _____

If a Partnership

Name of Partners

Address

_____	_____
_____	_____
_____	_____

If a Joint Venture

Name of Members

Address

_____	_____
_____	_____
_____	_____

If an Individual

Name of Individual

Address

_____	_____
-------	-------



STATE UNIVERSITY OF NEW YORK BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that _____

having an office at _____

(hereinafter called the "Principal") and the _____

a corporation created and existing under the laws of the State of _____

having its principal office at _____

(hereinafter called the "Surety") are held and firmly bound unto the State University of New York (hereinafter called the "University") in the full and just sum of

_____ dollars (\$ _____)
(in words) (in figures)

good and lawful money of the United States of America, or in the full and just sum of the difference between the Total Bid of the Principal and the Total Bid of the bidder submitting the next lowest bid, whichever sum shall be higher, for the payment of which said sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the "University" a Proposal for Project No. _____

Titled _____

which Proposal is incorporated herein by reference and made a part hereof as fully and to the same extent as if set forth at length herein;

NOW, THEREFORE, the condition of this obligation is such that in the event (1) the Principal's Total Bid is the lowest one submitted and the Principal timely provides the Post-Bid Information required under Section 8 of the Information for Bidders or (2) the "University" shall accept the Proposal of the Principal and the Principal shall enter into a Contract with the "University" in accordance with the terms of such Proposal and/or enter into certain prescribed subcontracts in accordance with the terms of such Proposal and give such Bond or Bonds as may be specified in the Bidding or Contract Documents, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the "University" may accept the Proposal of the Principal and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its _____ and its corporate seal to be hereunto affixed this

_____ day of _____, 19_____

Principal

By

If Corporation,
affix Corporate
Seal

Surety

By

If Corporation,
affix Corporate
Seal

ACKNOWLEDGMENTS FOR BID BOND

(Acknowledgment by Principal, unless it be a Corporation)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 19____, before me personally came _____
_____, to me known and known to me to be the person(s) described
in and who executed the foregoing instrument and acknowledged that he / she executed the same.

Notary Public

(Acknowledgment by Principal, if a Corporation)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 19____, before me personally came _____
_____, to me known, who, being by me duly sworn, did
depose and say that he / she resides in _____;
that he / she is the _____

of the _____,
the corporation described in and which executed the foregoing instrument; that he / she knows the seal of said
corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of
Directors of said corporation and that he / she signed their name thereto by like order.

Notary Public

(Acknowledgment by Surety Company)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 19____, before me personally came _____
_____, to me known, who, being by me duly sworn, did depose
and say that he / she resides in _____;
that he / she is the _____

of the _____,
the corporation described in and which executed the foregoing instrument; that he / she knows the seal of said
corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by the order of the Board
of Directors of said corporation, and that he / she signed their name thereto by like order; and that the liabilities of said
company do not exceed its assets as ascertained in the manner provided by the laws of the State of New York.

Notary Public

State University of New York AGREEMENT

Contract No.SU-020413

This Agreement made as of the _____ day of _____, 20____, for Contract Number SU 020413 by and between STATE UNIVERSITY OF NEW YORK, a corporation organized and existing under the laws of the State of New York, with its principal office located at State University Plaza, Albany, New York 12246, on behalf of State University of New York at Purchase located at 735 Anderson Hill Road, Purchase, New York 10577-1400 hereinafter referred to as "University" and _____ having its principal office located at _____, hereinafter referred to as "Contractor".

Federal ID or
Social Security No. _____

The University and the Contractor agree as follows:

1. The Contractor shall perform all work and duties required for the construction of Project Number **SU-020413**, titled "**Acquisition and Installation of a Synthetic Turf Field- Electrical Work**", as contained in the Contract Documents. Subject to authorized adjustments the work and duties contained in the same shall be completed within **100** calendar days starting 10 calendar days after the approval date of the New York State Comptroller. The Contractor agrees to pay the University liquidated damages in accordance with paragraph 1 of the Proposal for each calendar day of delay in completing the work.
2. The University shall pay and the Contractor shall accept for the performance of work of the above referenced Project, the total contract compensation of \$_____, (in figures), _____ (in word)s.

ARTICLE I General Provisions

Section 1.01 Definitions

Where the following words and expressions are used in the Contract Documents it is understood that they have the meaning set forth as follows:

CONSULTANT	The Architect, Engineer, Landscape Architect, or Surveyor named in the Notice to Bidders or such other person or firm designated by the University to provide general administration of the Contract and inspection of the work.
BIDDING DOCUMENTS	The Notice to Bidders, Information for Bidders and Proposals
BONDS	Performance Bond and Labor and Material Bond
CONTRACT OR CONTRACT	The Agreement, Project Manual, Proposal, Bonds, Specifications, Contract Drawings, Addenda issued prior to the opening of bids and Change Orders issued after the award of the Contract.
UNIVERSITY	State University of New York
NOTICE OF AWARD	Letter of Intent
PROJECT	The facility or facilities to be constructed including all usual, appropriate and necessary attendant work shown on, described in or mentioned in the Contract.
SITE	The area within the Contract limit lines, as shown on the Drawings, and all other areas upon which the Contractor is to perform work.
WORK	The using, performing, installing, furnishing and supplying of all materials, equipment, labor and incidentals necessary or proper for or incidental to the successful completion of the Project and

the carrying out of all duties and obligations imposed upon the Contractor by the Contract.

NOT IN CONTRACT , "N.I.C."

Indicates equipment furnished by the Owner and installed under another construction contract or by another contractor, or operations at the site not included as part of this Contract.

PROVIDE, PROVIDED

Mean that the Contractor shall furnish and install all materials and labor for the item so specified.

Section 1.02 Captions

The titles or captions of Articles and Sections of the Contract are intended for convenience and reference purposes only and in no way define, limit or describe the scope or intent thereof or of the Contract or in any way affect the Contract.

Section 1.03 Nomenclature

Materials, equipment or other work described in words which have a well-known, technical or trade meaning shall be interpreted as having such meaning in connection with the Contract.

Section 1.04 Contract Documents

- (1) This Agreement;
- (2) Exhibit A and A-1;
- (3)
 - (a) Contractor-completed Labor and Materials Bond and Performance Bond, and Acknowledgement for Bonds;
 - (b) Contractor-completed Vendor Responsibility Questionnaire;
 - (c) Contractor-completed Affirmation with respect to State Finance Law § 139-j and 139-k;
 - (d) Contractor-completed Contractor's Disclosure and Certification with respect to State Finance Law § 139-j and 139-k;
 - (e) Contractor-completed Contractor's EEO Policy Statement;
 - (f) Technical Specifications: Description of Work, Alternates, Special Conditions;
 - (g) List of Drawings: (see Table of Contents – Project Manual for list of all drawings);
 - (h) Appendix 1: Hazardous Materials Report, dated April 13, 2009, prepared by CUNO Environmental Corporation.

The Contract constitutes the entire agreement between the parties hereto and no statement, promise, condition, understanding, inducement or representation, oral or written, expressed or implied, which is not contained herein shall be binding or valid and the Contract shall not be changed, modified, or altered in any manner except by an instrument in writing executed by the parties hereto.

Section 1.05 Successors and Assigns

To the extent allowed by the terms of "Exhibit A", the Contract shall bind the successors, assigns and representatives of the parties hereto. The University reserves the right to have the State University Construction Fund (Fund) act on its behalf at any time or duration of this Agreement. Such designation of the Fund to act on the behalf of the University shall be in writing and addressed to the Contractor and signed by the University.

Section 1.06 Accuracy and Completeness of Contract Documents

- (1) The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the Documents is to include all materials, plant, equipment, tools, skill and labor of every kind necessary for the proper execution of the work and also those things which may be reasonably inferable from the Contract Documents as being necessary to produce the intended results.
- (2) The Contract Documents contemplate a finished piece of work of such character and quality as is reasonably inferable from them. The Contractor acknowledges that the contract consideration includes sufficient money allowance to make its work complete and operational and in compliance with good practice and it agrees that inadvertent minor discrepancies or omissions or the failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another shall not be the cause for additional charges or claims. In case of a conflict between any part or parts of the Contract Documents with any other part or parts thereof, as contrasted with an omission or failure to show details or to repeat on any part of the Contract Documents the figures or notes given on another part thereof, the following shall be given preference, in the order hereinafter set forth, to determine what work the Contractor is required to perform: (a) Addenda (later dates to take preference over earlier dates); (b) Amendments to Agreement; (c) Agreement; (d) Specifications; (e) Schedules; (f) Large scale detail Drawings (detail drawings having a scale of 3/4" and over); (g) Large scale plan and section Drawings (plan and section drawings having a scale equal to or larger than that used for the basic floor or site plan, as the case may be); (h) Small scale detail Drawings (detail drawings having a scale of less than 3/4"); and (i) Small scale plan and section Drawings (plan and section drawings having a scale less than that used for the basic floor or site plan, as the case may be). In the event of such a conflict between or among parts of the Contract Documents that are entitled to equal preference, the more expensive way of doing the work, the better quality or greater quantity of material shall govern unless the University otherwise directs.

Section 1.07 Organization of Contract Documents

The Specifications and Drawings are generally divided into trade sections for the purpose of ready references, but such division is arbitrary and such sections shall not be construed as the prescription by the Consultant or the University of the limits of the work of any subcontractor or as a determination of the class of labor or trade necessary for the fabrication, erection, installation or finishing of the work required. The Contractor will be permitted to allot the work of subcontractors at its own discretion regardless of the grouping of the Specifications and Drawings. It shall be the Contractor's responsibility to settle definitively with each subcontractor the portions of the work which the latter will be required to do. The University and the Consultant assume no responsibility whatever for any jurisdiction claimed by any of the trades involved in the work.

Section 1.08 Furnishing of Contract Documents

The Contractor shall be furnished, free of charge, with as many copies of the Specifications and Drawings as it may reasonably request, in the judgment of the University, within fifteen (15) working days after the Notice of Award. Any other copies of the Specifications and Drawings which the Contractor may desire can be obtained by it from the Consultant at the latter's cost of duplication thereof.

Section 1.09 Examination of Contract Documents and Site

By executing the Contract, the Contractor agrees: that it has carefully examined the Contract Documents together with the site of the proposed work as well as its surrounding territory; that it is fully informed regarding all the conditions affecting the work to be done and the labor and materials to be furnished for the completion of the Contract; and that its information has been acquired by personal investigation and research and not in the estimates and records of the University.

Section 1.10 Invalid Provisions

If any term or provision of the Contract Documents or the application thereof to any person, firm or corporation or circumstance shall, to any extent, be invalid or unenforceable, the remainder of the Contract Documents, or the application of such terms or provisions to persons, firms or corporations or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby and each term or provision of the Contract Documents shall be valid and be enforced to the fullest extent permitted by law.

Section 1.11 No Collusion or Fraud

Reference "Exhibit A" which is attached to and made a part of this Agreement.

Section 1.12 Notices

Any notice to either party hereunder must be in writing signed by the party giving it and shall be served either personally, by facsimile or registered mail of the United State Post Office and individuals indicated below:

TO THE UNIVERSITY: Director of Purchasing
Purchase College
State University of New York
735 Anderson Hill Road
Purchase, New York 10577-1402

And a copy to: Vice Chancellor of Capital Facilities
State University of New York
State University Plaza
Albany, New York 12246

TO THE CONTRACTOR: At the address indicated on page 1 of this Agreement
or to such other addressee as may be hereafter designated by notice. All notices become effective only when received by the addressee.

Section 1.13 Singular-Plural; Male-Female

As used in the Contract Documents, the singular of any word or designation, whenever necessary or appropriate, shall include the plural and vice versa, and the masculine gender shall include the female and neuter genders and vice versa.

ARTICLE II

Contract Administration and Conduct

Section 2.01 Consultant's Status

- (1) The Consultant, as the University's representative, shall provide general administration of the Contract and inspection of the work. The Consultant will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and it will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Consultant's duties, services and work shall in no way supersede or dilute the Contractor's obligation to perform the work in conformance with all Contract requirements, but it is empowered by the University to act on its behalf with respect to the proper execution of the work and to give instructions when necessary to require such corrective measures as may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the University's interest.
- (2) The Consultant shall have the authority to stop the work or to require the prompt execution thereof whenever such action may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the interests of the University.
- (3) Except as otherwise provided in the Contract, the Consultant shall determine the amount, quality, acceptability, fitness and progress of the work covered by the Contract and shall decide all questions of fact which may arise in relation to the interpretation of the plans and Specifications, the performance of the work and the fulfillment by the Contractor of the provisions of the Contract. The Consultant shall in the first instance be the interpreter of the provisions of the Contract and the judge of its performance and it shall use its power under the Contract

to enforce its faithful performance.

Section 2.02 Finality of Decisions

- (1) Any decision or determination of the Consultant under the provisions of the Contract shall be final, conclusive and binding on the Contractor unless the Contractor shall, within ten (10) working days after such decision, make and deliver to the University a verified written statement of its contention that the decision of the Consultant is contrary to a provision of the Contract. The University shall thereupon determine the validity of the Contractor's contention. Pending decision by the University, the Contractor shall proceed in accordance with the Consultant's decision.
- (2) Wherever it is provided in the Contract Documents that an application must be made to the University and/or determination made by the University, the University's decision on such application and/or its determination under the Contract Documents shall be final, conclusive and binding upon the Contractor unless the same shall be determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith and unless the Contractor, within ten (10) working days after receiving notice of the University's decision or determination, files a written statement with the University and the Consultant that it reserves its rights in connection with the matters covered by said decision or determination.

Section 2.03 Claims and Disputes

- (1) If the Contractor claims (i) that any work it has been ordered to do is extra work or (ii) that it has performed or is going to perform extra work or (iii) that any action or omission of the University or the Consultant is contrary to the terms and provisions of the Contract, it shall:
 - a. Promptly comply with such order;
 - b. File with the University and the Consultant, within five (5) working days after being ordered to perform the work claimed by it to be extra work or within five (5) working days after commencing performance of the extra work, whichever date shall be the earlier, or within five (5) working days after the said action or omission on the part of the University or the Consultant occurred, a written notice of the basis of its claim and request a determination thereof;
 - c. File with the University and the Consultant, within thirty (30) calendar days after said alleged extra work was required to be performed or said alleged extra work was commenced, whichever date shall be the earlier, or said alleged action or omission by the University or the Consultant occurred, a verified detailed statement, with documentary evidence, of the items and basis of its claim;
 - d. Produce for the University's examination, upon notice from the University, all its books of account, bills, invoices, payrolls, subcontracts, time books, progress records, daily reports, bank deposit books, bank statements, checkbooks and canceled checks, showing all of its actions and transactions in connection with or relating to or arising by reason of its claim, and submit persons in its employment and in its subcontractors' employment for examination under oath by any person designated by the University to investigate any claims made against the University under the Contract, such examination to be made at the offices of the Contractor; and
 - e. Proceed diligently, pending and subsequent to the determination of the University with respect to any such disputed matter, with the performance of the Contract and in accordance with all instructions of the University and the Consultant.
- (2) The Contractor's failure to comply with any or all parts of subdivision b of paragraph (1) of this Section shall be deemed to be (i) a conclusive and binding determination on its part that said order, work, action or omission does not involve extra work and is not contrary to the terms and provisions of the Contract; and (ii) a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, work, action or omission. The provisions of subdivision b of paragraph (1) of this Section are for the purpose of enabling the University to avoid waste of public funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects of circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expenses or circumstances as they occur. Compliance with such provisions is essential whether or not the University is aware of the circumstances of any order or other circumstances which might constitute a basis for a claim and whether or not the University has indicated it will consider a claim in connection therewith.
- (3) No person has power to waive or modify any of the foregoing provisions and, in any action against the University to recover any sum in excess of the sum certified by the University to be due under or by reason of the Contract, the Contractor must allege in its complaint and prove at the trial compliance with the provisions of this Section.
- (4) Nothing in this Section shall in any way affect the University's right to obtain an examination before trial or a discovery and inspection in any action that might be instituted by or against the University or the Contractor.

Section 2.04 Omitted Work

The University reserves the right at any time during the progress of the work to delete, modify or change the work covered by the Contract, by a Change Order thereto providing for either a reduction or omission of any portion of the work, without constituting grounds for any claim by the Contractor for allowances for damages or for loss of anticipated profits and in such event a deduction shall be made from the Contract consideration, the amount of which is to be determined in accordance with the provisions of Section 4.02 of the Agreement.

Section 2.05 Extra Work

- (1) The University reserves the right at any time during the progress of the work to add, modify or change the work covered by the Contract by a Change Order thereto providing for extra work of either a qualitative or quantitative nature and in such event the Contract consideration shall

be increased by an amount to be determined in accordance with the provisions of Section 4.02 of the Agreement and the completion date for all or any part of the work shall be extended for such period of time as may be determined by the University as necessary, because of the extra work, to complete the work or any part thereof.

- (2) Nothing in the Contract Documents shall excuse the Contractor from proceeding with the extra work as directed and, except as otherwise specifically provided for in a Change Order, the terms and conditions of the Contract Documents shall be fully applicable to all extra work.
- (3) The Contractor shall have no claim for extra work if the performance of such work, in the judgment of the Consultant, is made necessary or desirable because of any act or omission of the Contractor which is not in accordance with the Contract.
- (4) Notwithstanding the provisions of Section 2.02 of the Agreement and any other provisions of the Contract Documents to the contrary, the University, after conferring with the Consultant, shall have the right to overrule a determination or decision of the Consultant, that relates to whether certain work is included in the Contract Documents or is extra work, which he or she believes is incorrect; in the event an officer exercises such right, his or her determination or decision shall be final, conclusive and binding upon the Contractor and the University unless the same shall be determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith.

Section 2.06 Contractor to Give Personal Attention

- (1) The Contractor shall give its constant personal attention to all the work while it is in progress and shall place the working charge of a competent and reliable full-time superintendent acceptable to the Consultant and the University who shall have authority to act for the Contractor and who shall be accountable to the Consultant to the extent provided in the Contract. Unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in its employ, such superintendent shall not be changed without the written permission of the Consultant and the University.
- (2) When the Contractor and its superintendent are temporarily absent from the site of the work, the Contractor or its superintendent shall designate a responsible supervisory employee to receive such orders as the Consultant or its representative may give. At no time shall any work be conducted on the site in the absence of an individual present who has been so designated by the Contractor or its superintendent as having authority to receive and execute instructions given by the Consultant or its representative.

Section 2.07 Employment of Workers

The Contractor shall at all times employ competent and suitable workers and equipment which shall be sufficient to prosecute all the work to full completion in the manner and time specified. All workers engaged in specially or skilled work shall have had sufficient experience in such work to properly and satisfactorily perform the same. Should the Consultant deem any employee of the Contractor or any subcontractor incompetent, careless, insubordinate or otherwise objectionable or whose continued employment on the work is deemed by the Consultant to be contrary to the public interest, it shall so advise the Contractor and the latter shall dismiss or shall cause the subcontractor, if such employee is employed by the latter, to dismiss such employee and such employee shall not again be employed on the work to be performed under the Contract without obtaining the prior written approval of the Consultant.

Section 2.08 Detailed Drawings and Instructions

Upon timely notice by the Contractor that supplementary information is required, the Consultant shall furnish additional instructions, by means of Drawings or otherwise, necessary for the proper execution of the work. All such Drawings and instructions shall be consistent with the Contract Documents, true developments thereof and reasonably inferable therefrom. The work shall be executed in conformity therewith and the Contractor shall do no work without proper Drawings and/or instructions.

Section 2.09 Contract Documents to Be Kept at Site

The Contractor shall keep at the site of the work a copy of the Drawings and Specifications and shall at all times give the Consultant and the University access thereto.

Section 2.10 Permits and Building Codes

The Contractor shall obtain from the proper authorities all permits legally required to carry on its work; pay any and all taxes and fees legally required and shall be responsible for conducting its operations in accordance with the provisions of such permits. Except as otherwise expressly provided in the Contract Documents, all of the work covered by this Contract which is to be performed on property owned by the State University of New York is not subject to the building code of any city, county or other political subdivision of the State of New York. It is, however, subject to the provisions of the New York State Uniform Fire Prevention and Building Code and the applicable Federal and State health and labor laws and regulations. The building permit for the work shall be issued by the Campus Code Compliance Officer.

Section 2.11 Surveys

- (1) From the data shown on the Drawings and identified at the site by the Consultant, a licensed surveyor, to be designated and paid for by the University, shall establish one (1) fixed bench mark and one (1) fixed base line at the site. The Contractor shall work from the bench marks and base lines shown on the Drawings, identified at the site by the Consultant and established at the site by the aforesaid surveyor and shall establish such supplementary bench marks and base lines that are required in order for it to lay out the work. The Contractor shall be responsible for all measurements that may be required for execution of the work to the exact position and elevation as prescribed in the Specifications, shown on the Drawings, or as the same may be modified at the direction of the Consultant to meet changed conditions or as a

result of modifications to the work covered by the Contract.

- (2) The Contractor shall furnish at its own expense such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the work. If, for any reason, monuments are disturbed, it shall be the responsibility of the Contractor to reestablish them, without cost to the University, as directed by the Consultant. The Consultant may require that construction work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking completed work or the work in progress.
- (3) In all multiple-story construction, the Contractor shall establish and maintain line marks at each floor level and grade marks four (4) feet above the finished floor at each floor level.

Section 2.12 Site Conditions

- (1) The Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provision as it deems proper for all physical conditions and subsurface conditions as it could reasonably anticipate encountering from the provisions of the Contract Documents, borings, rock cores, topographical maps and such other information as the University or the Consultant made available to it prior to the University's receipt of bids or from its own inspection and examination of the site prior to the University's receipt of bids.
- (2) In the event that the Contractor encounters subsurface physical conditions or other latent physical conditions at the site differing substantially from those shown on or described or indicated in the Contract Documents and which could not have been reasonably anticipated from the aforesaid information made available by the University or the Consultant or from the Contractor's aforesaid inspection and examination of the site, it shall give immediate notice to the Consultant of such conditions before they are disturbed. The Consultant will thereupon promptly investigate the conditions and, if it finds that they do substantially differ from that which should have been reasonably anticipated by the Contractor, it shall make such changes in the Drawings and Specifications as may be necessary and a Change Order shall be issued, the amount of which shall be determined in accordance with the provisions of Section 4.02, to reflect any increase or decrease in the cost of, or the time required for, performance of the Contract as a result of any of the aforesaid changes made by the Consultant and/or as a result of such unanticipated subsurface conditions.

Section 2.13 Right to Change Location

When additional information regarding the subsurface conditions becomes available to the University as a result of the excavation work, further testing or otherwise, it may be found desirable to change the location, alignment, dimensions or grades to conform to such conditions. The University reserves the right to make such reasonable changes in the work as, in its opinion, may be considered necessary or desirable, such changes and any adjustments in the Contract consideration as a result thereof are to be made in accordance with the provisions of Sections 2.04, 2.05 and 4.02 of the Agreement.

Section 2.14 Unforeseen Difficulties

Except as otherwise expressly provided in Section 2.12 of the Agreement and in other Sections of the Contract Documents, the Contractor acknowledges that it has assumed the risk and that the Contract consideration includes such provisions as it deems proper for any unforeseen obstacles or difficulties which it may encounter in the performance of the work.

Section 2.15 Moving Materials and Equipment

Should it become necessary, in the judgment of the Consultant, at any time during the course of the work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the Consultant shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the consultant and the same are moved or caused to be moved by the Contractor at the Consultant's request, such removal shall be deemed extra work and the Contractor shall be compensated therefor in accordance with the provisions of Section 4.02 of the Agreement.

Section 2.16 Other Contracts

- (1) Prior to and during the progress of the work hereunder the University reserves the right to let other contracts relating to the Project or in connection with work on sites within the Contract limit lines or adjoining or adjacent to that on which the work covered by this Contract is to be performed. In the event such other contracts are let, or have previously been let, the Contractor and such other contractors shall coordinate their work with each other, arrange the sequence of their work to conform with the progressive operation of all the work covered by such contracts and afford each other reasonable opportunities for the introduction and storage of their materials, supplies and equipment and the execution of their work. If the Contractor or such other contractors contend that their work or the progress thereof is being interfered with by the acts or omissions of the other or others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the University and the Consultant of such contention. Upon receipt of such notification or on its own initiative, the Consultant shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The Consultant shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of all work covered by this Contract in relation to the work covered by said other contracts.
- (2) The Contractor agrees that it has and will make no claim for damages against the University by reason of any act or omission to act by any other contractor or party or in connection with the Consultant's or University's acts or omissions to act in connection with such other contractor, but the Contractor shall have a right to recover such damages from the other contractors under a provision similar to the following provision which has been or will be inserted in the Contract with such other contractors.

- (3) Should any other contractor, having or who shall hereafter have a contract with the University relating to the Project or in connection with the work on sites adjoining or adjacent to that on which the work covered by this Contract is to be performed, sustain any damage, during the progress of the work hereunder, through any act or omission of the Contractor, the Contractor agrees to reimburse such other contractor for all such damages and it further agrees to indemnify and save harmless the University and the State of New York from all claims for such damages.
- (4) If the proper and accurate performance of the work covered by the Contract depends upon the proper performance and execution of work not included herein or depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Consultant any defects in such work that render it unsuitable for proper execution and results. Its failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the execution of the work covered by the Contract, except as to latent defects which may be discovered thereafter.

Section 2.17 Inspection and Testing

- (1) All materials and workmanship shall be subject to inspection, examination and testing by the Consultant and the University at all times during the performance of the work and at all places where the work is carried on. Except as otherwise herein specified, the University shall pay for the cost of inspection, examination and testing by the Consultant or the University. If, however, the tests and any attendant re-inspection or re-examination prove that the materials and/or work tested do not meet the requirements of the Contract, then the entire cost of such tests is to be borne by the Contractor. The Consultant will have the right to reject defective material and workmanship furnished by the Contractor or require its correction. The Contractor, without charge therefor, shall satisfactorily and promptly correct all rejected work and replace all rejected material with proper material.
- (2) The Contractor shall promptly segregate and remove from the site of the work all rejected material and work. If the Contractor shall fail to proceed at once with the replacing of rejected material and/or correction of defective workmanship, the University may, by contract or otherwise, replace such material and/or correct such workmanship, and charge the costs thereof to the Contractor and/or it may cancel the Contract and terminate the Contractor's employment as provided in the Agreement.
- (3) The Contractor, without additional charge therefor, shall promptly furnish all reasonable facilities, labor and materials necessary for the safe and convenient inspection and testing that may be required by the Consultant or the University.
- (4) If the Contract Documents or the Consultant's instructions or the applicable laws, ordinances or regulations of any governmental authority require any part of the work covered by the Contract to be specially tested or inspected, the Contractor shall give the Consultant timely notice of its readiness for such testing or inspection or, if the same is to be performed by a governmental authority, of the date fixed therefor. If any such work, without the written permission of the Consultant, should be covered up prior to such testing or inspection, the Contractor, at its sole cost and expense, must, if directed by the Consultant, uncover the same for testing or inspection and reconstruct the same after the tests or inspection are conducted. All certificates of inspection or testing, involving the Contractor's work, required to be obtained from governmental authorities are to be secured by the Contractor at its sole cost and expense.
- (5) Should it be considered necessary or advisable by the Consultant at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out same, the Contractor, upon request, shall furnish all necessary facilities, labor and material to perform such examination. If the work subject to such examination is found to be defective or nonconforming in any manner due to the fault of the Contractor or any of its subcontractors, such uncovering or destruction and necessary reconstruction, even though such includes work not covered in the Contract, shall be at the expense of the Contractor. If, however, such work after testing and examination is found to be satisfactory, the University will pay the Contractor the cost of such uncovering or destruction and reconstruction, such cost to be determined as in the case of extra work as provided in Section 4.02.
- (6) Inspection of material and furnished articles to be incorporated in the work may be made at the place of production, manufacture or shipment unless otherwise stated herein. The inspection of material and workmanship for final acceptance as a whole or in part will be made at the site of the work.

Section 2.18 Subcontractors

- (1) Except for subcontractors designated by the University, or required to be named at any earlier date, pursuant to the provisions of the Information for Bidders, within thirty (30) calendar days after Notice of Award, the Contractor must submit a written statement to the Consultant giving the name and address of all proposed subcontractors. Said statement must contain a description of the portion of the work and materials which the proposed subcontractors are to perform and furnish and any other information tending to prove that the proposed subcontractors have the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and provisions of the Contract Documents.
- (2) If the Consultant finds that the proposed subcontractors are qualified, it will so notify the Contractor within ten (10) working days after receipt of the aforesaid information. If the determination is to the contrary, however, the Consultant within such period will notify the Contractor of such determination and the latter, unless it decides to do such work itself and is qualified, in the Consultant's opinion, to do such work, must, within ten (10) working days thereafter, submit similar information with respect to other proposed subcontractors.
- (3) The Consultant's approval of a subcontractor and/or the University's designation of a subcontractor pursuant to the provisions of the Contract Documents shall not relieve the Contractor of any of its responsibilities, duties and liabilities hereunder. The Contractor shall be solely responsible to the University for the acts or defaults of such subcontractors and of such subcontractors' officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the Contractor to the extent of its subcontract.
- (4) The Contractor shall be fully responsible for the administration, integration, coordination, direction and supervision of all of its subcontractors and of all work and it shall check all space requirements of the work and coordinate and adjust the same so that conflicts in space do not

occur in the work being performed by it with its own employees and with the work being performed by its subcontractors and so that all equipment, piping, wiring, etc., can be installed, where possible, in the spaces allowed for the same.

- (5) No subcontractor shall be permitted to work at the site until (a) it has furnished satisfactory evidence to the Consultant of the insurance required by law; (b) in the case of a Project involving a federal grant, it has furnished satisfactory evidence to the Consultant of the same type and amount of liability insurance as that required of the Contractor by Section 5.06 of the Agreement; and (c) except for subcontractors designated by the University pursuant to the provisions of the Information for bidders, it has been approved by the Consultant.
- (6) Within seven (7) working days after the Contractor receives payment from the University on account of a progress payment application for the percentage of the work done, it shall pay each of its subcontractors the sum contained in said payment for the percentage of said subcontractor's work, less the same amount retained therefrom by the University under the terms of the Contract Documents or in consequence of any legal proceedings or statutory liens, and less any amounts due the Contractor under the subcontract for work not performed or not properly or timely performed by the subcontractor. In the event any subcontractor is not paid by the Contractor, the former should immediately notify the University of such fact. Notwithstanding the foregoing, no retention or withholding of payment by the university shall affect the Contractor's obligation to pay all subcontractors, agents, employees or other parties for goods or services provided in connection with the work.
- (7) The Contractor shall execute with each of its subcontractors and shall require all subcontractors to execute with their sub-subcontractors a written agreement which shall bind the latter to the terms and provisions of this Contract insofar as such terms and provisions are applicable to the work to be performed by such subcontractors. The Contractor shall require all subcontractors and sub-subcontractors to promptly, upon request, file with the Consultant and the University a copy of such agreements, from which the price and terms of payment may be deleted.
- (8) If for sufficient reason, at any time during the progress of the work to be performed hereunder, the Consultant determines that any subcontractor or sub-subcontractor is incompetent, careless or uncooperative, the Consultant will notify the Contractor accordingly and immediate steps will be taken by the Contractor for cancellation of such subcontract or sub-subcontract. Such termination, however, shall not give rise to any claim by the Contractor or by such subcontractor or sub-subcontractor for loss of prospective profits on work unperformed and/or work unfurnished and a provision to that effect shall be contained in all subcontracts and sub-subcontracts.
- (9) No provisions of this Contract shall create or be construed as creating any contractual relation between the University and any subcontractor or sub-subcontractor or with any person, firm or corporation employed by, contracted with or whose services are utilized by the Contractor.

Section 2.19 Shop Drawings and Samples

- (1) The Contractor, in accordance with the approved Shop Drawing and Sample schedule and with such promptness and in such sequence as to cause no delay in the work, shall submit for the Consultant's approval all Shop Drawings and Samples called for under the Contract or requested by the Consultant.
- (2) Shop Drawings shall establish the actual detail of the work, indicate proper relation to adjoining work, amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.
- (3) All Shop Drawings and Samples shall be thoroughly checked by the Contractor for compliance with the Contract Documents before submitting them to the Consultant for approval and all Shop Drawings shall bear the Contractor's recommendation for approval certifying that they have been so checked. Any Shop Drawings submitted without this stamp of approval and certification, and Shop Drawings which, in the Consultant's opinion, are incomplete, contain numerous errors or have not been checked or only checked superficially, will be returned unchecked by the Consultant for resubmission by the Contractor. In checking Shop Drawings, the Contractor shall verify all dimensions and field conditions and shall check and coordinate the Shop Drawings of any section or trade with the requirements of all other sections or trades whose work is related thereto, as required for proper and complete installation of the work.
- (4) Samples must be of sufficient size or number to show the quality, type, range of color, finish and texture of the material. Each Sample shall be properly labeled to show the nature of the material, trade name of manufacturer, name and location of the work where the material represented by the Sample is to be used and the name of the Contractor submitting the Sample. Transportation charges to the Consultant must be prepaid on Samples forwarded to it.
- (5) Shop Drawings and Samples, submitted by the Contractor in accordance with the approved Shop Drawing and Sample schedule, will be reviewed by the Consultant within fifteen (15) working days and if satisfactory will be approved. A Shop Drawing, when approved, will be returned to the Contractor. If not satisfactory, the Drawings and Samples will be appropriately marked and returned to the Contractor for correction thereof, in which event the Contractor shall resubmit to the Consultant a corrected copy of the Shop Drawing or a new Sample, as the case may be. The Contractor shall make any correction required by the Consultant and shall appropriately note any changes or revisions on the Shop Drawing, dated to correspond with the date of the Consultant's request for the change. Upon approval of the Shop Drawing by the Consultant, the Contractor shall promptly furnish to the Consultant as many copies thereof as the Consultant may reasonably request.
- (6) At the time of submission of a Shop Drawing or Sample, the Contractor shall inform the Consultant and the University in writing of any deviation in the Shop Drawing or Sample from the requirements of the Contract Documents. Unless such deviation is specifically noted by the Contractor with a notation that such deviation will result in extra work for which the Contractor requests payment or requires additional time, the Contractor shall be deemed to have waived any claim for extra work, additional compensation or payment or an extension of time with respect to all work shown on, described in or related to the Shop Drawing or Sample.
- (7) The Consultant's approval of Shop Drawings or Samples is for design only and is not a complete check on the method of assembly, erection or construction. Approval shall in no way be construed as: (a) permitting any departure whatsoever from the Contract Documents, except where the Contractor, in accordance with the provisions of paragraph 6 of this Section, has previously notified the University and the Consultant of such departure; (b) relieving the Contractor of full responsibility for any error in quality of materials, details, dimensions,

omissions or otherwise that may exist; (c) relieving the Contractor of full responsibility for adequate field connections, erection techniques, bracing or deficiencies in strength; (d) relieving the Contractor of full responsibility for satisfactory performance of all work and coordination with the work of all subcontractors and other contractors; or (e) permitting departure from additional details or instructions previously furnished by the Consultant.

- (8) No work requiring a Shop Drawing or Sample shall be commenced until a Shop Drawing or Sample is approved in writing by the Consultant and all such work shall be: (a) in accordance with the approved Shop Drawing, provided the latter conforms in all respects to the Contract Documents or to such deviations therefrom as have been previously noted by the Contractor in accordance with the provisions of paragraph 6 of this Section; and (b) in conformance in all respects to the sample furnished to and approved by the Consultant and, unless otherwise specified, as new and of good quality.

Section 2.20 Equivalents - Approved Equal

A. EQUIVALENTS OR APPROVALS - GENERAL

- (1) The words "similar and equal to", "or equal", "equivalent", and such other words of similar content and meaning shall, for the purposes of this Contract, be deemed to mean similar and equivalent to one of the named products. For the purposes of subdivisions A and B of this Section and for purposes of the Bidding Documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in the Contract Documents one or more products are specified, the words "similar and equal to" shall be deemed inserted.
- (2) Whenever any product is specified in the Contract Documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality which the Consultant has determined is necessary for the Project. A Contractor may at its option use any product other than that specified in the Contract Documents provided the same is approved by the Consultant in accordance with the procedures set forth in subdivision B of this Section. In all cases the Consultant shall be the sole judge as to whether a proposed product is to be approved and the Contractor shall have the burden of proving, at its own cost and expense, to the satisfaction of the Consultant, that the proposed product is similar and equal to the named product. In making such determination the Consultant may establish such objective and appearance criteria as it may deem proper that the proposed product must meet in order for it to be approved.
- (3) Nothing in the Contract Document shall be construed as representing, expressly or implicitly, that the named product is available or that there is or there is not a product similar and equal to any of the named products and the Contractor shall have and make no claim by reason of the availability or lack of availability of the named product or of a product similar and equal to any named product.
- (4) The Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Consultant in considering a product proposed by the Contractor or by reason of the failure of the Consultant to approve a product proposed by the Contractor.
- (5) Requests for approval of proposed equivalents will be received by the Consultant only from the Contractor.

B. EQUIVALENTS OR APPROVALS AFTER BIDDING

- (1) Requests for approval of proposed equivalents will be considered by the Consultant after bidding only in the following cases: (a) the named product cannot be obtained by the Contractor because of strikes, lockouts, bankruptcies or discontinuance of manufacture and the Contractor makes a written request to the Consultant for consideration of the proposed equivalent within ten (10) calendar days of the date it ascertains it cannot obtain the named product; or (b) the proposed equivalent is superior, in the opinion of the Consultant, to the named product; or (c) the proposed equivalent, in the opinion of the Consultant, is equal to the named product and its use is to the advantage of the University, e.g., the University receives an equitable credit, acceptable to it, as a result of the estimated cost savings to the Contractor from the use of the proposed equivalent or the University determines that the Contractor has not failed to act diligently in placing the necessary purchase orders and a savings in the time required for the completion of the construction of the Project should result from the use of the proposed equivalent; or (d) the proposed equivalent, in the opinion of the Consultant, is equal to the named product and less than ninety (90) calendar days have elapsed since the Notice of Award of the Contract.
- (2) Where the Consultant pursuant to the provisions of the subdivision approves a product proposed by a Contractor and such proposed product requires a revision or redesign of any part of the work covered by this Contract, all such revision and redesign and all new Drawings and details required therefor shall be subject to the approval of the Consultant and shall be provided by the Contractor at its own cost and expense.
- (3) Where the Consultant pursuant to the provisions of this Section approves a product proposed by a Contractor and such proposed product requires a different quantity and/or arrangement of duct work, piping, wiring, conduit or any other part of the work from that specified, detailed or indicated in the Contract Documents, the Contractor shall provide the same at its own cost and expense.

Section 2.21 Patents, Trademarks and Copyrights

The Contractor acknowledges that the Contract consideration includes all royalties, license fees and costs arising from patents or trademarks in any way involved in the work, provided, however, that the Contract consideration shall not be deemed to have included therein any royalty, license fee or cost arising from a patent or trademark for a design prepared by the Consultant and neither the Contractor nor the University shall have any liability in connection therewith. Where the Contractor is required or desires to use any product, device, material or process covered by patent or trademark, the Contractor shall indemnify and save harmless the University and the State of New York from any and all claims, actions, causes of action or demands, for infringement by reason of the use of such patented product, device, material or process, and shall indemnify the University and the State of New York from any cost, liability, damage and expense, including reasonable attorneys' fees and court costs, which it may be obligated to

incur or pay by reason of any claim or infringement at anytime both before or after the University's final acceptance of all the work to be performed under the Contract.

Section 2.22 Possession Prior to Completion

If before the final completion of all the work it shall be deemed advisable or necessary by the University to take over, use, occupy or operate any part of the completed or partly completed work or to place or install therein equipment and furnishings, the University, upon reasonable written notice to the Contractor, shall have the right to do so and the Contractor will not in any way interfere therewith or object to the same. Such action by the University shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract Documents and the Contractor acknowledges that such action by the University does not in any way evidence the completion of the work or any part thereof or in any way signify the University's acceptance of the work or any part thereof, provided, however, that the period for the Contractor's warranties and guarantees under the Contract for the work so occupied or operated shall be deemed to commence on the date said work is occupied or operated. The Contractor agrees to continue the performance of all work covered by the Contract in a manner which will not unreasonably interfere with such takeover, use, occupancy, operation, placement or installation.

Section 2.23 Completion and Acceptance

A. PARTIAL COMPLETION AND ACCEPTANCE

If before the final completion of all the work any portion of the permanent construction has been satisfactorily completed and the same will be immediately useful to the University, the latter may, by written notice, advise the Contractor that it accepts such portion of the work. Such actions by the University shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any work not so completed and accepted.

B. SUBSTANTIAL COMPLETION

When all the work covered by the Contract is substantially completed, i.e., has reached such point of completion that the Project can be fully occupied and used for the purposes for which it was intended, the Contractor shall give written notice thereof to the University and the Consultant. The latter will then promptly make an inspection of the work and, if they shall determine that all the work is substantially completed, they shall so advise the Contractor. Such action shall in no way affect the obligations of the Contractor under the terms and provisions of the Contract with respect to any uncompleted (including untested or deferred work), unaccepted or corrective work or in any way affect, limit or preclude the issuance by the Consultant, from time to time thereafter, of "Punch Lists", i.e., lists of uncompleted or corrective work which the Contractor is to promptly complete and/or correct.

C. FULL COMPLETION AND ACCEPTANCE

After the completion of all the work the Contractor shall give written notice to the University and the Consultant that all the work is ready for inspection and final acceptance. The University and the Consultant shall promptly make such inspection and, if they shall determine that all the work has been satisfactorily completed, the University shall thereupon by written notice advise the Contractor that it accepts such work.

Section 2.24 Record Drawings

- (1) Prior to acceptance by the University of all work covered by the Contract, the Contractor shall furnish to the Consultant one (1) set of current Contract Drawings on which the Contractor has recorded, using colored pencil, in a neat and workmanlike manner, all instances where actual field construction differs from work as indicated on the Contract Drawings. These "Record" Drawings shall show the following information: (a) all significant changes in plans, sections, elevations and details, such as shifts in location of walls, doors, windows, stairs and the like made during construction; (b) all significant changes in foundations, columns, beams, openings, concrete reinforcing, lintels, concealed anchorage and "knock-out" panels made during construction; (c) final location of electric panels, final arrangement of electric circuits and any significant changes made in electrical design as a result of Change Orders or job conditions; (d) final location and arrangement of all mechanical equipment and major concealed plumbing, including, but not limited to, supply and circulating mains, vent stacks, sanitary and storm water drainage; and (e) final location and arrangement of all underground utilities, connections to building and/or rerouting of existing utilities, including, but not limited to, sanitary, storm, heating, electric, signal gas, water and telephone.
- (2) Shop Drawings shall not be acceptable as "Record" Drawings.
- (3) The Contractor agrees to provide Record Drawings on "electronic media" or "hard copy" at the discretion of the University at no extra cost.

Section 2.25 Guarantees

- (1) The Contractor, at the convenience of the University, shall remove, replace and/or repair at its own cost and expense any defects in workmanship, materials, ratings, capacities or characteristics occurring in or to the work covered by the Contract within one (1) year or within such longer period as may otherwise be provided in the Contract, the period of such guarantee to commence with the University's final acceptance of all work covered under the Contract or at such other date or dates as the University may specify prior to that time, and the Contractor, upon demand, shall pay for all damage to all other work resulting from such defects and all expenses necessary to remove, replace and/or repair such other work which may be damaged in removing, replacing or repairing the said defects. The obligations of the Contractor under the provisions of this paragraph or any other guarantee provisions of the Contract Documents are not limited to the monies retained by the University under the Contract.
- (2) Unless such removal, replacement and/or repair shall be performed by the Contractor within ten (10) working days after it receives written notice from the University specifying such defect, or if such defect is of such a nature that it cannot be completely removed, repaired and/or replaced within said ten (10) day period and the Contractor shall not have diligently commenced removing, repairing and/or replacing such

defect within said ten (10) day period and shall not thereafter with reasonable diligence and in good faith proceed to do such work, the University may employ such other person, firm or corporation as it may choose to perform such removal, replacement and/or repair and the Contractor agrees, upon demand, to pay to the University all amounts which it expends for such work.

Section 2.26 Default of Contractor

- (1) In addition to those instances specifically referred to in other Sections hereof, the University shall have the right to declare the Contractor in default of the whole or any part of the work if:
 - a. The Contractor makes an assignment for the benefit of creditors pursuant to the statutes of the State of New York; or if
 - b. A voluntary or involuntary petition in bankruptcy is filed by or against the Contractor; or if
 - c. A receiver or receivers are appointed to take charge of the Contractor's property or affairs; or if
 - d. The Contractor shall sublet, assign, transfer, convey, or otherwise dispose of the Contract other than as herein specified; or if
- (2) Before the University shall exercise its right to declare the Contractor in default by reason of the conditions set forth in this subsection, it shall give the Contractor three (3) working days' notice of its intention to declare the Contractor in default and unless, within such three (3) day period, the Contractor shall make arrangements, satisfactory to the University, to correct and/or eliminate the conditions set forth in the University's aforesaid notice, the Contractor may be declared in default at the expiration of such three (3) day period or at the expiration of such longer period of time as the University may determine. In addition to those instances specifically referred to above, the University shall have the right to declare the Contractor in default of the whole or any part of the work if, in the sole opinion of the University:
 - a. The Contractor becomes insolvent; or if
 - b. The Contractor fails to commence work when notified to do so by the Consultant; or if
 - c. The Contractor shall abandon the work; or if
 - d. The Contractor shall refuse to proceed with the work when and as directed by the Consultant; or if
 - e. The Contractor shall without just cause reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the University, to complete the work in accordance with the approved time progress schedule, and shall fail or refuse to sufficiently increase such working force when ordered to do so by the Consultant; or if
 - f. The Contractor is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the work, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if
 - g. The work cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the University's opinion, attributable to conditions within the Contractor's control; or if
 - h. The work is not completed within the time herein provided therefor or within the time to which the Contractor may be entitled to have such completed extended; or if
 - i. The Contractor is or has been willfully or in bad faith violating any of the provisions of this Contract; or if
 - j. The Contractor is not or has not been executing the Contract in good faith and in accordance with its terms.
- (3) The right to declare in default for any of the grounds specified or referred to shall be exercised by the University sending the Contractor a written notice setting forth the ground or grounds upon which such default is declared. Upon receipt of notice that it has been declared in default, the Contractor shall immediately discontinue all further operations under the Contract and shall immediately quit the site, leaving untouched all plant, materials, equipment, tools and supplies then on site.
- (4) The University, after declaring the Contractor in default, may then have the work completed by such means and in such manner, by contract, with or without public letting, or otherwise, as it may deem advisable, utilizing for such purpose such of the Contractor's plant, materials, equipment, tools and supplies remaining on the site, and also such subcontractors as it may deem advisable, or it may call upon the Contractor's surety at its own expense to do so.
- (5) In the event that the University declared the Contractor in default of the work or any part of the work, the Contractor, in addition to any other liability to the University hereunder or otherwise provided for or allowed by law, shall be liable to the University for any costs it incurs for additional architectural and engineering services necessary, in its opinion, because of the default and the total amount of liquidated damages from the date when the work should have been completed by the Contractor in accordance with the terms hereof to the date of actual completion of the work, both of which items shall be considered as expenses incurred by the University in completing the work and the amount of which may be charged against and deducted out of such monies as would have been payable to the Contractor or its surety if the work had been completed without a default.
- (6) If the University completes the work, the Consultant shall issue a certificate stating the expenses incurred in such completion, including the cost of reletting. Such certificates shall be final, binding and conclusive upon the Contractor, its surety, and any person claiming under or through the Contractor, as to the amount thereof.

- (7) The expense of such completion, as so certified by the Consultant, shall be charged against and deducted out of such monies as would have been payable to the Contractor if it had completed the work; the balance of such monies, if any, subject to the other provisions of the Contract, to be paid to the Contractor without interest after such completion. Should the expense of such completion, so certified by the Consultant, exceed the total sum which would have been payable under the Contract if the same had been completed by the Contractor, any such excess shall be paid by the Contractor to the University upon demand.
- (8) In the event the University shall determine to complete the work without calling upon the Contractor's surety to do so, the Contractor shall not be entitled, from and after the effective date of the declaration of the default, to receive any further payment under the Contract until the said work shall be wholly completed and accepted by the University.
- (9) In case the University shall declare the Contractor in default as to a part of the work only, the Contractor shall discontinue such part, shall continue performing the remainder of the work in strict conformity with the terms of the Contract, and shall in no way hinder or interfere with any other contractors or persons whom the University may engage to complete the work as to which the Contractor was declared in default.
- (10) The provisions relating to declaring the Contractor in default as to the entire work shall be equally applicable to a declaration of partial default, except that the University shall be entitled to utilize for completion of the part of the work as to which the Contractor was declared in default only such plant, materials, equipment, tools and supplies as had been previously used by the Contractor on such part.
- (11) In completing the whole or any part of the work, the Consultant and the University shall have the power to depart from, change or vary the terms and provisions of the Contract; provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variations, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the Consultant's certificate of the cost of completion, nor shall it constitute a defense to any action to recover the amount by which such certificate exceeds the amount which would have been payable to the Contractor hereunder but for its default.
- (12) The provisions of this Section shall be in addition to any and all other legal or equitable remedies provided by this Agreement and otherwise available by law.

Section 2.27 Termination

- (1) The performance of work under this Contract may be terminated by the University, in whole or in part, whenever the University shall determine that such termination is in the best interest of the University or in the event the State Finance Law sections 139-j and 139-k certifications are found to be false or incomplete. Any such termination shall be effected by a notice in writing to the Contractor specifying the date upon which such termination shall become effective and the extent to which performance of the Contract shall be terminated. Such termination shall be effective on the date and to the extent specified in said notice.
- (2) Upon receipt of a notice of termination, and except as otherwise directed in writing by the University, the Contractor shall:
 - a. Discontinue all work and the placing of all orders for materials and facilities otherwise required for the performance thereof;
 - b. Cancel all existing orders and subcontracts to the extent such orders and subcontracts relate to the performance of work terminated by the notice of termination;
 - c. Take such actions as may be necessary to secure to the University the benefits of any rights of the Contractor under orders or subcontracts which relate to the performance of work terminated by the notice of termination, including, but not limited to, the assignment to the University, in the manner and to the extent directed by the University, all the right, title and interest of the Contractor under the orders or subcontracts so terminated and canceled. In the event of such assignment, the University shall have the right, in its discretion; to settle or pay any or all claims arising out of the termination and cancellation of such orders and subcontracts;
 - d. Transfer title and deliver to the University, in accordance with the direction of the University, all materials, supplies, work in process, facilities, equipment, machines or tools produced as a part of or acquired by the Contractor in connection with the work terminated by said notice, and all plans, Drawings, Working Drawings, sketches, Specifications and information for use in connection therewith; provided, however, that the Contractor may retain any of the foregoing if it so elects and forgoes reimbursement therefor;
 - e. Take such action as may be necessary or as the Consultant or the University may prescribe for the protection and preservation of all property in the possession or control of the Contractor in which the University, under the provisions of the Contract, has or may acquire an interest.
- (3) Notwithstanding the foregoing, should the notice of termination relate to only a portion of the work covered by the Contract, the Contractor will proceed with the completion of such portions of the work as are not terminated.
- (4) The University will pay and the Contractor shall accept, in full consideration for the performance and completion of the portions of the work as are not terminated, a sum calculated by determining the percentage the portions of the work not terminated bear to the total amount of the work covered by the Contract, and by multiplying the Contract consideration by such percentage the product thereof being the amount to be paid to the Contractor. The University shall determine the amount of such consideration in accordance with the foregoing.
- (5) Upon compliance by the Contractor with the foregoing provisions of this Section and subject to deductions for payments previously made, the University, for the portions of the work terminated, shall compensate the Contractor as follows:
 - a. By reimbursing the Contractor for actual expenditures made with respect to such work, including expenditures made in connection with any portion thereof which may have been completed prior to termination, as well as expenditures made after termination in completing

those portions of the work covered by the Contract which the Contractor may have been required by the notice of termination to complete. The University shall determine the allocability and amount of such expenditures.

- b. By reimbursing the Contractor for all actual expenditures made, with the prior written approval of the University or pursuant to a court judgment, in settling or discharging any outstanding contractual obligations or commitments incurred or entered into by the Contractor in good faith with respect to the Contract and resulting from the termination thereof.
 - c. By reimbursing the Contractor for all actual expenditures made after the effective date of the notice of termination resulting from or caused by the Contractor taking necessary action or action prescribed by the Consultant or the University for the protection and preservation of all property in the possession or control of the Contractor in which the University, under the provisions of the Contract, has or may acquire an interest.
 - d. By paying the Contractor a markup, which is to be calculated in the same manner as that provided for in subdivision c of paragraph (1) of Section 4.02 for extra work, on the foregoing expenditures, which markup is to cover the Contractor's overhead and profit; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, said markup shall be reduced by one-third.
- (6) The sum of all amounts payable under this Section, plus the sum of all amounts previously paid by the University under the provisions of the Contract, shall not exceed the amount of the Contract consideration. In no event shall the Contractor be entitled to any payment for loss of anticipated profits on uncompleted work and the University shall not be liable for the same.
 - (7) Termination by the University under the provisions of this Section shall be without prejudice to any claims or rights which the University may have against the Contractor. The University may retain from the amount due to the Contractor under the provisions of this Section such monies as may be necessary to satisfy any claim which the University may have against the Contractor in connection with the Contract; provided, however, that the University's failure to retain such monies shall not be deemed a waiver of any of its rights or claims against the Contractor.
 - (8) Notwithstanding the foregoing, where the Contractor and the Consultant can agree upon another method of determining the amount of the consideration to be paid to the Contractor under the provisions of the Section, such method, subject to the approval of the University, may, at the option of the University, be substituted for the method set forth above.

ARTICLE III

Time of Performance

Section 3.01 Commencement, Prosecution and Completion of Work

- (1) The Contractor agrees that it will begin the work herein embraced within ten (10) calendar days after the Contract approval date of the New York State Comptroller and that it will prosecute the same with such diligence that all work covered by the Contract shall be entirely completed and performed on or before the time specified on page A-1 of the Agreement.
- (2) The Contractor further agrees that time is of the essence in this Contract and that the work shall be prosecuted in such manner and with sufficient plant and forces to complete all the work by the specified completion date.

Section 3.02 Time Progress Schedule

- (1) Within thirty (30) calendar days after receipt of the Notice of Award, the Contractor, unless otherwise directed by the University, shall submit to the University and the Consultant for their approval its proposed working plan and schedule for its first ninety (90) calendar days of operation. The working plan and schedule shall be in the form of suitable charts, diagrams or bar graphs and shall be based on the Contractor's logic and time estimates. Such plan and schedule shall be sufficiently detailed to show clearly, in sequence, all salient features of the work of each trade including: the anticipated time of commencement and completion of such work and the interrelationship between such work, submission of Shop Drawings and Samples for approval, approval of Shop Drawings and Samples, placing of orders of materials, fabrication and delivery of materials, installation and testing of materials, contiguous or related work under other contracts, and other items pertinent to the work.
- (2) Within ninety (90) calendar days after receipt of the Notice of Award, the Contractor, unless otherwise directed by the University, shall submit to the University and the Consultant for their approval its proposed working plan and schedule for all the work covered by the Contract. Said proposed working plan and schedule shall be prepared in accordance with the form and requirements set forth in the preceding paragraph.
- (3) The aforesaid proposed working plan and schedule shall be revised by the Contractor until they are satisfactory to the University and the Consultant, and the same shall be periodically revised thereafter and submitted by the Contractor to the University and the Consultant for approval at such time or times as the University or the Consultant may request.
- (4) The proposed working plan and schedule, including any revision or revisions thereof, when approved by both the University and the Consultant shall be known as the time progress schedule. The time progress schedule, as the same may be revised from time to time by the Contractor and approved by the University and the Consultant, shall be strictly adhered to by the Contractor.
- (5) If through the fault of the Contractor or any subcontractor the Contractor shall fail to adhere to the time progress schedule, it must promptly adopt such other and additional means and methods of construction as will make up for the time lost and will assure completion in accordance with such schedule.
- (6) The University's or the Consultant's approval of the Contractor's time progress schedule or of its time, means and/or methods of construction,

including any revisions thereof, and/or their failure to reject the same shall not relieve the Contractor of its obligation to accomplish the result required by the Contract, nor shall the exercise of such right to reject, create or give rise to any claim, action or cause of action, legal, equitable or otherwise, against the Consultant or the University.

Section 3.03 Time Schedule for Shop Drawings and Samples

- (1) Within sixty (60) calendar days after the date specified for the commencement of the work, the Contractor, unless otherwise directed by the Consultant, shall submit to the latter for approval a proposed time schedule covering the preparation and submission of all Shop Drawings and Samples. The proposed schedule will be revised by the Contractor until it is satisfactory to the Consultant and it shall be periodically revised thereafter and submitted by the Contractor to the Consultant for approval at such time or times as the Consultant may request.
- (2) The aforesaid schedule, as the same may be revised from time to time by the Contractor, after approval by the Consultant, shall be strictly adhered to by the Contractor.

Section 3.04 Notice of Conditions Causing Delay

- (1) Within ten (10) working days after the commencement of any condition which is causing or may cause delay in completion, the Contractor must notify the Consultant and the University in writing of the effect, if any, of such condition upon the time progress schedule, and must state why and in what respects, if any, the condition is causing or may cause such delay.
- (2) Failure to strictly comply with this requirement may, in the discretion of the University, be deemed sufficient cause to deny any extension of time on account of delay in completion arising out of or resulting from any change, extra work, suspension, or other condition.

Section 3.05 Extension of Time

- (1) An extension or extensions of time for the completion of the work may be granted by the University subject to the provisions of this Section, but only upon written application therefor by the Contractor to the University and the Consultant.
- (2) An application for an extension of time must set forth in detail the source and the nature of each alleged cause of delay in the completion of the work, the date upon which each such cause of delay began and ended and the number of days of delay attributable to each of such causes. It must be submitted prior to completion of the work.
- (3) If such an application is made, the Contractor shall be entitled to an extension of time for delay in completion of the work caused solely: (a) by the acts or omissions of the University, its trustees, officers, agents or employees; or (b) by the acts or omissions of other contractors, not including subcontractors of the Contractor, on this Project; or (c) by unforeseeable supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes).
- (4) The Contractor shall, however, be entitled to an extension of time for such causes only for the number of calendar days of delay which the University may determine to be due solely to such causes, and then only if the Contractor shall have strictly complied with all of the requirements of this Section and Section 3.04. The University shall make such determination within ninety (90) calendar days after receipt of the Contractor's application for an extension of time; provided, however, said application complies with the requirements of this Section.
- (5) The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the work as determined by the University, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the Contractor or of its subcontractors or materialmen, and would of itself (irrespective of the concurrent causes) have delayed the work, no extension of time will be allowed for the period of delay resulting from such act, fault or omission.
- (6) The granting of an application for an extension of time for causes of delay other than those herein referred to shall be entirely within the discretion of the University.
- (7) If the Contractor shall claim to have sustained any damages by reason of delays, extraordinary or otherwise, or hindrances which it claims to be due to any action, omission, direction or order by the University or the Consultant, the Contractor shall be entitled only to an extension of time as hereinabove provided and shall not have or assert any claim or prosecute any suit, action, cause of action or proceeding against the University based upon such delays or hindrances, unless such delays or hindrances were caused by the University's bad faith or its willful, malicious, or grossly negligent conduct, or un contemplated delays, or delays so unreasonable that they constitute an intentional abandonment of the contract by the University, or delays resulting from the University's breach of a fundamental obligation of the contract.

Section 3.06 Contractor's Progress Reports

After commencement of the work the Contractor shall furnish the Consultant with written monthly reports setting forth the condition and general progress of the work, the percentage of each part of the work that has been finished, those parts of the work which have been completed within the scheduled time and those parts of the work which have not been finished within the scheduled time, and the general progress of the work that is being performed away from the site and the approximate date when such work will be finished and delivered to the site.

ARTICLE IV Payment

Section 4.01 Compensation to Be Paid Contractor

The University shall pay to the Contractor and the latter shall accept as full and complete payment for the performance of this Contract, subject to additions or deductions as provided herein, the sum indicated on page 1 of this Agreement which sum is the amount of the total contract compensation.

Section 4.02 Value of Omitted and Extra Work

(1) The amount by which the Contract consideration is to be increased or decreased by any Change Order shall be determined by the University by one or more of the following methods:

- a. By accepting an amount agreed upon by both parties, which amount is to be calculated in a manner similar to that provided in subdivision c hereof.
- b. By applying the applicable price or prices set forth in the attached Schedule "I" of this Agreement or by applying a unit price agreed to by both parties. Subject to the provisions of Sections 4.04, this method must be used if the Contract Documents contain applicable unit prices.
- c. By estimating the fair and reasonable cost of: (i) labor, including all wages, required wage supplements and insurance required by law (workers' compensation, social security, disability, unemployment, etc.) paid to or on behalf of foremen, workers and other employees below the rank of superintendent directly employed at the site of the Project; (ii) materials; and (iii) equipment, excluding hand tools, which, in the judgment of the University, would have been or will be employed exclusively and directly on the omitted work or extra work, as the case may be; and, in the case of extra work, where the same is performed directly by the Contractor, by adding to the total of such estimated costs a sum equal to 15 percent thereof, but, where the extra work is performed by a subcontractor, by adding a sum equal to 15 percent of said costs for the benefit of such subcontractor, and by adding, for the benefit of the Contractor (no further allowance will be made where extra work is performed by the sub-subcontractor), an additional sum equal to 10 percent of the first \$10,000 of the above-estimated costs, including the subcontractor's percentage override, plus 5 percent of the next \$90,000 of the total of said items, plus 3 percent of any sum in excess of \$100,000 of the total of said items. For the purposes of the aforesaid percentage overrides, the words "extra work" shall be defined as a complete item of added, modified or changed work as described in the Consultant's written instructions to the Contractor. Such "extra work" may include the work of one or more trades and/or subcontractors or sub-subcontractors and shall include all labor, materials, plant, equipment, tools and all incidentals directly and/or indirectly necessary, related, involved in or convenient to the successful completion of the extra work item. Where the Consultant's aforesaid written instructions to the Contractor involve both an increase and a reduction in similar or related work, the above percentage overrides will be applied only on the amount, if any, the cost of the increased work exceeds the cost of the reduced work.

All profit, overhead and expense of whatsoever kind and nature, other than those set forth above in items (i) through (iii), of the Contractor, its subcontractors and sub-subcontractors, are covered by the aforesaid percentage overrides and no additional payment therefor will be made by the University.

The University may make such cost estimate either before or after the extra work is completed by the Contractor.

- d. By determining the actual cost of the extra work in the same manner as in the above subdivision c except that actual costs of the Contractor shall be utilized in lieu of estimated costs. The University shall have the option of utilizing this method provided it notifies the Contractor of its intent to do so prior to the time the Contractor commences performance of such extra work.
- (2) Irrespective of the method used or to be used by the University in determining the value of a Change Order, the Contractor, within fifteen (15) working days after a request for the same, must submit to the University and the Consultant a detailed breakdown of the Contractor's estimate of the value of the omitted and/or extra work.
- (3) For the purposes of paragraph (1) hereof, the cost of equipment shall be determined, irrespective of the actual price for any rental or actual cost associated with such equipment and irrespective of whether the equipment is or is not owned by the Contractor, as follows: (a) for the first 40 hours of use by taking the monthly rate listed in the "Green Book" (the publication of the Associated Equipment Distributors of Oakbrook, Illinois) and dividing the same by 176 hours to establish an hourly rate and then multiplying such hourly rate by the actual number of hours that the equipment was used; and (b) for any period of time in excess of the first 40 hours of use by taking 50 percent of the hourly rate established in accordance with the above for equipment used for periods of less than 40 hours, and then multiplying such rate by the actual number of hours in excess of 40 hours that the equipment was used. In the event that the "Green Book" does not list the item of equipment used, the applicable rate shall be determined in the same manner as that set forth above except that the monthly rate shall be that set forth in the "Blue Book" (published by Equipment Guidebook Co. of Palo Alto, California). If no listing or rates for an item of equipment is contained in either the "Green Book" or the "Blue Book", the University shall determine the reasonable rate of rental of the particular item of equipment by such other means as it finds appropriate. The editions of the "Green Book" and the "Blue Book" to be used shall be those in effect on the date of the receipt of bids for this Contract. None of the provisions of the "Green Book" or the "Blue Book" shall be deemed referred to or included in this Contract excepting only the aforesaid monthly rates. To the cost of equipment as determined above, there is to be added the actual cost of gasoline, oil, grease and maintenance required for operation of such equipment and, in the case of equipment utilized only for extra work when, in the opinion of the Consultant, suitable equipment therefor was not available on the site, the reasonable cost of transporting said equipment to and from the site. Notwithstanding the foregoing, if the Consultant should determine that the nature or size of the equipment used by the Contractor in connection with the extra work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Consultant to be suitable for the extra work, the cost of equipment will not be based upon the equipment used by the Contractor but instead will be based on the smallest or least elaborate equipment determined by the

Consultant to have been suitable for the performance of the extra work.

- (4) Unless otherwise specifically provided for in a Change Order, the compensation specified therein for extra work includes full payment for both the extra work covered thereby and for any damage or expense caused the Contractor by any delays to other work to be done under the Contract resulting from or on account of said extra work, and the Contractor waives all rights to any other compensation for said extra work, damage or expense.

Section 4.03 Adjustment for Bond and Insurance Premiums

Upon final acceptance of the work to be performed under this Contract, the University shall adjust the Contract consideration to reflect any changes in the cost of all required Bonds and liability and builder's risk insurance premiums which the Contractor had to pay for on all extra work and would have had to furnish and pay for on all omitted work. Unless such cost is agreed upon by the University and the Contractor, the University shall calculate and determine the amount of the adjustment in the Contract consideration by estimating such cost.

Section 4.04 Unit Prices

- (1) Except as otherwise provided in the second paragraph of this Section, the unit prices, set forth in the attached Schedule I will be binding upon both the University and the Contractor in determining the value of omitted and/or extra work, and, in the case of extra work, such unit prices shall be deemed to include all profit, overhead and expenses of whatever kind and nature of the Contractor, its subcontractors and sub-subcontractors, and the Contractor agrees that it shall make no claim for any profit, overhead, expense or percentage override in connection therewith.
- (2) Where Schedule I sets forth a unit price for added and/or deducted work, the University shall have the option, whenever it is found that the quantity of changed work varies by more than 15 percent from the quantity that is stated or that can be determined by the Contract Documents at the time of execution thereof, to accept or reject such unit price for the quantity that the changed work varies by more than 15 percent from the stated or determinable quantity. Where a quantity is not specifically stated in the Contract Documents, the University's determination of the amount of said quantity included in the Contract Documents shall determine the applicability of this paragraph. Where the University, pursuant to the foregoing provisions, exercises its aforesaid option, the amount of the increase or decrease in the Contract consideration for the quantity of work which varies by more than 15 percent from the stated or determinable quantity shall be determined in accordance with the provisions of Section 4.02 of the Agreement as if there was no unit price therefor set forth in said Proposal.

Section 4.05 Allowances

- (1) The Contractor acknowledges that the Contract consideration includes the allowances set forth in the attached Schedule I and, except for quantitative allowances, it agrees to cause the work covered thereby to be done by such contractors for such sums as the University may direct. Where cash allowances are provided, the allowances shall be deemed to include the purchase of the materials and/or equipment and the delivery of the same to the job site. Unless otherwise specified in the Contract Documents, cash allowances do not include the proper installation of the materials and/or equipment or the connection for final utilities thereto; the cost of said installation and/or connection having been included in the amount of the Contract consideration.
- (2) The Contractor acknowledges that the Contract consideration includes such sums for expenses and profit on account of cash allowances as it deems proper and that it shall make no claim for expenses or profit or any percentage override in addition thereto; said items having been included in the amount of the Contract consideration.
- (3) In the event any cash allowance listed below is either higher or lower than the cost of having the work done in accordance herewith, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be the difference between the amount of the allowance and the actual cost of performing the work covered thereby.
- (4) When quantitative allowances are provided, progress payments thereof to the Contractor will be based upon the applicable unit prices set forth in the attached Schedule I, subject, however to the provisions of paragraph (2) of Section 4.04. In the event any of said quantitative allowances are more than or less than the actual quantity of work performed, the Contract consideration shall be adjusted to reflect such variance, the amount of said adjustment to be determined in accordance with the provisions of Section 4.02 and Section 4.04 of the Agreement.

Section 4.06 Deductions for Unperformed and/or Uncorrected Work

- (1) Without prejudice to any other rights, remedies or claims of the University, in the event that the Contractor at any time fails or neglects to supply working forces and materials of the proper quantity and quality necessary, in the opinion of the Consultant or the University, to comply with the approved time progress schedule, or fails in any respect to prosecute the work with promptness and diligence or causes by any action or omission the stoppage or delay of or interference with the work of any other contractor having a contract with the University, or fails in the performance of any obligations and responsibilities under this Contract, then, and in that event, the University, acting itself or through the Consultant, may, upon three (3) working days' notice to the Contractor, either itself provide or have any other contractor provide any and all labor or materials or both necessary, in its opinion, to correct any aforesaid deficiency of the Contractor, and the University will thereafter back charge the Contractor by issuing a Change Order reducing the amount of the Contract consideration for all costs and expenses it incurs in connection with the correction of such deficiency.
- (2) Notwithstanding any provisions in the Contract Documents to the contrary, if the University deems it inexpedient to correct work not done in accordance with the Contract or any work damaged as a result thereof, it shall notify the Contractor of such fact and the latter shall not remedy or correct the same. In such event, however, the amount of the Contract consideration shall be decreased by an amount, determined by the University, which is equal to the difference in value of the work as performed by the Contractor and the value of the work had it been satisfactorily performed in accordance with the Contract or which is equal to the cost of performing the corrective work, whichever shall be the

higher amount.

Section 4.07 Liquidated Damages

In the event that the Contractor shall fail to substantially complete all the work within the time fixed for such completion on page A-1 of the Agreement, or within the time to which such completion may have been extended, or in the event that the Contractor abandons the work and the same is not substantially completed within the aforesaid time for such completion, the Contractor must pay to the University as damages for each calendar day of delay in completing the work the amount set forth on page A-1. In view of the difficulty of accurately ascertaining the loss which the University will suffer by reason of delay in completion of the work hereunder, said sum is hereby fixed and agreed as liquidated damages which the University will suffer by reason of such delay and not as a penalty. The University may deduct and retain out of the monies which may become due hereunder to the Contractor the amount of any such liquidated damages and, in case the amount which may become due to the Contractor under the provisions of the Contract may be less than the liquidated damages suffered by the University, the Contractor shall pay the difference, upon demand, to the University.

Section 4.08 Contract Breakdown

Prior to the submission of its first application for a progress payment, the Contractor shall present to the University and the Consultant for their approval a detailed schedule showing the breakdown of the Contract consideration. Such schedule must contain the amount estimated for each part of the work and quantity survey for each part of the work. It shall also list the estimated value of the Contractor's guarantee obligations under the provisions of the Contract Documents, which is hereby fixed at \$5,000 or one-half of one percent (1/2%) of the Contract award amount, whichever is the lesser sum. Such schedule shall be revised by the Contractor until the same shall be satisfactory to the University and the Consultant and shall not be changed after the University and the Consultant have approved the same. The amounts set forth in the schedule will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

Section 4.09 Prompt Payment Requirements

- (1) For the purposes of Article XI-A of the State Finance Law, the campus for which the work is being performed is the University's designated payment office. Applications for payment must contain the approval of the Consultant before being submitted to the University.
- (2) Whenever the Consultant's approval of an application for payment is required under the Contract, the Consultant shall have fifteen (15) calendar days after receipt of such application to inspect the work before acting on the application.
- (3) This Contract is subject to the approval of the Comptroller of the State of New York. Until such approval is given, the thirty (30) day period referred to in Article XI-A of the State Finance Law for the payment of invoices without interest shall not begin.

Section 4.10 Progress Payments

- (1) Unless otherwise provided in the Contract, progress payments will be made as the work progresses upon applications submitted by the Contractor and approved by the Consultant and the University. Payment of such approved applications shall be made by the University within thirty (30) days after such approval has been given.
- (2) The University shall make progress payments to the Contractor on the basis of such approved applications, less an amount equal to 5 percent thereof, plus an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged, which it shall reserve from each such payment until all of the work covered by the Contract has been completed.
- (3) When the University and the Consultant have determined that all the work is substantially completed, or that a substantial portion of the permanent construction has been completed and accepted, the University shall make a progress payment to the Contractor, on the basis of an application submitted by the Contractor and approved by the Consultant and the University, which shall reduce the unpaid amount due to the Contractor under the terms of the Contract, including all monies retained by the University from previous progress payments to the Contractor, to an amount equal to two (2) times the cost, estimated by the Consultant, of performing, in accordance with the Contract, all uncompleted, unaccepted and corrective work, plus an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of work are satisfactorily completed or corrected, the University shall make progress payments to the Contractor, on the basis of applications submitted by the Contractor and approved by the University and the Consultant, covering said items of work less an amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.

Section 4.11 Applications for Progress Payments

The Contractor shall prepare all applications for progress payments for work performed, together with supporting data and computations as are deemed necessary by the Consultant to determine the accuracy of the application. The application for payment shall be submitted on the form prescribed by the University. Failure of the Contractor to submit applications for progress payments, or lack of complete and accurate supporting data, shall be sufficient reason for withholding payment until such omissions or errors are rectified. Unless otherwise directed, such applications, signed and certified as correct by the Contractor, shall be delivered by the Contractor to the Consultant once each month showing the total value of work completed and in place on the last day of the payment period covered by the application.

Section 4.12 Progress Payments for Materials Delivered to Site

- (1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment to be furnished and installed under the Contract, after such materials and equipment have been delivered and accepted at the site of the work.

- (2) Materials and equipment for which such progress payment has been made shall not be removed from the site, shall be stored until incorporated into the work in a location approved by the Consultant and shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever, and shall at all times be available for inspection by the Consultant and the University.

Section 4.13 Transfer of Title to Materials Delivered to Site

Title to all supplies and materials to be furnished or provided by the Contractor to the University pursuant to the provisions of the Contract Documents shall immediately vest in and become the sole property of the University upon delivery of such supplies and materials to the site. Notwithstanding such transfer of title, the Contractor shall have the full continuing responsibility to install such materials and supplies, protect them, maintain them in proper condition and forthwith repair, replace and make good any damage thereto without cost to the University until such time as the work covered by the Contract is fully accepted by the University. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract. In the event that, after title has passed to the University, any of such supplies and materials are rejected as being defective or otherwise unsatisfactory, title to all such supplies and materials shall be deemed to have been transferred back to the Contractor.

Section 4.14 Progress Payments for Materials Stored Off Site

- (1) Progress payments made in accordance with Section 4.10 shall include a payment for materials and equipment which are in short and/or critical supply or have been specially fabricated for the Project. Materials and equipment, for which a progress payment is made pursuant to the preceding sentence, shall be stored by the Contractor, after fabrication, until such time as their delivery to the site is required, at a facility and location approved by the Consultant; shall be adequately protected from fire, theft and vandalism, the effects of the elements and any other damage whatsoever; and shall at all times be available for inspection by the Consultant and the University. No progress payment shall, however, be made for said materials and equipment until:
- The Contractor furnishes to the University a bill of sale listing quantity and costs of said materials and equipment f.o.b. point of origin;
 - The Consultant shall have inspected said materials and equipment and recommended payment therefor; and
 - The Contractor furnishes to the University a builder's risk insurance policy, with the broad form extended coverage endorsement, for said materials and equipment, in an amount equal to 100 percent of the value thereof, which policy shall be maintained, at the sole cost and expense of the Contractor, until said materials and equipment have been incorporated into the Project. The said insurance policy shall contain a provision that the loss, if any, is to be made adjustable with and payable to the University as trustee for the insured, i.e., the University and the Contractor, and a provision that it shall not be changed or canceled and that it will be automatically renewed upon expiration and continued in force unless the University is given fifteen (15) days' written notice to the contrary.
- (2) Materials and equipment for which a progress payment has been made by the University pursuant to this Section shall be, become and remain the sole property of the University; provided, however, that the Contractor shall have the full continuing responsibility to install such materials and equipment, to deliver it to the site, to protect it, to maintain it in proper condition and to forthwith repair, replace and make good any damage thereto without cost to the University until such time as the work covered by the Contract is fully accepted by the University. Such transfer of title shall in no way affect any of the Contractor's obligations under the Contract.

Section 4.15 Withholding of Progress Payments

Notwithstanding anything contained in the Contract to the contrary, the University may withhold payment of all or any part of a progress, final or guarantee payment, in such an amount as it may deem proper to enforce the provisions of the Contract and to satisfy the claims of third parties, when:

- The University shall learn of any claim, of whatever nature or kind, against the University or the Contractor, which in any way arises or is alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract or out of or in connection with the Contractor's operations or performance at or in the vicinity of the construction site, that, in the opinion of the University, may not be adequately covered by insurance.

If an action on such claim is timely commenced and the liability of the University and/or the Contractor shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the Contractor to be valid, the University shall pay such judgment or admitted claim out of the monies retained by it under the provisions of the Contract and return the balance, if any, without interest, to the Contractor.

The University may withhold from the Contractor any payments retained by it until such time as all such claims are either satisfied or barred by law from being presented. At such time the University, upon written demand by the Contractor, shall return to the Contractor the amount so withheld, without interest.

- The Contractor has not complied with any lawful or proper direction of the Consultant or the University or their representatives concerning the work covered by the Contract or the performance of the Contract or the production of records as required under the provisions of the Contract.
- There exists any of the conditions, listed in Section 2.26, which would allow the University to declare the Contractor in default of the whole or any part of the work.
- The Contractor is a foreign contractor and has not furnished satisfactory proof that all taxes due by such Contractor under the provisions of the Tax Law have been paid. The Certificate of the New York State Tax Commission to the effect that all such taxes have been paid shall be conclusive proof of the payment of such taxes. The term "foreign contractor" as used herein means, in the case of an individual, a person who is not a resident of the State of New York; in the case of a partnership, one having one or more partners not a

resident of the State; and in the case of a corporation, one not organized under the laws of the State of New York.

- e. The Contractor, upon request of the University at any time after the initial progress payment by the University to the Contractor, fails to furnish the University with such documentary evidence that the University may deem necessary to prove to it that material and labor paid for by the University under previous applications for payment submitted have been paid for by the Contractor and that there are no outstanding claims or liens in connection therewith or fails to satisfy the University that the Contractor, with good cause, has sufficiently provided for the payment and/or satisfaction of claims for said material and labor.

Section 4.16 Lien Law

The attention of the Contractor is specifically called to the provisions of the Lien Law of the State of New York, wherein funds received by a Contractor for a public improvement are declared to constitute trust funds in the hands of such Contractor to be applied first to the payment of certain claims.

Section 4.17 Substitution of Securities for Retainage

Any time after 50 percent of all the work has been completed, the University, if the progress and performance of the work is satisfactory to it, on request of the Contractor, will allow the Contractor to withdraw up to 50 percent of the aforesaid amount retained by the University by depositing with the Comptroller of the State of New York government securities, of the type and kind specified in Section 139 of the State Finance Law, having a market value not exceeding par, at the time of deposit, equal to the amount so withdrawn. The Comptroller of the State of New York shall, from time to time, collect all interest or income on the obligations so deposited, and shall pay the same, when and as collected, to the Contractor. If the deposit is in the form of coupon bonds, the coupons as they respectively become due shall be delivered to the Contractor; provided, however, that the Contractor shall not be entitled to interest or coupons or income on any of the deposited securities, the proceeds of which have or will be used or applied by the University. In the event that the Contractor does not, in accordance with the terms and provisions of the Contract, comply with and fulfill all of its obligations and responsibilities thereunder, the Comptroller of the State of New York shall have the right to sell, assign, transfer or otherwise dispose of the aforesaid securities and the University shall have the right to use and apply all or any part of the monies obtained by the Comptroller of the State of New York from such a sale, assignment, transfer or disposition or from the collection of interest or income from said securities to the performance and fulfillment of said obligations and responsibilities. Notwithstanding the foregoing, when the University makes a payment under Section 4.10 (3) of the Agreement, it will return to the Contractor, as part of such payment, its substituted securities, and thereafter all retention of the University shall be in funds and not in substituted securities.

Section 4.18 Final Payment

Upon acceptance of all the work, except for the Contractor's guarantee obligations under Section 2.25 of the Agreement and the Contractor's guarantee obligations under any provision of the Specifications, the contractor shall prepare and submit to the University and the Consultant, for their approval, a final application for payment, which the University, within thirty (30) days after its approval of the same, shall pay. Such application and payment shall be in an amount equal to 100 percent of the Contract consideration, excluding the Contractor's guarantee obligations (reference Section 4.08), less:

- a. All previous payments by the University to the Contractor;
- b. All deductions authorized to be made by the University under the Contract; and
- c. An amount necessary, in the University's judgment, to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged.

Section 4.19 Acceptance of Final Payment

- (1) The acceptance by the Contractor, or by anyone claiming by or through it, of the final payment shall, except with respect to the amount retained by the University pursuant to the provisions of subdivisions b and c of Section 4.18 of the Agreement, constitute and operate as a release to the University from any and all claims of any liability for anything theretofore done or furnished for or relating to or arising out of the work covered by the Contract and for any prior act, neglect or default on the part of the University or any of its trustees, officers, agents or employees in connection therewith.
- (2) Should the Contractor refuse to accept the final payment as tendered by the University or should the Contractor refuse to execute the final application for payment without protest and without reserving any rights or claims against the University, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said final application for payment.

Section 4.20 Guarantee Payment

- (1) Subject to the provisions of the second paragraph of this Section, at the expiration of one (1) year after the University has accepted all the work covered by the Contract, the Contractor shall prepare and submit to the University and the Consultant, for their approval, a guarantee application for payment, which the University, within thirty (30) days after its approval of the same, shall pay. Such application and payment shall be in an amount equal to the monies retained by the University for the Contractor's guarantee obligations under the Agreement, less any monies deducted by the University under this Section. The Contractor shall not be entitled to any interest on the monies retained by the University pursuant to subdivision c of Section 4.18 of the Agreement.
- (2) In the event the Contractor does not, in accordance with the terms and provisions of the Contract, complete all corrective work or comply with and fulfill its contractual obligations, the University may use and apply all or any part of the monies retained by it to have such work or obligations performed or fulfilled by a person, firm or corporation other than the Contractor. The obligations of the Contractor, under the terms and provisions of the Contract, shall not, however, be limited to the monies retained by the University pursuant to the provisions of the

Contract.

- (3) No payments made be made under this agreement for work completed more than 365 days after the closing date of this Contract unless the date/duration listed on page A-1, is extended in writing and approved by OSC.

Section 4.21 Acceptance of Guarantee Payment

The acceptance by the Contractor, or by anyone claiming by or through it, of the guarantee payment shall constitute and operate as a release to the University from any and all claims in connection with monies retained by the University. Should the Contractor refuse to accept the guarantee payment as tendered by the University or should the Contractor refuse to execute the guarantee application for payment without protest and without reserving any rights or claims against the University, it shall constitute a waiver of any right to interest on the amount of the payment so tendered and/or on the amount set forth in said guarantee application for payment.

Section 4.22 Contractor Limited to Money Damages

Inasmuch as the Contractor can be compensated adequately by money damages for any breach of the Contract which may be committed by the University, the Contractor agrees that no default, act or omission of the University shall constitute a material breach of the Contract entitling it to cancel or rescind the same or to suspend or abandon performance thereof; and it hereby waives any and all rights and remedies to which it might otherwise be or become entitled to because of any wrongful act or omission of the University or its representatives, saving only its right to money damages.

Section 4.23 No Estoppel or Waiver

- (1) The University shall not be precluded or estopped by any inspection, acceptance, application for payment or payment, final or otherwise, issued or made under the Contract or otherwise issued or made by it, the Consultant, or any trustee, officer, agent or employee of the University, from showing at any time the true amount and character of the work performed, or from showing that any such inspection, acceptance, application for payment or payment is incorrect or was improperly issued or made; and the University shall not be precluded or estopped, notwithstanding any such inspection, acceptance, application for payment or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with the Contract and any monies which may be paid to it or for its account in excess of those to which it is lawfully entitled.
- (2) Neither the acceptance of all or any part of the work covered by the Contract; nor any payment therefor; nor any order or application for payment issued under the Contract or otherwise issued by the University, the Consultant, or any trustee, officer, agent or employee of the University; nor any permission or direction to continue with the performance of the Contract before or after its specified completion date; nor any performance by the University of any of the Contractor's duties or obligations; nor any aid lent to the Contractor by the University in its performance of such duties or obligations; nor any delay or omission by the University to exercise any right or remedy accruing to it under the terms of the Contract or existing at law or in equity or by statute or otherwise; nor any other thing done or omitted to be done by the University, its trustees, officers, agents or employees; shall be deemed to be a release to the Contractor or its sureties from any obligations, liabilities or undertakings in connection with the Contract or the Performance Bond or a waiver of any provision of the Contract or of any rights or remedies to which the University may be entitled because of any breach thereof, excepting only a written instrument expressly providing for such release or waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Contract, because of any breach hereof, shall be deemed a waiver of any money damages to which the University may be entitled because of such breach. No waiver by the University of any breach of the Contract shall be deemed to be a waiver of any other or any subsequent breach.

Section 4.24 Limitation of Actions

- (1) No action or proceeding shall lie or be maintained by the Contractor, or anyone claiming under or through the Contractor, against the University, or its trustees, officers, agents or employees, upon any claim arising out of or based upon the Contract or any breach thereof or by reason of any act or omission or requirement of the University, or its trustees, officers agents or employees, unless:
- Such action or proceeding is instituted in the Court of Claims for the State of New York;
 - The Contractor or the person claiming under or through it shall have strictly complied with all requirements relating to the giving of notices and information with respect to such claims; and
 - Such action or proceeding shall be commenced within one (1) year after the submission to the University of the final application for payment or, if the claim is based upon monies required to be retained for any period after the date of the final application for payment, such action is commenced within six (6) months after such monies become due and payable under the terms of the Contract; or
 - If the Contract is terminated or the Contractor declared in default by the University, such action is commenced within six (6) months after the date of such termination or declaration of default by the University.
- (2) Notwithstanding anything in the laws of the State of New York to the contrary, the Contractor, or anyone claiming under or through the Contractor, shall not be entitled to any additional time to begin anew any other action if an action commenced within the times herein specified is dismissed or discontinued for any reason whatsoever.

ARTICLE V

Protection of Rights and Property

Section 5.01 Accidents and Accident Prevention

The Contractor shall at all times take reasonable precautions for the safety of persons engaged in the performance of the work. The Contractor shall comply fully with all applicable provisions of the laws of the State of New York, OSHA, and with all valid rules and regulations adopted or promulgated by the agencies of the State of New York pursuant thereto. The Contractor's attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor.

Section 5.02 Adjoining Property

The Contractor shall be required to protect all the adjoining property and to repair or replace any such properties damaged or destroyed by it, its employees or subcontractors through, by reason of or as a result of activities under, for or related to the Contract.

Section 5.03 Emergencies

- (1) In case of an emergency which threatens loss or injury to persons or property, the Contractor will be allowed to act, without previous instructions from the Consultant or the University, in a diligent manner, to the extent required to avoid or limit such loss or injury, and it shall notify the Consultant and the University immediately thereafter of the action taken by it and of such emergency. Where the Contractor has not taken action but has notified the Consultant or the University of an emergency which threatens loss or injury to persons or property, it shall act in accordance with the instructions and/or authorization by the Consultant or the University.
- (2) In the event that the Contractor performs extra work in accordance with the preceding paragraph, it will be compensated therefor in accordance with the provisions of Section 4.02.

Section 5.04 Fire Safety

- (1) In the event that a municipal fire alarm box is not located within 300 feet from the site of the Project, the Contractor will be required to provide at the site of the Project, at a location approved by the Consultant, a private unlisted telephone reserved for fire calls only. The phone must be in addition to regular business phones and a rule prohibiting its use for purposes other than alarm for fire or other emergencies must be strictly enforced. The phone itself should be colored red and be located at a point quickly available to all employees, including watchmen. Clear instructions for the sending of a fire alarm should be conspicuously posted by the phone and all personnel customarily at work near the phone shall be acquainted with the procedure. If such a phone is required, the Contractor, at its sole cost and expense, must provide the same from the time the University first approves the Contract breakdown to be submitted by the Contractor pursuant to the provisions of Section 4.08 up until the time the University accepts all the work covered by the Contract.
- (2) All solid fuel salamanders and U. L. approved heaters used by the Contractor or any of its subcontractors shall be arranged in a standard manner. All other salamanders used by the Contractor or any of its subcontractors shall require constant attendance of competent persons on each floor where in use.
- (3) All temporary fabric used by the Contractor or any of its subcontractors for curtains or awnings shall be either non-combustible or flame retarded so that it will not burn or propagate flame.

Section 5.05 Risks Assumed by Contractor

- (1) The Contractor solely assumes the following distinct several risks whether they arise from acts or omissions (whether negligent or not and whether supervisory or otherwise) of the Contractor, of the University, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the work covered by the Contract, whether such risks are within or beyond the control of the Contractor and whether such risks involve a legal duty, primary or otherwise, imposed upon the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York, excepting only risks which arise from defects in maps, plans, designs or Specifications prepared, acquired or used by the Consultant or the University, from the negligence of the University, its agents or employees or from affirmative acts of the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York or their trustees, officers, agents or employees committed with intent to cause the loss, damage and injuries herein below set forth:
 - a. The risk of loss or damage, direct or indirect, to the work covered by the Contract or to any plant, equipment, tools, materials or property furnished, used, installed or received by the University or by the Contractor or any subcontractor, materialman or worker performing services or furnishing materials for the work covered hereunder.

The Contractor shall bear such risk of loss or damage until the work covered by the Contract has been fully accepted by the University or until completion of removal of such plant, equipment, tools, materials or property from the construction site and the vicinity thereof, whichever event occurs last. In the event of such loss or damage, the Contractor shall forthwith repair, replace and/or make good any such loss or damage without cost to the University.
 - b. The risk of claims, just or unjust, by third persons against the Contractor, the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York, or the State University of New York on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the work covered by the Contract (whether actually caused by or resulting from the performance of the Contract) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site. The Contractor shall bear such risk for all such deaths, injuries, damages or losses sustained or alleged

to have been sustained prior to the final acceptance by the University of all work covered by the Contract. The Contractor shall also bear the risk of claims for wrongful death occurring subsequent to said final acceptance provided such death is caused, contributed to or is a consequence of bodily injuries sustained or alleged to have been sustained prior to said final acceptance.

- (2) The Contractor shall indemnify and save harmless the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees against all claims described above and for all costs and expenses incurred by them in the defense, settlement or satisfaction thereof, including attorneys' fees and court costs. If so directed, the Contractor shall at its own expense defend against such claims, in which event it shall not, without obtaining express advance permission from Counsel of the University, raise any defense involving in any way jurisdiction of the tribunal over the University, governmental nature of the University or the provisions of any statutes respecting suits against the University.
- (3) Neither the University's final acceptance of the work to be performed hereunder nor the making of any payment shall release the Contractor from its obligations under this Section. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which it is responsible shall not be deemed to limit the effect of the provision of this Section or to imply that it assumes or is responsible for only risks or claims of the type enumerated.

Section 5.06 Compensation and Liability Insurance

- (1) The Contractor shall procure and maintain, at its own cost and expense, until final acceptance by the University of all the work covered by this Contract, the following kinds of insurance:

- a. **Workers' Compensation Insurance.**

A policy complying with the requirements of the laws of the State of New York.

- b. **General Liability and Property Damage Insurance.**

A standard general comprehensive liability insurance policy or a commercial general liability insurance policy issued to and covering the liability of the Contractor for all work and operations under this Contract, including, but not limited to, contractual and completed operations coverage. Such policy shall be written by a company licensed or approved as an excess line liability company by the New York State Department of Insurance. The coverage under such policy shall not be less than the following limits:

Bodily Injury and Property Damage Liability
\$ 1,000,000 Each Occurrence
\$ 2,000,000 Aggregate

The aforesaid insurance requirements will be deemed met by the Contractor's procurement and maintenance of either of the aforesaid policies and, in addition thereto, an umbrella policy providing similar coverage; provided, however, that the total amount of insurance coverage is at least equal to the requirements above set forth.

- c. **Automobile Liability and Property Damage Insurance.**

A policy covering the use in connection with the work covered by the Contract Documents of all owned, non-owned and hired vehicles bearing, or, under the circumstances under which they are being used, required by the Motor Vehicle Laws of the State of New York to bear license plates. The coverage under such policy shall not be less than the following limit:

Bodily Injury and Property Damage Liability
\$ 1,000,000 Each Occurrence

- d. **Owner's Protective Liability Insurance.**

A policy issued to and covering the liability for damages imposed by law upon the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, with respect to all operations under the Contract by the Contractor and its subcontractors, and/or their interest in the Project and the property upon which work under the Contract is to be performed, including omissions and supervisory acts of the former. Said insurance shall be in the same amounts as that required under subdivision b above and shall be written by a company licensed or approved as an excess line liability company by the New York State Department of Insurance..

- e. **Asbestos Abatement Insurance.**

A liability insurance policy issued to and covering the liability, of the Contractor and/or subcontractor engaged in the removal, handling or wrapping of asbestos, if any of such work is to be performed under the Contract, for bodily injury, illness, sickness or property damage caused by exposure to asbestos in an amount not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The Contractor and/or its aforesaid subcontractor shall either obtain an endorsement to the aforesaid required insurance policy adding the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, their trustees, officers, agents or employees, as additional parties insured thereunder or shall obtain a separate owner's protective liability insurance policy for such parties with coverage similar to that required by the first sentence of this subdivision. In addition, any Contractor or subcontractor engaged in the removal, handling, or wrapping of asbestos shall hold harmless and indemnify the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, for any claims or liabilities in connection with illness or sickness arising from work performed, not performed, or which should have been performed. The Contractor shall have said hold-harmless and indemnification conditions stipulated in all Contracts with subcontractors.

- (2) The aggregate insurance limit set forth above shall apply separately to each project for which a certificate of insurance and/or policy is issued.
- (3) Before commencing the performance of any work covered by the Contract, the Contractor shall furnish to the University a certificate or certificates in duplicate of the insurance required under the foregoing provisions. Such certificates shall be on a form prescribed by the University, shall list the various coverages and shall contain, in addition to any provisions hereinbefore required, a provision that the policy shall not be changed or canceled and that it will be automatically renewed upon expiration and continued in force until final acceptance by the University of all the work covered by the Contract, unless the University is given fifteen (15) days' written notice to the contrary. Upon request, the Contractor shall furnish the University with a certified copy of each policy. The State University reserves the right to receive a copy of the insurance policy which was based on the Certificate of Insurance issued.
- (4) All insurance required to be procured and maintained as aforesaid must be procured from insurance companies approved by the University and authorized to do business in the State of New York. The State University is to be cited as a named insured on all policies and certificates of insurance and shall be notified if a policy is canceled, terminated or modified.
- (5) If at any time any of the above-required insurance policies should be canceled, terminated or modified so that insurance is not in effect as above required, then, if the University shall so direct, the Contractor shall suspend performance of the work covered in the Contract. If the said work is so suspended, no extension of time shall be due on account thereof. If said work is not suspended, then the University may, at its option, obtain insurance affording coverage equal to that above required, the cost of such insurance to be payable by the Contractor to the University.

Section 5.07 Builder's Risk Insurance

- (1) The Contractor shall procure and maintain, at its own cost and expense, until final acceptance of all work covered by this Contract or until the Project has been turned over for use by the State University of New York, whichever event occurs earlier, a builder's risk insurance policy with fire, extended coverage, vandalism and malicious mischief coverage.
- (2) The policy shall be in an amount equal to the Project's insurable value, i.e., the Contract consideration less the cost of the Contractor's Performance and Labor and Material Bonds; the cost of trees, shrubbery, lawn grass, plants and the maintenance of the same; the cost of demolition; the cost of excavation; the cost of foundations, piers or other supports which are below the undersurface of the lowest basement floor, or where there is no basement, which are below the surface of the ground, concrete and masonry work; the cost of underground flues, pipes or wiring; the cost of earthmoving, grading and the cost of paving, roads, walks, parking lots or athletic fields; and the cost of bridges, tunnels, dams, piers, wharves, docks, retaining walls and radio and/or television towers and antennas.
- (3) The policy may contain a provision for a \$500 deductible for each loss to a Project having an insurable value of less than \$1,500,000 and a \$1,000 deductible for each loss to a Project having an insurable value of \$1,500,000 or more.
- (4) The University, the Contractor and its subcontractors, as their interests may appear, will be named as the parties insured under said policy.
- (5) The Contractor shall have the sole responsibility to promptly report any loss to the insurer and/or its representatives and to furnish the latter with all necessary details relating to the occurrence of the loss and the amount thereof. The University, the Contractor and all subcontractors of the Contractor waive all rights, each against the others, for damages caused by fire or other perils covered by insurance provided under the terms of this Section, except such rights as they may have to the proceeds of insurance received; provided, however, this waiver shall not apply to any manufacturer, supplier or similar agent under any guarantee or warranty.
- (6) The Contractor shall not violate or permit to be violated any condition of such policy and shall at all times satisfy the fire safety requirements of the University and the insurance company issuing the same.
- (7) The procurement and maintenance of said policy shall in no way be construed or be deemed to relieve the Contractor from any of the obligations and risks imposed upon it by this Contract or to be a limitation on the nature or extent of such obligations and risks.
- (8) Such policy shall contain a provision that it shall not be changed or canceled and that it will be automatically renewed upon expiration and continue in force until final acceptance by the University of all the work covered by the Contract, unless the University is given fifteen (15) days' written notice to the contrary. Before the Contractor shall be entitled to have any progress payment rendered on account of the work which is to be insured pursuant to this Section, it shall furnish to the University a certificate in duplicate of the insurance herein required. Such insurance must be procured from an insurance company approved by the University and authorized to do business in the State of New York.

Section 5.08 Effect of Procurement of Insurance

Neither the procurement nor the maintenance of any type of insurance by the University or the Contractor shall in any way be construed or be deemed to limit, discharge, waive or release the Contractor from any of the obligations and risks imposed upon it by the Contract or to be a limitation on the nature or extent of such obligations and risks.

Section 5.09 No Third Party Rights

Nothing in the Contract shall create or give to third parties, except the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York and the State University of New York, any claim or right of action against the Contractor, the Consultant, the State University Construction Fund, the Dormitory Authority of the State of New York, the State of New York or the State University of New York beyond such as may legally exist irrespective of the Contract.

ARTICLE VI

Affirmative Action

The State University's requirements for affirmative action are set forth in "Exhibit A-1" which is attached hereto and made a part hereof, and shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein and, in the event any such provision is not inserted or is not correctly inserted, then, upon the application of either party, this Contract shall forthwith be physically amended to make such insertion or correction.

ARTICLE VII

Provisions Required by Law

Section 7.01 Provisions Deemed Inserted

Each and every provision required by law to be inserted in the Contract, including, but not limited to, the provisions set forth in Exhibit "A" which is attached hereto and made a part hereof, shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein and, in the event any such provision is not inserted or is not correctly inserted, then, upon the application of either party, this Contract shall forthwith be physically amended to make such insertion or correction.

Section 7.02 Entire Agreement

This Agreement consists of 1) the IFB; 2) the contractor's proposal; and 3) Exhibits A and A-1. This Agreement supersedes all previous understandings and agreements with respect to the Project or any provisions thereof. No statement, promise, condition, understanding, inducement, or representation, oral or written, expressed or implied, which is not contained herein, shall be binding or valid and this Agreement shall not be changed, modified or altered in any manner except by an instrument in writing executed by the parties hereto.

Section 7.03 Hierarchy of Precedent

In the event of controversy regarding the provisions of this Agreement, the terms of Exhibit A and A-1 shall take precedent followed by this Agreement, the IFB and the contractor's proposal.

Section 7.04 Wage Rates

The Contractor shall post the appropriate prevailing wage schedules in a conspicuous place at the construction site. The Department of Labor shall provide the Contractor with posters relating to prevailing wage rates and the same shall be displayed by the Contractor in a conspicuous place at the construction site. The Contractor shall also distribute wallet cards, to be provided by the Department of Labor, to all workers engaged at the construction site containing information relating to wage rates and telephone numbers to call if a worker believes his or her rights are being violated. The Contractor shall provide each worker with a written notice, informing them of the applicable prevailing wage requirements, and the Contractor must obtain a signed statement or declaration from such worker attesting to the fact that he or she has been given this information. Further, the Contractor is required to keep certified copies of its payrolls at the construction site.

Section 7.05 Contractor Responsibility

Purchase College, State University of New York has undertaken an affirmative review of the proposed Contractor's responsibility in accordance with the standards outlined in Comptroller's Bulletin G-221, and based upon such review, has reasonable assurance that the proposed Contractor is responsible.

Agency Certification: "In addition to the acceptance of this Contract, it is certified that an originally executed copy of this signature page will be attached to an exact copy of the Contract Documents, and forwarded to the Contractor".

STATE UNIVERSITY OF NEW YORK

By: _____ Date ____/____/____ Agency Code **28260**
(campus official)

CONTRACTOR

(If Corporation, Affix Seal)

By: _____ Date ____/____/____

(If Corporation, Affix Seal)

Approved as to Form:

ATTORNEY GENERAL OF THE STATE OF NEW YORK

By: _____ Date ____/____/____

COMPTROLLER OF THE STATE OF NEW YORK

By: _____ Date ____/____/____

ACKNOWLEDGMENTS
(ACKNOWLEDGMENT BY AN INDIVIDUAL)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 199_____, before me personally came _____

_____, to me known and known to me to be the person(s) described in and who executed the foregoing instrument and he/she acknowledged to me that he/she executed the same.

Notary Public

(ACKNOWLEDGMENT BY A PARTNERSHIP)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 199_____, before me personally came _____

_____, to me known and known to me to be the person who executed the above instrument,

who, being duly sworn by me, did for themselves depose and say that they are a member of the firm of _____

_____, consisting of themselves and _____

_____, that he/she executed the foregoing instrument in the firm name _____

_____, and that he/she had authority to sign the same, and that he/she did duly acknowledge to me that he/she executed the same as the act and deed of the aforementioned firm for the purposes mentioned therein.

Notary Public

(ACKNOWLEDGMENT BY A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 199_____, before me personally came _____

_____, to me known, who, being duly sworn, did depose and say that he/she reside in _____

_____; that he/she is the _____

of the _____, the corporation described in and which executed the foregoing instrument; that he/she knows the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was affixed by the order of the Board of Directors of said corporation, and that he/she signed their name thereto by like order.

Notary Public

SCHEDULE I

The following Unit Prices shall be the basis for calculating the amount to be added and/or deducted to the Allowances in accordance with Section 4.05 and for any additional work authorized by Change Order. Unit prices shall include all labor, materials, profit, overhead and expenses necessary to complete the work.

UNIT PRICES

<u>Description of Unit Price</u>	<u>Amount of Unit Price</u>
NOT USED	

The total bid includes the following Allowances that shall be added to the total Bid Price:

ALLOWANCES

<u>Description of Allowance</u>	<u>Amount of Allowance (Price)</u>
NOT USED	

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a Contractor, licensor, licensee, lessor, lessee or any other party):

1. **EXECUTORY CLAUSE.** In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. **PROHIBITION AGAINST ASSIGNMENT**
Except for the assignment of its right to receive payments subject to Article 5-A of the State Finance Law, the Contractor selected to perform the services herein are prohibited in accordance with Section 138 of the State Finance Law from assigning, transferring, conveying, subletting or otherwise disposing of its rights, title or interest in the contract without the prior written consent of SUNY and attempts to do so are null and void. Notwithstanding the foregoing, SUNY may, with the concurrence of the New York Office of State Comptroller, waive prior written consent of the assignment, transfer, conveyance, sublease or other disposition of a contract let pursuant to Article XI of the State Finance Law if the assignment, transfer, conveyance, sublease or other disposition is due to a reorganization, merger or consolidation of Contractor's its business entity or enterprise and Contractor so certifies to SUNY. SUNY retains the right, as provided in Section 138 of the State Finance Law, to accept or reject an assignment, transfer, conveyance, sublease or other disposition of the contract, and to require that any Contractor demonstrate its responsibility to do business with SUNY.

3. **COMPTROLLER'S APPROVAL.** (a) In accordance with Section 112 of the State Finance Law, Section 355 of New York State Education Law, and 8 NYCRR 316, Comptroller's approval is not required for the following contracts: (i) materials; (ii) equipment and supplies, including computer equipment; (iii) motor vehicles; (iv) construction; (v) construction-related services; (vi) printing; and (vii) goods for State University health care facilities, including contracts for goods made with joint or group purchasing arrangements.

(b) Comptroller's approval is required for the following contracts: (i) contracts for services not listed in Paragraph (3)(a) above made by a State University campus or health care facility certified by the Vice Chancellor and Chief Financial Officer, if the contract value exceeds \$250,000; (ii) contracts for services not listed in Paragraph (3)(a) above made by a State University campus not certified by the Vice Chancellor and Chief Financial Officer, if the contract value exceeds \$50,000; (iii) contracts for services not listed in Paragraph (3)(a) above made by health care facilities not certified by the Vice Chancellor and Chief Financial Officer, if the contract value exceeds \$75,000; (iv) contracts whereby the State University agrees to give something other than money, when the value or reasonably estimated value of such consideration exceeds \$10,000; (v) contracts for real property transactions if the contract value exceeds \$50,000; (vi) all other contracts not listed in Paragraph 3(a) above, if the contract value exceeds \$50,000, e.g. SUNY acquisition of a business and New York State Finance Article 11-B contracts and (vii) amendments for any amount to contracts not listed in Paragraph (3)(a) above, when as so amended, the contract exceeds the threshold amounts stated in Paragraph (b) herein. However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.

(c) Any contract that requires Comptroller approval shall not be valid, effective or binding

upon the State University until it has been approved by the Comptroller and filed in the Comptroller's office.

4. **WORKERS' COMPENSATION BENEFITS.** In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

5. **NON-DISCRIMINATION REQUIREMENTS.**
To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation

6. **WAGE AND HOURS PROVISIONS.** If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by SUNY of any SUNY-approved sums due and owing for work done upon the project.

7. **NON-COLLUSIVE BIDDING CERTIFICATION.**
In accordance with Section 139-d of the State

Finance Law, if this contract was awarded based on the submission of competitive bids, Contractor affirms, under penalty of perjury, and each person signing on behalf of Contractor, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered it to SUNY a non-collusive bidding certification on Contractor's behalf.

8. **INTERNATIONAL BOYCOTT PROHIBITION.**
In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 *et seq.*) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR 105.4).

9. **SET-OFF RIGHTS.** The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State, its representatives, or the State Comptroller.

10. **RECORDS.** The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as SUNY and its representatives and entities involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. SUNY shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that:

(i) the Contractor shall timely inform an appropriate SUNY official, in writing, that said Records should not be disclosed; and (ii) said Records shall be sufficiently identified; and (iii) designation of said Records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, SUNY's or the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.

Identification Number(s). Every invoice or New York State Claim for Payment submitted to the State University of New York by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State University of New York is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the State University of New York contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.

(a) In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(1) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, and will undertake or continue existing programs of affirmative action to ensure that minority group members and women

are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(2) At SUNY's request, Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

(3) Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

(b) Contractor will include the provisions of "1", "2" and "3", above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a Contractor or sub-contractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. SUNY shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, SUNY shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

13. **CONFLICTING TERMS.** In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Exhibit A, the terms of this Exhibit A shall control.

14. **GOVERNING LAW.** This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. **LATE PAYMENT.** Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. **NO ARBITRATION.** Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized) but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. **SERVICE OF PROCESS.** In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. **PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS.** The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of State Finance Law §165 (Use of Tropical Hardwoods), which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State. In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in Section 165 of the State Finance Law. Any such use must meet with the approval of the State, otherwise, the bid may not be considered responsive. Under bidder certification, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. **MacBRIDE FAIR EMPLOYMENT PRINCIPLES.** In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that Contractor and any individual or legal entity in which the Contractor holds a ten percent or greater ownership interest and any individual or legal entity that holds a ten percent or greater ownership interest in the Contractor either (a) have no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165(5) of the State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. **OMNIBUS PROCUREMENT ACT OF 1992.** It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
30 South Pearl St., 7th Floor
Albany, NY 12245
Tel: 518-292-5100
Fax: 518-292-5884
email: opa@esd.ny.gov

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue
New York, NY 10017
212-803-2414

email: mwbecertification@esd.ny.gov
<http://esd.ny.gov/MWBE/directorySearch.html>

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to SUNY;

(b) The Contractor has complied with the

Federal Equal Employment Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Search Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The contractor agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Contractor acknowledges notice that SUNY may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with SUNY in these efforts.

21. RECIPROCITY AND SANCTIONS

PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act of 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. Contact the NYS Department of Economic Development, Division for Small Business, 30 South Pearl Street, Albany, New York 12245, for a current list of jurisdictions subject to this provision.

22. COMPLIANCE WITH NEW YORK STATE

THE FOLLOWING PROVISIONS SHALL APPLY ONLY TO THOSE CONTRACTS TO WHICH A HOSPITAL OR OTHER HEALTH SERVICE FACILITY IS A PARTY

27. Notwithstanding any other provision in this contract, the hospital or other health service facility remains responsible for insuring that any service provided pursuant to this contract complies with all pertinent provisions of Federal, state and local statutes, rules and regulations. In the foregoing sentence, the word "service" shall be construed to refer to the health care service rendered by the hospital or other health service facility.

28. (a) In accordance with the 1980 Omnibus Reconciliation Act (Public Law 96-499), Contractor hereby agrees that until the expiration of four years after the furnishing of services under this agreement, Contractor shall make available upon written request to the Secretary of Health and Human Services, or upon request, to the Comptroller General of the United States or any of their duly authorized representatives, copies of this contract, books, documents and records of the Contractor that are necessary to certify the nature and extent of the costs hereunder.

(b) If Contractor carries out any of the duties of the contract hereunder, through a subcontract having a value or cost of \$10,000 or more over a twelve-month period, such subcontract shall contain a clause to the effect that, until the expiration of four years after the furnishing of such services pursuant to such subcontract, the subcontractor shall make available upon written request to the Secretary of Health and Human Services or upon request to the Comptroller General of the United States, or any of their duly authorized representatives, copies of the subcontract and books, documents and records of the subcontractor that are necessary to verify the nature and extent of the costs of such subcontract.

(c) The provisions of this section shall apply only to such contracts as are within the definition established by the Health Care Financing Administration, as may be amended or modified from time to time.

INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental health and mental health services, accounting, auditing, paralegal, legal or similar services, then in accordance with Section 163(4-g) of the State Finance Law, the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to SUNY, the Department of Civil Service and the State Comptroller.

24. PURCHASES OF APPAREL AND SPORTS EQUIPMENT. In accordance with State Finance Law Section 165(7), SUNY may determine that a bidder on a contract for the purchase of apparel or sports equipment is not a responsible bidder as defined in State Finance Law Section 163 based on (a) the labor standards applicable to the manufacture of the apparel or sports equipment, including employee compensation, working conditions, employee rights to form unions and the use of child labor; or (b) bidder's failure to provide information sufficient for SUNY to determine the labor conditions

applicable to the manufacture of the apparel or sports equipment.

25. PROCUREMENT LOBBYING. To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

26. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS. To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the Contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or SUNY discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if SUNY determines that such action is in the best interests of the State.

1. DEFINITIONS. The following terms shall be defined in accordance with Section 310 of the Executive Law:

STATE CONTRACT herein referred to as "State Contract", shall mean: (a) a written agreement or purchase order instrument, providing for a total expenditure in excess of twenty-five thousand dollars (\$25,000.00), whereby the State University of New York ("University") is committed to expend or does expend funds in return for labor, services including but not limited to legal, financial and other professional services, supplies, equipment, materials or a combination of the foregoing, to be performed for, or rendered or furnished to the University; (b) a written agreement in excess of one hundred thousand dollars (\$100,000.00) whereby the University is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; and (c) a written agreement in excess of one hundred thousand dollars (\$100,000.00) whereby the University as an owner of a state assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project.

SUBCONTRACT herein referred to as "Subcontract", shall mean any agreement for a total expenditure in excess of \$25,000 providing for services, including non-staffing expenditures, supplies or materials of any kind between a State agency and a prime contractor, in which a portion of the prime contractor's obligation under the State contract is undertaken or assumed by a business enterprise not controlled by the prime contractor.

WOMEN-OWNED BUSINESS ENTERPRISE herein referred to as "WBE", shall mean a business enterprise, including a sole proprietorship, partnership or corporation that is: (a) at least fifty-one percent (51%) owned by one or more United States citizens or permanent resident aliens who are women; (b) an enterprise in which the ownership interest of such women is real, substantial and continuing; (c) an enterprise in which such women ownership has and exercises the authority to control independently the day-to-day business decisions of the enterprise; (d) an enterprise authorized to do business in this state and independently owned and operated; (e) an enterprise owned by an individual or individuals, whose ownership, control and operation are relied upon for certification, with a personal net worth that does not exceed three million five hundred thousand dollars (\$3,500,000), as adjusted annually on the first of January for inflation according to the consumer price index of the previous year; and (f) an enterprise that is a small business pursuant to subdivision twenty of this section.

A firm owned by a minority group member who is also a woman may be certified as a minority-owned business enterprise, a

women-owned business enterprise, or both, and may be counted towards either a minority-owned business enterprise goal or a women-owned business enterprise goal, in regard to any Contract or any goal, set by an agency or authority, but such participation may not be counted towards both such goals. Such an enterprise's participation in a Contract may not be divided between the minority-owned business enterprise goal and the women-owned business enterprise goal.

MINORITY-OWNED BUSINESS ENTERPRISE herein referred to as "MBE", shall mean a business enterprise, including a sole proprietorship, partnership or corporation that is: (a) at least fifty-one percent (51%) owned by one or more minority group members; (b) an enterprise in which such minority ownership is real, substantial and continuing; (c) an enterprise in which such minority ownership has and exercises the authority to control independently the day-to-day business decisions of the enterprise; (d) an enterprise authorized to do business in this state and independently owned and operated; (e) an enterprise owned by an individual or individuals, whose ownership, control and operation are relied upon for certification, with a personal net worth that does not exceed three million five hundred thousand dollars (\$3,500,000.00), as adjusted annually on the first of January for inflation according to the consumer price index of the previous year; and (f) an enterprise that is a small business pursuant to subdivision twenty of this section.

MINORITY GROUP MEMBER shall mean a United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups: (a) Black persons having origins in any of the Black African racial groups; (b) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American of either Indian or Hispanic origin, regardless of race; (c) Native American or Alaskan native persons having origins in any of the original peoples of North America. (d) Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian Subcontinent or Pacific Islands.

CERTIFIED ENTERPRISE OR BUSINESS shall mean a business verified as a minority or women-owned business enterprise pursuant to section 314 of the Executive Law. A business enterprise which has been approved by the New York Division of Minority & Women Business Development ("DMWBD") for minority or women-owned enterprise status subsequent to verification that the business enterprise is owned, operated, and controlled by minority group members or women, and that also meets the financial requirements set forth in the regulations.

2. TERMS. The parties to the attached State Contract agree to be bound by the following provisions which are made a part hereof (the word "Contractor" herein refers to any party other than the University:

1(a) Contractor and its Subcontractors shall undertake or continue existing programs of affirmative action to ensure that minority group

members and women are afforded equal employment opportunities without discrimination. For these purposes, affirmative action shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

(b) Prior to the award of a State Contract, the Contractor shall submit an equal employment opportunity (EEO) policy statement to the University within the time frame established by the University.

(c) As part of the Contractor's EEO policy statement, the Contractor, as a precondition to entering into a valid and binding State Contract, shall agree to the following in the performance of the State Contract: (i) The Contractor will not discriminate against any employee or applicant for employment, will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State Contracts; (ii) The Contractor shall state in all solicitations or advertisements for employees that, in the performance of the State Contract, all qualified applicants will be afforded equal employment opportunities without discrimination; (iii) At the request of the University the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate, and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

(d) Except for construction contracts, prior to an award of a State Contract, the Contractor shall submit to the contracting agency a staffing plan of the anticipated work force to be utilized on the State Contract or, where required, information on the Contractor's total work force, including apprentices, broken down by specified ethnic background, gender, and Federal occupational categories or other appropriate categories specified by the contracting agency. The form of the staffing plan shall be supplied by the contracting agency. If Contractor fails to provide a staffing plan, or in the alternative, a description of its entire work force, the University may reject Contractor's bid, unless Contractor either commits to provide such information at a later date or provides a reasonable justification in writing for its failure to provide the same.

(e) After an award of a State Contract, the Contractor shall submit to the University a workforce utilization report, in a form and manner required by the agency, of the work force actually utilized on the State Contract, broken down by specified ethnic background, gender, and Federal occupational categories or other appropriate categories specified by the University.

(f) The Contractor shall include the provisions of this section in every Subcontract

in such a manner that the requirements of the provisions will be binding upon each Subcontractor as to work in connection with the State Contract, including the requirement that Subcontractors shall undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and, when requested, provide to the Contractor information on the ethnic background, gender, and Federal occupational categories of the employees to be utilized on the State Contract.

(g) To ensure compliance with the requirements of this paragraph, the University shall inquire of a Contractor whether the work force to be utilized in the performance of the State Contract can be separated out from the Contractor's and/or Subcontractors' total work force and where the work of the State Contract is to be performed. For Contractors who are unable to separate the portion of their work force which will be utilized for the performance of this State Contract, Contractor shall provide reports describing its entire work force by the specified ethnic background, gender, and Federal Occupational Categories, or other appropriate categories which the agency may specify.

(h) The University may require the Contractor and any Subcontractor to submit compliance reports, pursuant to the regulations relating to their operations and implementation of their affirmative action or equal employment opportunity program in effect as of the date the State Contract is executed.

(i) If a Contractor or Subcontractor does not have an existing affirmative action program, the University may provide to the Contractor or Subcontractor a model plan of an affirmative action program. Upon request, the Director of DMWBD shall provide a contracting agency with a model plan of an affirmative action program.

(j) Upon request, DMWBD shall provide the University with information on specific recruitment sources for minority group members and woman, and contracting agencies shall make such information available to Contractors

2. Contractor must provide the names, addresses and federal identification numbers of certified minority- and women-owned business enterprises which the Contractor intends to use to perform the State Contract and a description of the Contract scope of work which the Contractor intends to structure to increase the participation by Certified minority- and/or women-owned business enterprises on the State Contract, and the estimated or, if known, actual dollar amounts to be paid to and performance dates of each component of a State Contract which the Contractor intends to be performed by a certified minority- or woman-owned business enterprise. In the event the Contractor responding to University solicitation is joint venture, teaming agreement, or other similar arrangement that includes a minority- and women owned business enterprise, the Contractor must submit for review and approval: i. the name, address, telephone number and federal identification of each partner or party to the agreement; ii. the federal identification number of the joint venture or entity established to respond to the solicitation, if applicable; iii. A copy of the joint venture, teaming or other similar arrangement which describes the percentage of interest owned by each party to the agreement and the

value added by each party; iv. A copy of the mentor-protégé agreement between the parties, if applicable, and if not described in the joint venture, teaming agreement, or other similar arrangement.

3. PARTICIPATION BY MINORITY GROUP MEMBERS AND WOMEN. The University shall determine whether Contractor has made conscientious and active efforts to employ and utilize minority group members and women to perform this State Contract based upon an analysis of the following factors:

(a) Whether Contractor established and maintained a current list of recruitment sources for minority group members and women, and whether Contractor provided written notification to such recruitment sources that contractor had employment opportunities at the time such opportunities became available.

(b) Whether Contractor sent letters to recruiting sources, labor unions, or authorized representatives of workers with which contractor has a collective bargaining or other agreement or understanding requesting assistance in locating minority group members and women for employment.

(c) Whether Contractor disseminated its EEO policy by including it in any advertising in the news media, and in particular, in minority and women news media.

(d) Whether Contractor has attempted to provide information concerning its EEO policy to Subcontractors with which it does business or had anticipated doing business.

(e) Whether internal procedures exist for, at a minimum, annual dissemination of the EEO policy to employees, specifically to employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions. Such dissemination may occur through distribution of employee policy manuals and handbooks, annual reports, staff meetings and public postings.

(f) Whether Contractor encourages and utilizes minority group members and women employees to assist in recruiting other employees.

(g) Whether Contractor has apprentice training programs approved by the N.Y.S. Department of Labor which provides for training and hiring of minority group members and women.

(h) Whether the terms of this section have been incorporated into each Subcontract which is entered into by the Contractor.

4. PARTICIPATION BY MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES. Based upon an analysis of the following factors, the University shall determine whether Contractor has made good faith efforts to provide for meaningful participation by minority-owned and women-owned business enterprises which have been certified by DMWBD:

(a) Whether Contractor has actively solicited bids for Subcontracts from qualified M/WBEs, including those firms listed on the Directory of Certified Minority and Women-Owned Business Enterprises, and has documented its good faith efforts towards meeting minority and women owned business enterprise utilization plans by providing, copies of solicitations, copies of any advertisements for participation by certified minority- and women-owned business enterprises timely published in appropriate

general circulation, trade and minority- or women-oriented publications, together with the listing(s) and date(s) of the publications of such advertisements; dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by the University, with certified minority- and women-owned business enterprises, and the reasons why any such firm was not selected to participate on the project.

(b) Whether Contractor has attempted to make project plans and specifications available to firms who are not members of associations with plan rooms and reduce fees for firms who are disadvantaged.

(c) Whether Contractor has utilized the services of organizations which provide technical assistance in connection with M/WBE participation.

(d) Whether Contractor has structured its Subcontracts so that opportunities exist to complete smaller portions of work.

(e) Whether Contractor has encouraged the formation of joint ventures, partnerships, or other similar arrangements among Subcontractors.

(f) Whether Contractor has requested the services of the Department of Economic Development (DED) to assist Subcontractors' efforts to satisfy bonding requirement.

(g) Whether Contractor has made progress payments promptly to its Subcontractors.

(h) Whether the terms of this section have been incorporated into each Subcontract which is entered into by the Contractor. It shall be the responsibility of Contractor to ensure compliance by every Subcontractor with these provisions.

5. GOALS. (a) GOALS FOR MINORITY AND WOMEN WORK FORCE PARTICIPATION.

(i) The University shall include relevant work force availability data, which is provided by the DMWBD, in all documents which solicit bids for State Contracts and shall make efforts to assist Contractors in utilizing such data to determine expected levels of participation for minority group members and women on State Contracts.

(ii) Contractor shall exert good faith efforts to achieve such goals for minority and women's participation. To successfully achieve such goals, the employment of minority group members and women by Contractor must be substantially uniform during the entire term of this State Contract. In addition, Contractor should not participate in the transfer of employees from one employer or project to another for the sole purpose of achieving goals for minority and women's participation.

(b) GOALS FOR MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES PARTICIPATION. For all State Contracts in excess of \$25,000.00 whereby the University is committed to expend or does expend funds in return for labor, services including but not limited to legal, financial and other professional services, supplies, equipment, materials or an combination of the foregoing or all State Contracts in excess of \$100,000.00 whereby the University is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon, Contractor shall exert good faith efforts to

achieve a participation goal of 16 percent (10%) for Certified Minority-Owned Business Enterprises and _____ percent (6%) for Certified Women-Owned Business Enterprises.

6. ENFORCEMENT. The University will be responsible for enforcement of each Contractor's compliance with these provisions. Contractor, and each Subcontractor, shall permit the University access to its books, records and accounts for the purpose of investigating and determining whether Contractor or Subcontractor is in compliance with the requirements of Article 15-A of the Executive Law. If the University determines that a Contractor or Subcontractor may not be in compliance with these provisions, the University may make every reasonable effort to resolve the issue and assist the Contractor or Subcontractor in its efforts to comply with these provisions. If the University is unable to

resolve the issue of noncompliance, the University may file a complaint with the DMWBD.

7. DAMAGES FOR NON COMPLIANCE.

Where the University determines that Contractor is not in compliance with the requirements of the Contract and Contractor refuses to comply with such requirements, or if Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, Contractor shall be obligated to pay to liquidated damages to the University. Such liquidated damages shall be calculated as an amount equaling the difference between:

a. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and

b. All sums actually paid to MWBEs for work performed or materials supplied under the Contract.

In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the University, Contractor shall pay such liquidated damages to the University within sixty (60) days after such damages are assessed, unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to Subdivision 8 of Section 313 of the Executive Law in which event the liquidated damages shall be payable if Director renders a decision in favor of the University.



STATE UNIVERSITY OF NEW YORK LABOR AND MATERIAL BOND

KNOW ALL PERSONS BY THESE PRESENTS, that _____

(hereinafter called the "Principal") and _____

(hereinafter called the "Surety") are held and firmly bound to the State University of New York (hereinafter called the "University") in the full and just sum of:

_____ dollars (\$ _____)
(in words) (in figures)

good and lawful money of the United States of America, for the payment of which sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract bearing date on the _____ day of _____, 19____, with the "University" for the work contained in Project No. _____, a copy of which Contract is annexed to and hereby made a part of this Bond as though herein set forth in full; and

WHEREAS, the "University" has required this Bond guaranteeing prompt payment of monies due to all persons furnishing the Principal or any subcontractor of the Principal with labor or materials in the prosecution of the work provided in such Contract;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall promptly pay all monies due to all persons furnishing the Principal or any subcontractor of the Principal with labor or materials in the prosecution of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, the said Surety, for value received, hereby stipulates and agrees that no change, extension, alteration or addition to the terms of the said Contract or Specifications accompanying the same, shall in any way affect its obligations under this Bond, and it does hereby waive notice of any such change, extension, alteration or addition; and further.

PROVIDED, HOWEVER, the place of trial of any action on this Bond shall be in the county in which the said Contract was to be performed, or if said Contract was to be performed in more than one county, then in any such county, and not elsewhere; and further

PROVIDED, HOWEVER, this Bond shall be enforceable in accordance with the terms and provisions of Section 137 of the State Finance Law.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its attorney-in-fact and its corporate seal to be hereto affixed this _____ day of _____, 19____

Principal By _____
If Corporation,
affix Corporate
Seal

Surety By _____
If Corporation,
affix Corporate
Seal



STATE UNIVERSITY OF NEW YORK PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that _____

(hereinafter called the "Principal") and _____

(hereinafter called the "Surety") are held and firmly bound to the State University of New York (hereinafter called the "University") in the full and just sum of:

_____ dollars (\$ _____)
(in words) (in figures)

good and lawful money of the United States of America, for the payment of which sum of money, well and truly to be made and done, the Principal binds itself, its heirs, executors, administrators, successors and assigns and the Surety binds itself, its successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract bearing date on the _____ day of _____, 19_____, with the "University" for the work contained in Project No. _____, a copy of which Contract is annexed to and hereby made a part of this Bond as though herein set forth in full; and

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, its representatives or assigns, shall well and faithfully comply with and perform all the terms, covenants and conditions of said Contract on its part to be kept and performed and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to the true intent and meaning of said Contract, including repair and/or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the "University" from all cost and damage which it may suffer by reason of failure to do so, and shall fully reimburse and repay the "University" for all outlay and expense which the "University" may incur in making good any such default, and shall protect the said "University" against, and pay any and all amounts, damages, costs and judgments which may or shall be recovered against said "University" or its trustees, officers, agents or employees or which the said "University" may be called upon to pay to any person or corporation by reason of any damages arising or growing out of the doing of said work, or the repair of maintenance thereof, or the manner of doing the same, or the neglect of the said Principal, or its agents, or the improper performance of the said work by the said Principal, or its agents, or the infringement of any patent or patent rights by reason of the use of any materials furnished or work done as aforesaid or otherwise, then this obligation shall be null and void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, the said Surety, for value received, hereby stipulates and agrees, if requested to do so by the "University," to fully perform and complete the work mentioned and described in said Contract, pursuant to the terms, conditions, and covenants thereof, if for any cause the Principal fails or neglects to so fully perform and complete such work and the Surety further agrees to commence such work of completion within ten (10) calendar days after written notice thereof from the "University" and to complete such work within ten (10) calendar days from the expiration of the time allowed the Principal in the Contract for the completion thereof; and further

PROVIDED, HOWEVER, the Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety and its Bond shall be in no way impaired or affected by an extension of time, modification, omission, addition, or change in or to the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer of any work to be performed or any monies due or to become due thereunder or by the "University's" takeover, use, occupancy or operation of any part or all of the work covered by the Contract; and said Surety does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, transfers, takeovers, uses, occupancies or operations, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by or in relation to said Principal.

IN WITNESS WHEREOF, the Principal has hereunto set its hand and seal and the Surety has caused this instrument to be signed by its attorney-in-fact and its corporate seal to be hereto affixed this _____ day of _____, 19_____

Principal By _____
If Corporation,
affix Corporate
Seal

Surety By _____
If Corporation,
affix Corporate
Seal

ACKNOWLEDGMENTS FOR LABOR AND MATERIAL BOND AND PERFORMANCE BOND

(Acknowledgment by Principal, unless it be a Corporation)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 19 _____, before me personally came _____

_____, to me known and known to me to be the person(s) described
in and who executed the foregoing instruments and acknowledged that he / she executed the same.

Notary Public

(Acknowledgment by Principal, if a Corporation)

STATE OF NEW YORK)
) ss.:
COUNTY OF)

On this _____ day of _____, 19 _____, before me personally came _____

_____, to me known, who, being duly sworn, did depose

and say that he / she resides in _____;

that he / she is the _____

of the _____,
the corporation described in and which executed the foregoing instruments; that he / she knows the seal of said
corporation; that the seal affixed to said instruments is such corporate seal; that it was so affixed by order of the Board of
Directors of said corporation and that he / she signed their name thereto by like order.

Notary Public

(Acknowledgment by Surety Company)

STATE OF)
) ss.:
COUNTY OF)

On this _____ day of _____, 19 _____, before me personally came _____

_____, to me known, who, being by me duly sworn, did depose

and say that he / she resides in _____;

that he / she is the _____

of the _____,
the corporation described in and which executed the foregoing instruments; that he / she knows the seal of said
corporation; that the seal affixed to said instruments is such corporate seal; that it was so affixed by the order of the
Board of Directors of said corporation, and that he / she signed their name thereto by like order; and that the liabilities of
said company do not exceed its assets as ascertained in the manner provided by the laws of the State of New York.

Notary Public

FORM B
Affirmation with respect to State Finance Law §§139-j and 139-k

A complete copy of the State University of New York Procurement Lobbying Policy and Procedure is available for review at www.suny.edu/sunypp/.

Procurement Description/ID No.

Offerer **AFFIRMS** that it has reviewed and understands the Policy and Procedure of the State University of New York, relating to State Finance Law §§139-j and 139-k, and agrees to comply with State University's procedure relating to Contacts with respect to this procurement.

Name of Offerer:
Address:
Person Submitting Form:
Name:
Title:

FORM C
Disclosure and Certification with respect to State Finance Law §§139-j and 139-k

Procurement Description/ID No. _____

1. Has a Governmental Entity, as defined in State Finance Law §139-j(1)(a), made a determination of non-responsibility with respect to the Offerer within the previous four years where such finding was due to a violation of State Finance Law §139-j or the intentional provision of false or incomplete information with respect to previous determinations of non-responsibility?

No ____
Yes ____

If yes, provide the following details:
Governmental Entity which made the finding:
Date of finding:
Basis of finding:

2. Has a Governmental Entity terminated or withheld a procurement contract with the Offer because of violations of State Finance Law §139-j or the intentional provision of false or incomplete information with respect to previous determinations of non-responsibility?

No ____
Yes ____

If yes, identify the following:
Governmental Entity which terminated the contract:
Date of contract termination or withholding:
Identify the related procurement contract:

Offerer **CERTIFIES** that all information provided by Offerer with respect to its compliance with State Finance Law §§139-j and 139-k is complete, true and accurate.

Name of Offerer:

Address:

Signature of Person Submitting Form: _____
Name:
Title:
Date:

Contractor:

Contractor's:

- ◆ Vendor Responsibility Construction Questionnaire
- ◆ Financial Statement
- ◆ Affidavit of No Change

State of New York / State University of New York

**NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
CONSTRUCTION**

For any competitively bid construction contract of \$100,000 or more, or when proposed for subcontract work valued at \$100,000 or more, complete and submit the appropriate Office of the State Comptroller's Vendor Responsibility Questionnaire:

http://www.osc.state.ny.us/vendrep/forms_vendor.htm:

- For-Profit Construction (CCA-2) Questionnaire
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3290s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3291s.doc>
 - Attachment A: Completed Construction Contracts
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.doc>
 - Attachment B: Uncompleted Construction Contracts
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.doc>
 - Attachment C: Financial Information
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.pdf>
MS Excel Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.xls>
- Not-for-Profit Construction Questionnaire
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3293s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3293s.doc>
 - Attachment A: Completed Construction Contracts
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.doc>
 - Attachment B: Uncompleted Construction Contracts
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.pdf>
MS Word Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.doc>
 - Attachment C: Financial Information
PDF Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.pdf>
MS Excel Version: <http://www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.xls>

All questions must be answered. Whenever more space is needed to answer any question, or you wish to give further explanation, attach additional pages.

If you have submitted one of the above forms within 12 months of the bid date with any contracting agency, as long as the information remains unchanged and accurate, you may submit a complete certified copy of the form, together with an Affidavit of No Change (see page 4 of 4 of this form), to the State University of New York campus with which you are bidding. A campus may require additional information deemed necessary for its review.

A link to the Financial Statement forms is provided above. For your convenience there is also a Financial Statement form in word format on pages 2 and 3 of this document.

Note, for construction related consultant projects the non-construction forms located on the [OSC website](#) should be used for Vendor Responsibility.

Note that your response to Form UF-15 must contain two parts:

1. Either one of the Vendor Responsibility Questionnaires indicated above, or an Affidavit of No Change
2. The Financial Statement

FINANCIAL STATEMENT

As of _____
(Date)

ASSETS

1. <u>Current Assets</u>		
2. Cash		\$ _____
3. Accounts receivable – less allowance for doubtful accounts		_____
Retainers included in accounts receivable	\$ _____	
Claims included in accounts receivable not yet approved or in litigation	_____	
4. Notes receivable – due within one year		_____
5. Inventory – materials		_____
6. Contract costs in excess of billings on uncompleted contracts		_____
7. Accrued income receivable		_____
Interest	_____	
Other (list) _____	_____	
Total accrued income receivable		_____
8. Deposits		
Bid and plan _____		
Other (list) _____	_____	
Total Deposits		_____
9. Prepaid Expenses		_____
Income Taxes	_____	
Insurance	_____	
Other (list) _____	_____	
Total Prepaid Expenses		_____
10. <u>Other Current Assets</u>		
(list) _____	_____	
Total other current assets		_____
11. Total current assets		_____
12. <u>Investments</u>		
Listed securities – present market value	_____	
Unlisted securities – present value	_____	
13. Total investments		_____
14. <u>Fixed Assets</u>		
Land	_____	
Building and Improvements	_____	
Leasehold improvements	_____	
Machinery and equipment	_____	
Automotive Equipment	_____	
Office furniture and fixtures	_____	
Other (list) _____	_____	
Total	_____	
Less accumulated depreciation	_____	
15. Total fixed assets – net		_____
16. <u>Other Assets</u>		
Loans receivable - officers	_____	
- employees	_____	
- shareholders	_____	
Cash surrender value of officers' life insurance	_____	
Organization expense – net of amortization	_____	
Notes receivable – due after one year	_____	
Other (list) _____	_____	
17. Total Other Assets		_____
18. TOTAL ASSETS		=====

LIABILITIES

19. <u>Current Liabilities</u>		
20. Accounts Payable		\$ _____
21. Loans from shareholders – due within one year		_____
22. Notes payable – due within one year		_____
23. Mortgage payable – due within one year		_____
24. Other payable – due within one year		
(list) _____	\$ _____	
Total other payables – due within one year	_____	_____
25. Billings in excess of costs and estimated earnings		_____
26. Accrued expenses payable - salaries and wages	_____	_____
- payroll taxes	_____	
- employees' benefits	_____	
- insurance	_____	
- other	_____	
Total accrued expenses payable		_____
27. Dividends payable		_____
28. Income taxes payable - state	_____	
- federal	_____	
- other	_____	
Total income expenses payable		_____
Total current liabilities		_____
29. <u>Deferred Income Taxes Payable</u> - state	_____	
- federal	_____	
- other	_____	
Total deferred income taxes		_____
30. <u>Long Term Liabilities</u>		
Loans from shareholders – due after one year	_____	
Notes payable – due after one year	_____	
Mortgage – due after one year	_____	
Other payables – due after one year	_____	
(list) _____	_____	
Total long term liabilities		_____
31. <u>Other Liabilities</u>		
(list) _____	_____	
Total other liabilities		_____
32. Total Liabilities		_____

Net Worth

33. Net Worth (if proprietorship or partnership)		_____
34. Stockholders' Equity		
Common stock issued and outstanding	_____	
Preferred stock issued and outstanding	_____	
Retained earnings	_____	
Total	_____	
Less: Treasury stock	_____	
Total stockholders' equity		_____
35. TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY		=====

NOTE: IF ADDITIONAL SPACE IS REQUIRED, PLEASE NOTE AND ATTACH SCHEDULE TO STATEMENT

36. Dated this _____ day of _____, 20__.

NAME OF ORGANIZATION	BY
	TITLE

**STATE UNIVERSITY OF NEW YORK
AFFIDAVIT OF NO CHANGE**

STATE OF NEW YORK)
) ss.:
COUNTY OF)

The undersigned, being duly sworn, deposes and says:

1. I am an officer/owner of _____ (hereinafter the "Contractor"), which is currently submitting a bid on a "University" Contract.
2. Contractor previously submitted a New York State Vendor Responsibility Questionnaire for Construction within one year prior to the date hereof to _____ in connection with a bid on another State or "University" Contract.
3. Attached is an accurate and true copy of such previously submitted New York State Vendor Responsibility Questionnaire for Construction.
4. I hereby certify that, with the exception of the information specified in Section III of the Questionnaire, there has been no material change in the information pertaining to the Contractor specified on such attached Questionnaire, except as follows:

5. I hereby certify that there has been no change in the information pertaining to the uncompleted construction contracts of the Contractor specified in Section III of the Questionnaire, except as follows:

Name:
Title:
Date:

Sworn to before me this _____ day
of _____, 20____

Notary Public

**MINORITY AND WOMEN'S BUSINESS - EQUAL EMPLOYMENT
OPPORTUNITY PROGRAM POLICY STATEMENT**

Policy Statement

The _____ commits to carrying out the intent of the New York State
(Name of Campus, Consultant, Contractor)
Executive Law, Article 15-A which assures the meaningful participation of minority and
women's business enterprises in contracting and the meaningful participation of minorities and
women in the workforce on activities financed by public funds.

Minority Business Officer

_____ is designated as the Minority Business Enterprise Officer
(Name of Designated Officer)
responsible for administering the Minority and Women's Business-Equal Employment
Opportunity (M/WBE-EEO) program.

M/WBE Contract Goals

_____ % Minority Business Enterprise Participation

_____ % Women's Business Enterprise Participation

EEO Contract Goals

10% Minority Labor Force Participation

10% Female Labor Force Participation

(Authorized Representative)

Title: _____

Date: _____

Requirements and Procedures for Minority and Women Owned Business Enterprises (MWBE) Participation

Pursuant to New York State Executive Law Article 15-A, SUNY recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified minority-and women-owned business enterprises and the employment of minority group members and women in the performance of SUNY contracts.

In 2006, the State of New York commissioned a disparity study to evaluate whether minority and women-owned business enterprises had a full and fair opportunity to participate in state contracting. The findings of the study were published on April 29, 2010, under the title "The State of Minority and Women-Owned Business Enterprises: Evidence from New York" ("Disparity Study"). The report found evidence of statistically significant disparities between the level of participation of minority-and women-owned business enterprises in state procurement contracting versus the number of minority-and women-owned business enterprises that were ready, willing and able to participate in state procurements. As a result of these findings, the Disparity Study made recommendations concerning the implementation and operation of the statewide certified minority- and women-owned business enterprises program. The recommendations from the Disparity Study culminated in the enactment and the implementation of New York State Executive Law Article 15-A, which requires, among other things, that SUNY establishes goals for maximum feasible participation of New York State Certified minority- and women – owned business enterprises ("MWBE") and the employment of minority groups members and women in the performance of New York State contracts.

1. Business Participation Opportunities for MWBEs

For purposes of this solicitation, SUNY hereby establishes an overall goal of 16% for MWBE participation, 10% for Minority-Owned Business Enterprises ("MBE") participation and 6% for Women-Owned Business Enterprises ("WBE") participation (based on the current availability of qualified MBEs and WBEs). A contractor ("Contractor") on the subject contract ("Contract") must document good faith efforts to provide meaningful participation by MWBEs as subcontractors or suppliers in the performance of the Contract and Contractor agrees that SUNY may withhold payment pending receipt of the required MWBE documentation. The directory of New York State Certified MWBEs can be viewed at: <http://www.esd.ny.gov/mwbe.html>.

For guidance on how SUNY will determine a Contractor's "good faith efforts," refer to 5 NYCRR §142.8.

By submitting a bid or proposal, a Bidder on the Contract agrees to submit the following documents and information as evidence of compliance with the foregoing:

- A. Bidders are required to submit a MWBE Utilization Plan on Form #107 with their bid or proposal. Any modifications or changes to the MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to SUNY.
- B. SUNY will review the submitted MWBE Utilization Plan and advise the Bidder of SUNY acceptance or issue a notice of deficiency within 30 days of receipt.
- C. If a notice of deficiency is issued, Bidder agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to SUNY , address phone and fax information], a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by SUNY to be inadequate, SUNY shall notify the Bidder and direct the Bidder to submit, within five (5) business days, a request for a partial or total waiver of

MWBE participation goals on Form #114. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

- D. SUNY may disqualify a Bidder as being non-responsive under the following circumstances:
- a) If a Bidder fails to submit a MWBE Utilization Plan;
 - b) If a Bidder fails to submit a written remedy to a notice of deficiency;
 - c) If a Bidder fails to submit a request for waiver; or
 - d) If SUNY determines that the Bidder has failed to document good faith efforts.

Contractors shall attempt to utilize, in good faith, any MBE or WBE identified within its MWBE Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract Award may be made at any time during the term of the Contract to SUNY, but must be made no later than prior to the submission of a request for final payment on the Contract.

Contractors are required to submit a Contractor's Quarterly M/WBE Contractor Compliance & Payment Report on Form #113 to SUNY address, phone and fax information], by the 10th day following each end of quarter over the term of the Contract documenting the progress made toward achievement of the MWBE goals of the Contract.

2. Equal Employment Opportunity Requirements

By submission of a bid or proposal in response to this solicitation, the Bidder agrees with all of the terms and conditions of SUNY Exhibit A including Clause 12 - Equal Employment Opportunities for Minorities and Women. The Contractor is required to ensure that it and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor, shall undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.

Bidder further agrees, where applicable, to submit with the bid a staffing plan (Form #108) identifying the anticipated work force to be utilized on the Contract and if awarded a Contract, will, upon request, submit to SUNY, a workforce utilization report identifying the workforce actually utilized on the Contract if known.

Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law"), all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and subcontractors will not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

Please Note: Failure to comply with the foregoing requirements may result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract, leading to the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract.

M/WBE UTILIZATION PLAN

INSTRUCTIONS: This form must be submitted with any bid, proposal, or proposed negotiated contract or within a reasonable time thereafter, but prior to contract award. This Utilization Plan must contain a detailed description of the supplies and/or services to be provided by each certified Minority and Women-owned Business Enterprise (M/WBE) under the contract. Attach additional sheets if necessary.

Offeror's Name: _____

Address: _____

City, State, Zip Code: _____

Telephone No.: _____

Authorized Representative: _____

Authorized Signature: _____

Federal Identification No.: _____

Location of Work: SUNY at _____

Project No.: _____

M/WBE Goals in the Contract: MBE _____ % WBE _____ %

EEO Goals in the Contract: MBE _____ % WBE _____ %

1. Certified M/WBE Subcontractors/Suppliers Name, Address, Email Address, Telephone No.	2. Classification	3. Federal ID No.	4. Detailed Description of Work (Attach additional sheets, if necessary)	5. Dollar Value of Subcontracts/ Supplies/Services and intended performance dates of each component of the contract.
1.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
2.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
3.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
4.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
5.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
6.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
7.	NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			

8.		NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
9.		NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE			
6. IF UNABLE TO FULLY MEET THE MBE AND WBE GOALS SET FORTH IN THE CONTRACT, OFFEROR MUST SUBMIT A REQUEST FOR WAIVER FORM (M/WBE 104).					
PREPARED BY (Signature):		TELEPHONE NO.:		EMAIL ADDRESS:	
DATE:		NAME AND TITLE OF PREPARER (Print or Type): SUBMISSION OF THIS FORM CONSTITUTES THE OFFEROR'S ACKNOWLEDGEMENT AND AGREEMENT TO COMPLY WITH THE M/WBE REQUIREMENTS SET FORTH UNDER NYS EXECUTIVE LAW, ARTICLE 15-A, 5 NYCRR PART 143, AND THE ABOVE-REFERENCED SOLICITATION. FAILURE TO SUBMIT COMPLETE AND ACCURATE INFORMATION MAY RESULT IN A FINDING OF NONCOMPLIANCE AND POSSIBLE TERMINATION OF YOUR CONTRACT.			
		FOR M/WBE USE ONLY			
REVIEWED BY:				DATE:	
UTILIZATION PLAN APPROVED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ Contract No.: _____ Contract Award Date: _____ Estimated Date of Completion: _____ Amount Obligated Under the Contract: _____ Description of Work: _____ NOTICE OF DEFICIENCY ISSUED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ NOTICE OF ACCEPTANCE ISSUED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____					

EEO STAFFING PLAN

Instructions on page 2

Solicitation No.:	Reporting Entity:	Report includes Contractor's/Subcontractor's: <input type="checkbox"/> Work force to be utilized on this contract <input type="checkbox"/> Total work force
Offeror's Name:	<input type="checkbox"/> Offerer <input type="checkbox"/> Subcontractor	
Offeror's Address:	Subcontractor's name _____	

Enter the total number of employees for each classification in each of the EEO-Job Categories identified

EEO-Job Category	Work force by Gender		Work force by Race/Ethnic Identification					Disabled (M) (F)		Veteran (M) (F)	
	Total Work force	Total Male (M)	Total Female (F)	White (M) (F)	Black (M) (F)	Hispanic (M) (F)	Asian (M) (F)	Native American (M) (F)			
Officials/Administrators											
Professionals											
Technicians											
Sales Workers											
Office/Clerical											
Craft Workers											
Laborers											
Service Workers											
Temporary /Apprentices											
Totals											

PREPARED BY (Signature):	TELEPHONE NO.: EMAIL ADDRESS:	DATE:
NAME AND TITLE OF PREPARER (Print or Type):		Submit completed with bid or proposal

General instructions: All Offerors and each subcontractor identified in the bid or proposal must complete an EEO Staffing Plan (ADM/EEO 100) and submit it as part of the bid or proposal package. Where the work force to be utilized in the performance of the State contract can be separated out from the contractor's and/or subcontractor's total work force, the Offeror shall complete this form only for the anticipated work force to be utilized on the State contract. Where the work force to be utilized in the performance of the State contract cannot be separated out from the contractor's and/or subcontractor's total work force, the Offeror shall complete this form for the contractor's and/or subcontractor's total work force.

Instructions for completing:

- 1. Enter the Solicitation number that this report applies to along with the name and address of the Offeror.
- 2. Check off the appropriate box to indicate if the Offeror completing the report is the contractor or a subcontractor.
- 3. Check off the appropriate box to indicate work force to be utilized on the contract or the Offerors' total work force.
- 4. Enter the total work force by EEO job category.
- 5. Break down the anticipated total work force by gender and enter under the heading 'Work force by Gender'
- 6. Break down the anticipated total work force by race/ethnic identification and enter under the heading 'Work force by Race/Ethnic Identification'. Contact the M/WBE Permissible contact(s) for the solicitation if you have any questions.
- 7. Enter information on disabled or veterans included in the anticipated work force under the appropriate headings.
- 8. Enter the name, title, phone number and email address for the person completing the form. Sign and date the form in the designated boxes.

RACE/ETHNIC IDENTIFICATION

Race/ethnic designations as used by the Equal Employment Opportunity Commission do not denote scientific definitions of anthropological origins. For the purposes of this form, an employee may be included in the group to which he or she appears to belong, identifies with, or is regarded in the community as belonging. However, no person should be counted in more than one race/ethnic group. The race/ethnic categories for this survey are:

- **WHITE** (Not of Hispanic origin) All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.
- **BLACK** a person, not of Hispanic origin, who has origins in any of the black racial groups of the original peoples of Africa.
- **HISPANIC** a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.
- **ASIAN & PACIFIC ISLANDER** a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands.
- **NATIVE INDIAN (NATIVE AMERICAN/ ALASKAN NATIVE)** a person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.

OTHER CATEGORIES

- **DISABLED INDIVIDUAL** any person who:
 - has a physical or mental impairment that substantially limits one or more major life activity(ies)
 - has a record of such an impairment; or
 - is regarded as having such an impairment.
- **VIETNAM ERA VETERAN** a veteran who served at any time between and including January 1, 1963 and May 7, 1975.
- **GENDER** Male or Female

Is this a final Report? Check one.

Yes ☐

No ☐

QUARTERLY MWBE COMPLIANCE REPORT

Contract No. _____

Campus Funded ☐

Campus Let ☐

The following information indicates the payment amounts made to the contractor by the State University of New York (SUNY) at _____ and payments made to the NYS certified MWBEs by the contractor on this project. The payments shown are in compliance with the documents for the above referenced contract.

Start Date _____

Projected Completion Date _____

Contractor _____

Contract #/Description _____

Contract _____

Paid to Contractor this Quarter _____

Amount: _____

Total Paid to Contractor to Date _____

MBE Goal/Amount _____ % = _____

Actual Completion Date _____

WBE Goal/Amount _____ % = _____

Quarter being Reported (*check one*)

☐ 1st Quarter (April 1 – June 30)

☐ 2nd Quarter (July 1 – September 30)

☐ 3rd Quarter (October 1 – December 31)

☐ 4th Quarter (January 1 – March 31)

M/WBE Subcontractor/Vendor	Product Code*	Work Status This Report	Total Subcontractor Contract Amount		Payments This Quarter		Previous Payments		Total Payments Made to Date	
			MBE	WBE	MBE	WBE	MBE	WBE	MBE	WBE
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										
Name:		<input type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Complete								
FED ID #:										

Documentation of previous Quarter's payments to M/WBE Subcontractors/Vendors has been received by SUNY: YES ☐ NO ☐ * See Reserve Side for Product Codes.

Name & Title _____

Signature _____

Date _____

PRODUCT KEY CODE

A	=	Agriculture/Landscaping (e.g., all forms of landscaping services)
B	=	Mining (e.g., geological investigation)
C	=	Construction
C15	=	Building Construction - General Contractors
C16	=	Heavy Construction (e.g., highway, pipe laying)
C17	=	Special Trade Contractors (e.g., plumbing, heating, electrical, carpentry)
D	=	Manufacturing
E	=	Transportation, Communication and Sanitary Services (e.g., delivery services, warehousing, broadcasting and cable systems)
F/G	=	Wholesale/Retail Goods (e.g., gavel, hospital supplies and equipment, food stores, computer stores, office supplies)
G52	=	Construction Materials (e.g., lumber, paint, law supplies)
	=	Financial, Insurance and Real Estate Services
	=	Services
I73	=	Business Services (e.g., copying, advertising, secretarial, janitorial, rental services of equipment, computer programming, security services)
I80	=	Health Services
I81		Legal Services
I82		Educations Services (e.g., AIDS education, automobile safety, tutoring, public speaking).
I83		Social Services (Counselors, vocational training, child care).
I87		Engineering, architectural, accounting, research, management and related services.

REQUEST FOR WAIVER FORM

INSTRUCTIONS: SEE PAGE 2 OF THIS ATTACHMENT FOR REQUIREMENTS AND DOCUMENT SUBMISSION INSTRUCTIONS.			
Offerer/Contractor Name:		Federal Identification No.:	
Address:		Solicitation/Contract No.:	
City, State, Zip Code:		M/WBE Goals: MBE	% WBE %
<p>By submitting this form and the required information, the offerer/contractor certifies that every Good Faith Effort has been taken to promote M/WBE participation pursuant to the M/WBE requirements set forth under the contract.</p>			
<p>Contractor is requesting a:</p> <p>1. <input type="checkbox"/> MBE Waiver – A waiver of the MBE Goal for this procurement is requested. <input type="checkbox"/> Total <input type="checkbox"/> Partial</p> <p>2. <input type="checkbox"/> WBE Waiver – A waiver of the WBE Goal for this procurement is requested. <input type="checkbox"/> Total <input type="checkbox"/> Partial</p>			
<p>PREPARED BY (Signature):</p> <p>SUBMISSION OF THIS FORM CONSTITUTES THE OFFERER/CONTRACTOR'S ACKNOWLEDGEMENT AND AGREEMENT TO COMPLY WITH THE M/WBE REQUIREMENTS SET FORTH UNDER NYS EXECUTIVE LAW, ARTICLE 15-A AND 5 NYCRR PART 143. FAILURE TO SUBMIT COMPLETE AND ACCURATE INFORMATION MAY RESULT IN A FINDING OF NONCOMPLIANCE AND/OR TERMINATION OF THE CONTRACT.</p>		<p>Date:</p>	
<p>Name and Title of Preparer (Printed or Typed):</p>		<p>Telephone Number:</p>	<p>Email Address:</p>
<p>Submit with the bid or proposal or if submitting after award submit to:</p>			
<p align="center">***** FOR CAMPUS USE ONLY *****</p>			
<p>REVIEWED BY:</p>		<p>DATE:</p>	
<p>Waiver Granted: <input type="checkbox"/> YES <input type="checkbox"/> MBE: <input type="checkbox"/> WBE: <input type="checkbox"/></p> <p><input type="checkbox"/> Total Waiver <input type="checkbox"/> Partial Waiver</p> <p><input type="checkbox"/> *Conditional</p> <p><input type="checkbox"/> Notice of Deficiency Issued _____</p> <p>*Comments:</p>			

REQUIREMENTS AND DOCUMENT SUBMISSION INSTRUCTIONS

When completing the Request for Waiver Form please check all boxes that apply. To be considered, the Request for Waiver Form must be accompanied by documentation for items 1 – 11, as listed below. If box # 3 has been checked above, please see item 11. Copies of the following information and all relevant supporting documentation must be submitted along with the request:

1. A statement setting forth your basis for requesting a partial or total waiver.
2. The names of general circulation, trade association, and M/WBE-oriented publications in which you solicited certified M/WBEs for the purposes of complying with your participation goals.
3. A list identifying the date(s) that all solicitations for certified M/WBE participation were published in any of the above publications.
4. A list of all certified M/WBEs appearing in the NYS Directory of Certified Firms that were solicited for purposes of complying with your certified M/WBE participation levels.
5. Copies of notices, dates of contact, letters, and other correspondence as proof that solicitations were made in writing and copies of such solicitations, or a sample copy of the solicitation if an identical solicitation was made to all certified M/WBEs.
6. Provide copies of responses made by certified M/WBEs to your solicitations.
7. Provide a description of any contract documents, plans, or specifications made available to certified M/WBEs for purposes of soliciting their bids and the date and manner in which these documents were made available.
8. Provide documentation of any negotiations between you, the Offerer/Contractor, and the M/WBEs undertaken for purposes of complying with the certified M/WBE participation goals.
9. Provide any other information you deem relevant which may help us in evaluating your request for a waiver.
10. Provide the name, title, address, telephone number, and email address of offerer/contractor's representative authorized to discuss and negotiate this waiver request.
11. Copy of notice of application receipt issued by Campus.

Note: Unless a Total Waiver has been granted, the offerer or contractor will be required to submit all reports and documents pursuant to the provisions set forth in the Contract, as deemed appropriate by (Campus Name), to determine M/WBE compliance.



STATE UNIVERSITY OF NEW YORK CERTIFICATE OF INSURANCE

This is to certify to the State University of New York that the insurance policies listed below have been issued by the undersigned and are in full force and effect on the date borne by this Certificate.

Name of Insured Contractor: _____

Address of Insured Contractor: _____

Project Location and
Certificate Holder (Campus): _____ SUNY Project No.: _____

Project Title: _____

KIND OF INSURANCE	LIMITS OF LIABILITY	POLICY NO	EFFECTIVE	EXPIRATION
Workers' Compensation	As required by law			
		Carrier: _____		
Contractor's Comprehensive General Liability	\$ _____ Each Occurrence			
Bodily Injury Liability and Property Damage Liability	\$ _____ Aggregate			
	\$ _____ Combined Single Limit	Carrier: _____		
Contractor's Automobile Liability	Each Accident or Occurrence			
Bodily Injury Liability and Property Damage Liability	\$ _____			
	\$ _____ Combined Single Limit	Carrier: _____		
Owner's Protective Liability	\$ _____ Each Occurrence			
Bodily Injury Liability and Property Damage Liability	\$ _____ Aggregate			
	\$ _____ Combined Single Limit	Carrier: _____		
Asbestos Abatement Insurance (If Applicable)	\$ _____ Each Occurrence			
	\$ _____ Aggregate			
	\$ _____ Combined Single Limit	Carrier: _____		
Builder's Risk (See Page 2)	\$ _____			
		Carrier: _____		
Excess or Umbrella	\$ _____			
		Carrier: _____		

Name of Insurance Agency (if any)	Phone ()
Authorized Representative (Original Signature Required – No Stamp)	Date

As an inducement to the "University" to approve the above signed as an insurance company issuing the policies listed above and this Certificate as being in compliance with the construction contract between the "University" and the contractor named above, the above signed insurance company, duly licensed to do business in the State of New York, hereby agrees as follows:

1. That the insurance policies listed above conform, with either the requirements set forth in Item 3 of the Request for Proposal for Contracts that do not exceed \$20,000, or set forth in Sections 5.06, 5.07, and 5.08 of Article V of the Agreement between the "University" and the Contractor for contracts that exceed \$20,000.
2. The insurer(s) issuing the above policy(ies) will notify the "University" as soon as practicable if such a policy(ies) are or will be changed, cancelled or not renewed.
3. That the "University" shall not be liable for the payment of the premium on any of the insurance policies listed above and that such premium shall be payable by the Contractor named above who shall also receive any dividends or other refunds due under the above-listed insurance policies.
4. The Insurer certifies that there is no inconsistency or conflict with or between any of the terms, provisions and conditions hereof and any of the terms, provisions and conditions of the policies listed above except for the following: _____

5. That without the above signed foregoing agreements neither it nor this Certificate of Insurance would be approved by the "University."



STATE UNIVERSITY OF NEW YORK CALCULATION OF BUILDER'S RISK INSURANCE

Date: _____

SUNY Project No.: _____

Contract Amount: \$ _____

Non-insurable Items (amounts to be determined
from Contractor's approved breakdown):

1. Cost of the Contractor's Performance
and Labor and Material Bonds. \$ _____
2. Cost of trees, shrubbery, lawn grass,
plants and the maintenance of same. \$ _____
3. Cost of demolition. \$ _____
4. Cost of excavation. \$ _____
5. Cost of foundations, piers or other
supports which are below the
undersurface of the lowest basement
floors, or where there is no basement,
which are below the surface of the
ground. Concrete and Masonry work. \$ _____
6. Cost of underground flues, pipes
or wiring. \$ _____
7. Cost of earthmoving, grading, and
the cost of paving, roads, walks,
parking lots and athletic fields. \$ _____
8. Cost of bridges, tunnels, dams, piers,
wharves, docks, retaining walls and
radio and/or television towers and
antennas. \$ _____

Total Non-insurable Items: (-)\$ _____

Amount of Builder's Risk Insurance to be Procured: \$ _____

Office of the State Comptroller
DIVISION OF PRE-AUDIT AND ACCOUNTING RECORDS
BUREAU OF STATE EXPENDITURES

New York State Labor Law, Section 220-a
Prime Contractor's Certification

1. That I am an officer of _____
and am duly authorized to make this affidavit on behalf of the prime contractor on public contract
No. _____.
2. That I fully comprehend the terms and provisions of Section 220-a of the Labor Law.
3. That, except as herein stated, there are no amounts due and owing to or on behalf of laborers
employed on the project by the contractor. (Set forth any unpaid wages and supplements, if none,
so state).

Name

Amount

4. That the contractor hereby files every verified statement(s) required to be obtained by the
contractor from the subcontractor(s).
5. That, upon information and belief, except as stated herein, all laborers (exclusive of executive
or supervisory employees) employed on the project have been paid the prevailing wages and
supplements for their services through _____, (if more than one subcontractor
list name and date separately) the last day worked on the project by their subcontractor(s), (Set
forth any unpaid wages and supplements, if none, so state and utilize clause 5 (A)).

Name

Amount

- (5A) That the contractor has no knowledge of amounts owing to or on behalf of any laborers of its
subcontractor(s).

New York State Labor Law, Section 220-a
Prime Contractor's Certification
(Page 2)

6. In the event it is determined by the Commissioner of Labor that the wages or supplements or both of any such subcontractor(s) have not been paid or provided pursuant to the appropriate schedule of wages and supplements, then the contractor shall be responsible for payment of such wages and supplements pursuant to the provision of Section 223 of the Labor Law.

Signature

Print Name

Title

ACKNOWLEDGEMENT:

STATE OF NEW YORK
COUNTY OF _____: SS.:

On this _____ day of _____ 19 _____

before me personally came _____ to me
known and known to me to be the person described in an who executed for foregoing instrument
and acknowledged that he executed the same

Notary Public

County

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR § 2309(c); Real Property Law, § 311, 312).

Office of the State Comptroller
DIVISION OF PRE-AUDIT AND ACCOUNTING RECORDS
BUREAU OF STATE EXPENDITURES

New York State Labor Law, Section 220-a
Subcontractor's Certification

1. That I am an officer of _____
a subcontractor on public contract No. _____ and I am
duly authorized to make this affidavit on behalf of the firm.
2. That I make this affidavit in order to comply with the provisions of Section 220-a of the Labor Law.
3. That on _____ we received from _____
the prime contractor a copy of the initial/revised schedule of wages and supplements
Prevailing Rate Schedule Case Number _____ (PRC) specified in the public
improvement contract.
4. That I have reviewed such schedule(s), and agree to pay the applicable prevailing wages and
to pay or provide the supplements specified therein.

Signature

Print Name

Title

ACKNOWLEDGEMENT:

STATE OF NEW YORK
COUNTY OF _____ : SS.:

On this _____ day of _____ 19 _____

before me personally came _____ to me
known and known to me to be the person described in an who executed for foregoing instrument
and acknowledged that he executed the same.

Notary Public

County

If this affidavit is verified by an oath administered by a notary public in a foreign country other
than Canada, it must be accompanied by a certificate authenticating the authority of the notary who
administers the oath. (See CPLR § 2309(c); Real Property Law, § 311, 312).

Office of the State Comptroller
DIVISION OF PRE-AUDIT AND ACCOUNTING RECORDS
BUREAU OF STATE EXPENDITURES

New York State Labor Law, Section 220-a
Sub-subcontractor's Certification

1. That I am an officer of _____ a subcontractor of _____, the prime contractor on public improvement contract No. _____ and I am duly authorized to make this affidavit on behalf of the firm.
2. That I make this affidavit in order to comply with the provisions of Section 220-a of the Labor Law.
3. That on _____ we received from _____ the (subcontractor of the) (contractor) a copy of the (initial) (revised) schedule of wages and supplements Prevailing Rate Schedule Case Number _____ (PRC) specified in the public improvement contract.
4. That I have reviewed such schedule(s), and agree to pay the applicable prevailing wages and to pay or provide the supplements specified therein.

Signature

Print Name

Title

ACKNOWLEDGEMENT:

STATE OF NEW YORK
COUNTY OF _____ :SS.:

On this _____ day of _____ 19 _____ before me personally came _____ to me known and known to me to be the person described in an who executed for foregoing instrument and acknowledged that he executed the same.

Notary Public

County

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR § 2309(c); Real Property Law, § 311, 312).

STATE UNIVERSITY OF NEW YORK

RELEASE

The undersigned hereby acknowledges that pursuant to Contract/Purchase Order Number _____
dated ____ / ____ / ____ , where in the undersigned agreed to perform the work contained in Project
Number _____ titled _____
_the State University of New York has paid or will pay the undersigned, or entity represented by or through the
undersigned, the sum of _____
(\$ _____) dollars.

Said amount being the full and entire sum due from the State University of New York to the undersigned under the above contract, except for monies retained by the University pursuant to the provisions of contract, including, but not limited to, money, if any, due to the undersigned by reason of extra work, labor or materials furnished or performed in connection with, relating to, or arising out of the subject matter of said contract. In consideration of such payment, the undersigned hereby releases and discharges the State of New York and the State University of New York, their officers, agents and employees, of and from all claims of liability to the undersigned for anything furnished or performed in connection therewith, relating to or arising out of the contract or out of the work covered by said contract, including, but not limited to, all claims for extra work, labor or materials and for any prior act, neglect, or default on the part of the State of New York or the State University of New York or any of their officers, agents, or employees in connection therewith, except for the aforesaid retained monies.

The undersigned further acknowledges that neither the aforesaid payment nor acceptance by the State University of New York of the work covered by the above contract shall in any way or manner operate as, or constitute, a release or waiver of the undersigned's obligations, undertakings, or liabilities under said contract or in any way affect or limit the same.

In witness whereof, the undersigned has caused its name to be subscribed and its seal affixed this

_____ day of _____ 19____ .

(name of contractor)

(corporate seal)

by _____

Division 1 - General Requirements
SECTION A - Description of Work

1. Work to be Done

The work to be done under the Contract, in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying all materials, equipment, labor and incidentals necessary or convenient for the construction of Project Numbers SU 020413 titled "Acquisition and Installation of a Synthetic Turf Field" and carry out all of the duties and obligations imposed upon the Contractor by the Contract Documents.

SU-020413 Electrical Work Contract: The main features of the work shall include, but not be limited to the following:

The Electrical Work Contractor will be responsible for demolition of existing electrical amenities as required to install a new athletic field lighting system, and site and parking lot lighting systems, and other work including but not limited to associated electrical feeders and equipment, conduits and pull boxes and any other miscellaneous site electrical work required. Refer to Specification Section 01 11 00 Summary of Work for a complete description of work to be performed as part of the Electrical Work Contract.

2. Work Not Included:

Work not included in the work of the Contract are those items marked "N.I.C"; movable furnishings, except those specifically specified or indicated on the Drawings; and items marked "by others".

SECTION B - Alternates

1. General

- a. Refer to Proposal Form. State thereon the amount to be added to or deducted from the Total Bid for the Alternates described herein.
- b. Extent and details of the Alternates are indicated on the Drawings, and described in the Specifications.
- c. Where reference is made in the description of the Alternate to products, materials, or workmanship, the specification requirements applicable to similar products, materials or workmanship in the Total Bid shall govern the products, materials, and workmanship of the Alternate as if these specification requirements were included in full in the description of the Alternates.

2. Alternates

Not Required

SECTION C - Special Conditions

1. Cutting and Patching

- a. The Contractor shall do all cutting, fitting, and patching of its work that may be required to make its several parts come together properly and fitted as shown upon or reasonably implied from the Drawings and Specifications for the completed project.
- b. Any cost caused by defective or ill-timed work shall be borne by the Contractor. Except as otherwise expressly provided in the Contract Documents, the Contractor shall not cut or alter

- the work of any other Contractor or existing work without the consent of the University.
- c. Existing construction, finishes, equipment, wiring, etc., that is to remain and which is damaged or defaced by reason of work done under this contract shall be restored by the Contractor to a condition satisfactory to the University, or replaced with new, at no additional cost.
 - d. Existing surfaces, materials, and work shall be prepared as necessary to receive the new installations. Such preparatory work shall be as required by the conditions and in each case shall be subject to approval by the University.
 - e. Newly exposed work or surfaces which are presently concealed shall be made to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the University.
 - f. All new, altered, or restored work in the building shall match existing corresponding work in the material, construction finish, etc., unless otherwise specified or required by the drawings.

2. Clean-Up

- a. Periodic Cleaning: The Contractor shall at all times during the progress of the work keep the Site free from accumulation of waste matter or rubbish and shall confine its apparatus, materials and operations of its workmen to limits prescribed by law or by the Contract Limit Lines, except as the latter may be extended with the approval of the University. Cleaning of the structure(s), once enclosed, must be performed daily and removal of waste matter or rubbish must be performed at least once a week.
- b. Final Clean Up: Upon completion of the work covered by the Contract, the Contractor shall leave the completed project ready for use without the need of further cleaning of any kind and with all work in new condition and perfect order. In addition, upon completion of all work, the Contractor shall remove from the vicinity of the work and from the property owned or occupied by the State of New York, the State University of New York or the University, all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to it or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the work to their original condition, and, in the event of its failure to do so, the same shall be removed by the University at the expense of the Contractor, and it and its surety shall be liable therefor.

3. Temporary Access and Parking

See Supplemental Special Conditions for Construction.

4. Field Meetings

Periodic job meetings will be scheduled by the Consultant and the University during the course of construction. The Contractor, and, upon request of the Consultant and the University, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, or any other subject on which the Consultant and the University might reasonably require information.

5. Operating Instructions and Manuals

The Contractor shall furnish three (3) complete sets of operating instructions and manuals which shall include definite and specific instructions on all mechanical and electrical systems involved in the Project. Said instructions and manuals should set forth: (1) the manner of operation; (2) the necessary precautions and care to be followed; (3) periodic prevention maintenance requirements; and (4) a complete set of spare parts lists, catalogs, service manuals and manufacturing data on said systems. Said instructions and manuals are to be made available by the Contractor for review and comment by the University a minimum of six (6) weeks prior to the scheduled completion of the Project.

6. Utility Shutdowns and Cut Overs

- a. Except as otherwise expressly provided in the Contract Documents, the Contractor shall be responsible for submitting to the University, for its approval, a proposed schedule of all utility shutdowns and Cut-overs of all types which will be required to complete the Project; said schedule should contain a minimum of two (2) week's advance notice prior to the time of the proposed shutdown and cut over. Most campuses of the State University of New York are in full operation 12 months of the year, and shutdowns and Cut-overs, depending upon their type, generally must be scheduled on weekends, at night, or during holiday periods. The contract consideration is deemed to include all necessary overtime and all premium time, if any, that is required by the Contractor to complete the shutdowns or Cut-overs.
- b. Temporary Connections: In the event the Contractor shall disrupt any existing services, the Contractor shall immediately make temporary connection to place such service back into operation and maintain the temporary connection until the Contractor makes the permanent connection. All work must be acceptable to the University.

7. Temporary Power for Construction Activities

Electrical energy will be available at no cost to the Contractor from existing outlets or panels from locations approved by the College. This power may be used for small power tools (not exceeding 1/2 HP), etc., and the Contractor shall not exceed the capacity of the existing circuits being used. The Contractor shall be responsible for providing all necessary connections, cables, etc. and removal of the same at completion of construction with approval from the University. The Contractor shall in no way modify the existing circuits at the panel boards to increase capacities of the circuits. If the required power load exceeds the capacities of the available power sources, the Contractor shall be responsible and pay for furnishing and installing all necessary temporary power poles, cables, fused disconnect switches, transformers and electric meters necessary to provide a temporary power system for the project, and remove the same at completion. Install all temporary wiring and equipment and make all connections in conformity with the National Electrical Code. Make all replacements required by temporary use of the permanent wiring system. Provide ground fault protection.

8. Sanitary Facilities

Please refer to Section 015000

9. Temporary Heat

- a. In those locations where it is required by the conditions of the work, the Contractor shall provide and pay for all temporary heating, coverings and enclosures necessary to properly protect all work and materials against damage by dampness and cold, dry out the work, and facilitate the completion thereof. Fuel, equipment, materials, operating personnel and the methods used therefor shall be at all times satisfactory to the University and adequate for the purpose intended. The Contractor shall maintain the critical installation temperatures, provided in the technical provisions of the specifications hereof, for all work in those areas where the same is being performed.
- b. Maintenance of proper heating, ventilation and adequate drying out of the work is the responsibility of the Contractor. Any work damaged by dampness, insufficient or abnormal heating shall be replaced to the satisfaction of the University by and at the sole cost and expense of the Contractor.
- c. The Contractor shall provide all necessary, temporary heating for the efficient and effective work by itself and all trades engaged in the work. Unless otherwise specified, the minimum temperature shall be 50 degrees F at all places where work is actually being performed within the project (where enclosed). Before and during the placing of wood finish and the application of other interior finishing, varnishing, painting, etc., and until final acceptance by the University

of all work covered by the Contract, the Contractor shall, unless otherwise specified in the Contract Documents, provide sufficient heat to produce a temperature of not less than 68 degrees F nor more than 78 degrees F.

10. Temporary Light

The contractor shall install, maintain and remove Underwriter's Label temporary lighting sockets, light bulbs, and intermittent power sockets as approved by the University. The minimum temporary lighting to be provided is at the rate of 1/4 watt per square foot and be maintained for 24 hours, 7 days per week at stairs and exit corridors; in all other spaces, temporary lighting is to be maintained during working hours. Installation shall be in accordance with the National Electric Code.

11. Temporary Water for Construction Purposes

Contractor is responsible for temporary water for construction. The Contractor must provide for waste water discharge and shall take due care to prevent damage to existing structures or site and the waste of water. All pipes and fittings must be maintained in perfect condition at all times.

12. Conducting Work

- a. All work is to be conducted in such a manner as to cause a minimum degree of interference with the College's operation and academic schedule.
- b. Safe and direct entrance to and exiting from the existing buildings shall be maintained at all times during regular hours while construction is in progress.
- c. No construction work will start in any area until the Contractor has all the required materials on-site.
- d. The Contractor and its employees shall comply with College regulations governing conduct, access to the premises, and operation of equipment.
- e. The building shall not be left "open" overnight or during any period of inclement weather. Temporary weather tight closures shall be provided for/by the Contractor to protect the structure and its contents.

13. Safety and Protective Facilities

- a. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Staff, students, the work and property at all times, including Saturdays, Sundays, holidays and other times when no work is being done.
- b. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of users of the project area, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association 241, for safeguarding of structures during construction.

14. Protection of Existing Structures, Vegetation and Utilities

The Contractor, during the course of its work, shall not damage any buildings, structures and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains and electric power and lighting and telephone cables, lawns, curbs, plants and other improvements. Any damage resulting from the Contractor's operations shall be repaired or replaced at its expense.

15. Abbreviations and References

The following abbreviations may be used in these Specifications:

N.A.	Not Applicable
N.I.C	Not in Contract.
Fed. Spec. or F.S.	Federal Specifications
SUCF	State University Construction Fund
University or SUNY	State University of New York
College	A Campus of the State University of New York

16. Use of Elevators

The Contractor shall be permitted to make temporary use of elevators designated by the University and provided such use does not interfere with the normal activities of the College. Large and heavy items shall not be placed in elevators, and suitable padding shall be provided whenever a cab is used for construction purposes. Elevator pits shall be kept free of debris and dust by frequent cleaning out. The elevators shall be restored to original condition satisfactory to the University at the end of construction activities. Use of the top of the elevator may be permitted after obtaining approval of the University.

17. Salvage of Materials

Remove and legally dispose of all debris and other materials resulting from the alterations to State University property. The following items shall remain the property of the University and shall be stored at the site as directed by the University:

- *Any doors or door hardware indicated to be returned to Campus as noted in the construction documents.*
- *Window treatments.*
- *Misc. Items. – College Representative will walk site with Contractor and tag all items that are to be returned to Campus prior to beginning of demolition.*

18. Storage of Materials

- a. The Contractor shall store materials and equipment within the contract limits in areas on the site as designated by the University.
- b. All materials shall be stored in a neat and orderly manner, and shall be protected against the weather by raised floored weatherproof temporary storage facility or trailer.
- c. Security for stored materials shall be the responsibility of the Contractor.
- d. Storage of materials is not permitted on the roof of any building.

19. Shop Drawings and Samples - (Refer to Section 01 33 00 – Submittal Procedures)

- a. The Contractor shall submit to the Consultant for its approval electronic copies of all shop drawings required by the specifications in .pdf form for electronic review.

"REJECTED" are not in accordance with the Contract Documents and shall be resubmitted.

"REVISE AND RESUBMIT" Contractor shall correct and resubmit.

"MAKE CORRECTIONS NOTED": The contractor shall comply with corrections and may proceed.
Resubmittal is not required.

"APPROVED - NO EXCEPTIONS TAKEN": The contractor may proceed.

- b. All shop drawings and/or submittals used on the construction site must bear the impression of the consultant's review stamp as well as the General Contractor's review stamp, indicating the status of review and the date of review.
- c. All shop drawings shall reflect actual site conditions and accurate field dimensions. Dimensioned shop drawings shall be submitted for all fabricated items. Incomplete submittals will be rejected without review.
- d. All shop drawings, submittals and samples shall include:
 - 1). Date and revision dates.
 - 2). Project title and number.
 - 3). Names of:
 - a). Contractor
 - b). Subcontractor
 - c). Supplier
 - d). Manufacturer
 - 4). Identification of products or materials: Include Department of State (DOS) file number, manufacturers' name and market name of all covered products and applicable materials in accordance with Part 1120 of the Code. This information may be obtained by contacting the DOS, Office of Fire Prevention and Control: 518 474-6746 [voice] and 518 474-3240 [FAX]

20. U.S. Steel

All structural steel, reinforcing steel, or other major steel items to be incorporated in the work shall, if this Contract is in excess of \$100,000, be produced or made in whole or substantial part in the United States, its territories or possessions.

21. Non-Asbestos Products

- a. All materials specified herein shall contain no asbestos.
- b. Provide "Contains No Asbestos" permanent labels applied to the exterior jacket of all pipe insulation at 20 foot intervals with a minimum of one (1) label for each service in each work area.

22. Material Safety Data Sheet

The contractor shall submit MSDS (Material Safety Data Sheet) for all chemicals, solvents, and materials specified or proposed to be used on this project.

23. Architect's/Engineer's Seal

In accordance with Rules and Regulations of the New York State Education Law, Title 8, Part 69.5(b), to all plans, specifications and reports to which the seal of an architect has been applied, there shall also be applied a stamp with appropriate wording warning that it is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item bearing the seal of an architect is altered, the altering architect shall affix to his item the seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

24. Construction Permit

The Code Compliance Manager for the State University Campus will, as required by law, issue a Construction Permit for this Project. The project is not subject to any local building code or permit requirements, except for work that the Contractor is to perform on property located outside of the boundaries of the campuses of the State University of New York.

25. Other Contracts

There may be other contracts let for work to be done in adjacent areas and, as such, this Contractor and such other contractors shall coordinate their work to conform with progressive operation of all the work covered by such contracts, and afford each other reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and the execution of their work.

26. Asbestos

If the work to be done under this contract contains the abatement of asbestos the following shall apply:

- a. Applicable Regulations -All work to be done under this Contract shall be in compliance with 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) as amended effective November 9, 1994.
- b. Applicable Variance - The abatement 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 12 NYCRR Part 56.
- c. Owner Project Fact Sheet -The Contractor shall complete and submit as much information as possible on the Asbestos Material Fact Sheet to the University in triplicate prior to the project startup. Completion of the Fact Sheet shall be submitted prior to acceptance.
- d. Patent Infringement - The State University of New York and the State University Construction Fund have been given notice by a law firm representing GPAC, Inc. that the use of its process/procedure for asbestos containment and removal constitutes a patent infringement. All potential contractors are hereby notified that they may have to obtain a license to use certain patented Negative Air Containment systems, and that any liability of the University in connection therewith is covered by Section 2.21 of the Agreement. Therefore, all potential contractors are hereby notified that after opening of the bids they must advise the University as to the system they intend to use for Negative Air Containment and provide the University with either a copy of their license to use the same or written documentation, signed by an authorized officer of their surety, that their performance bond guarantees the Contractor's indemnification covering patent claims.
- e. Air Monitoring - The abatement contractor shall be responsible for hiring and paying an independent third party firm to perform the requirements of air monitoring as called for in Subpart 56-17 of 12 NYCRR Part 56.
- f. Testing - The University and Campus reserve the right to employ an independent testing laboratory to perform testing on the work and air sampling. The Contractor shall be required to cooperate with the testing laboratory.
- g. Disposal Procedures - It is the responsibility of the asbestos contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The asbestos 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 then current legal requirements. Submit originals or copies of all pertinent manifests in triplicate to the University.
- h. Submittals - Prior to commencement of the work on this project, the Contractor must

submit the following to the University:

- 1). Copy of original insurance policy.
 - 2). Copy of Department of Labor notification.
 - 3). Owner Fact Sheet.
 - 4). Copy of EPA notification.
- i. Special Requirements -. 1) Size, location, and quantities of all pipes, joints, ducts, valves, tees, etc. must be field verified by all prospective bidders. Information given on the drawings and specifications is for general orientation and information only.
- 2) The Contractor shall have at least one English-speaking supervisor on the ob site at all times while the project is in progress.
 - 3) Prior to the commencement of work involving asbestos demolition, removal, renovation, the Contractor must submit to the University the name of its on-site asbestos supervisor responsible for such operations, together with documentation that such supervisor has completed an Environmental Protection Agency-approved training course for asbestos supervisors.

27. Wage Rates and Supplements

The rates of wages and supplements determined by the Industrial Commissioner of the State of New York as Prevailing in the locality of the site at which the work will be performed can be found at: <http://wpp.labor.state.ny.us/wpp/publicViewProject.do?method=showIt&id=839140>

The Prevailing Wage Case Number (PRC#) assigned to this project is 2013001155 .

Special Conditions for Construction

Part 1 – Use of Premise

1.1 General

- A. Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. *For purposes of this provision, "site" shall include all existing structures.*
- B. Each Contractor's use of premises is limited only as outlined in this section and/or any other section of the specifications, or at the College's discretion, to perform work or to retain other contractors on portions of Project.
- C. Coordination with Other Contractors:
 - 1). The Contractor will need to have their portion of the Work coordinated with other Contractors working on the site so that their work conforms to the progressive operation of all the work covered under other contracts that the College has let on this site.
 - 2). Each Contractor shall afford other Contractors reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and execution of their work.
 - 3). If the Contractor or such other contractors contend that their work of the progress thereof is being interfered with by the acts or omissions of the others or that there is a failure to coordinate or properly arrange the sequence of the work on the part of the Contractor or such other contractors, they shall, within five (5) working days of the commencement of such interference or failure of coordination or failure to perform work in proper sequence, give written notification to the College of such contention. Upon receipt of such notification or on its own initiative, the College shall investigate the situation and issue such instructions to the Contractor or such other contractors with respect thereto as it may deem proper. The College shall determine the rights of the Contractor and of such other contractors and the sequence of work necessary to expedite the completion of the work covered by said other contracts.
- D. All work is to be conducted in such a manner as to cause a minimum degree of interference with the College's operations and academic schedule. Contractor is to coordinate their work with the College's classroom schedule.
- E. The Contractor and its employees shall comply with all College regulations governing conduct, access to the premises, and operation of equipment.
- F. Maintain all paths of egress and keep clear of all materials and debris.
- G. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, and other adjacent occupied or used facilities without written permission from College.
- H. Should it become necessary, in the judgment of the College, at any time during the course of the Work to move materials which are stored on the site and equipment which has been temporarily placed thereon, the Contractor upon request of the College shall move them or cause them to be moved at its sole cost and expense; provided, however, if materials and equipment that have been stored or placed by the Contractor at a location on the site expressly approved, in writing, by the College and the same are moved or caused to be moved by the Contractor at the College's request, such removal shall be deemed extra work and the Contractor shall be compensated.

1.2 Campus Regulations

- A. The contractor and his/her employees, subcontractors, etc., will not fraternize with any building or campus occupants. This includes but is not limited to students, faculty, and employees of the State other than those designated, visitors and guests. At no time will it be appropriate to say anything derogatory to the above referenced individuals. Harassment, verbal or otherwise, of the above referenced individuals will **not** be tolerated. If an incident arises, the Contractor will be directed to **permanently remove** the employee from the site.
- B. No drugs are permitted on campus.
- C. No smoking is permitted in the buildings.

- D. The contractor, employees and sub-contractors are required to stay within the construction boundary lines at all times.
- E. The contractor, employees, and sub-contractors must recognize the fact that this is an institute for learning. Flexibility will be required during certain times of the academic year.

1.3 Use of Permanent Utilities

- A. The written request for permission for use of the system from the College shall include, as a minimum, the conditions and reasons for use and provisions for and effect on equipment warranties. In the event that the College accepts the Contractors use of the permanent utility for the balance of the Work, the Contractor shall be fully responsible for it, and shall pay all costs for operation, power, restoration and maintenance of same.
- B. If the existing facilities are not adequate for the Contractor, locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work and disruption to the College. Any temporary facilities location is to be reviewed and approved by College's Representative.

1.4 Storage and Staging of Materials

- A. The following shall apply to this project
 - 1). The Contractor shall store materials and equipment within areas designated on construction documents.
 - 2). Security for stored equipment and materials shall be the responsibility of the Contractor.
 - 3). The Contractor shall at all times keep access routes, and parking and staging areas clean of debris and other obstructions resulting from the work.

1.5 Temporary Power for Construction Activities

- A. Electrical energy, as it exists within the work area, will be available at **no** cost to the Contractor from existing outlets or panels from locations approved by the College. As this site is still under construction, if electrical power is not available in the area of work, it is the Contractor's responsibility to provide necessary power to perform the Work. Typically available power may be used for small power tools (not exceeding ½ HP).

1.6 Temporary Lighting / Heating & Cooling / Water

- A. Electrical lighting, as it exists within the work area, is available to the contractor at **no** cost. As this site is still under construction, if electrical lighting is not available in the area of work, it is the Contractor's responsibility to provide necessary temporary equipment to perform the Work at its cost.

1.7 Temporary Sanitary Facilities

- A. Toilet, Water, and Drinking Water Facilities: The Contractor shall make arrangements with the College for use of the existing toilet, water, and drinking water facilities if available. It is the Contractor's responsibility to maintain the facility during the construction and restore to original state upon completion of the project.

1.8 Temporary Parking

- A. Contractor is to abide to the following:
 - 1). The Contractor and its employees shall be subject to all the rules and regulations of the College, including parking regulations. The College is regulated by New York State Vehicle and Traffic Laws.
 - 2). The Contractor and its employees shall only park in the designated areas in Lot #W-2. There shall be no parking in other areas of the campus (unless prior written authorization is provided by the College Chief of Police).
 - 3). Parking violations are subject to fines and are the sole responsibility of the Contractor or its employees. Vehicles that are parked illegally may be towed at the expense of the owner/driver.
 - 4). All vehicles are required at all times to register with the College's Public Safety Unit.

- 5). There is \$35.00 fee for parking permits. The fee is per vehicle and permits need to be display whenever the vehicle is parked on campus.

1.9 Temporary Support Facilities

- A. Construction Aids: Provide all items, such as lifting devices, all scaffolding, staging, platforms, runways, ladders; and all temporary flooring, as required by the various trades for the proper execution of the Work. Provide such construction aids with proper guys, bracing, guards, railings and other safety devices as required by the governing authorities and OSHA.
- B. Elevator and Loading Dock Usage: The Contractor shall make all arrangements with the College's Representative for the use of elevators as required for transporting material and workmen to the work areas and for the disposal of rubbish and waste materials.

1.10 Safety and Protection of Facilities

- A. The Contractor shall provide the necessary safeguards to prevent accidents, to avoid all necessary hazards and protect the public, the Faculty and Staff, students, the work, and the property at all times, including Saturdays, Sundays, holidays, and other times when no work is being done. The Contractor shall submit a safety plan which shall be certified by a Certified Safety Professional from the Board of Certified Safety Professionals (www.bccsp.org).
- B. The Contractor shall erect, maintain and remove appropriate barriers or other devices, including mechanical ventilation systems, as required by the conditions of the work for the protection of the users of the project area, adjoining areas, the protection of the work being done, or the containment of dust and debris. All such barriers or devices shall be provided in conformance with all applicable codes, laws and regulations, including OSHA and National Fire Prevention Association 241, for safeguarding of structures during construction.
- C. Fire safety during construction:
 - 1). The Contractor shall provide all temporary equipment, labor and materials required for compliance with the applicable provisions of Chapter 14, Fire Safety during Construction and Demolition, of the Fire Code of New York State.
 - 2). For areas and spaces under their control, the Contractor shall comply with Chapter 14 of the Fire Code of New York State, titled "Fire Safety during Construction and Demolition". Subject to approval by the College's Consultant and the College, the Contractor shall designate one person as the **fire prevention program superintendent**. This superintendent shall be responsible for the fire prevention program required by Section 1408 of the Fire Code of New York State and implementing the minimum safeguards for construction, alteration, and demolition operations that provide reasonable safety to life and property from fire during the Contractor's operations. Responsibilities also include developing and maintaining pre-fire plans per 1408.2, the training of the Contractor's workforce per 1408.3, maintenance of the fire protection equipment per 1408.4, supervising hot work operations per 1408.5, and implementing temporary impairment to existing fire protection systems per 1408.6 & 1408.7. This superintendent shall also provide periodic written reports at the field meetings and respond to questions raised concerning compliance with Chapter 14 of the Fire Code of New York State.
- D. Contractor shall comply with Labor Law Section 220-h; provide workers certified as having successfully completed the OSHA 10-hour construction safety and health course; and comply with applicable NYS DOL rules and regulations for monitoring and reporting compliance.

- D. Temporary Fire Protection:

NA

F. Fire Watch Requirements:

- 1). If any of the work of the Contractor;
 - a) Disables any fire suppression systems, standpipes systems, fire alarm systems, fire detection systems, smoke control systems and/or smoke vents as defined in Chapter 9 of the Fire Code of New York State (FCNYS).
 - b) Involves welding, cutting, open torches and other hot work as defined in Chapter 26 of the FCNYS and/or involves demolition activities that are hazardous in nature as defined in Chapter 14 of the FCNYS.

Then the Contractor shall provide a fire watch or perform the work during the hours where the building is scheduled by the College to be closed, in accordance with Section 901.7 of the FCNYS, for structures that have campus occupancy.

- 2). If a fire watch is required, the Contractor shall provide all labor that is required. The Contractor shall:
 - a) Contact the New York State Department of State Office of Fire Prevention and Control (OFPC) at 41 State Street, Albany, NY 12231-0001, Phone: (518) 474-6746, Fax: (518) 474-3240, e-mail: fire@dos.state.ny.us and obtain its currently amended recommendation for fire watch procedures. Review the OFPC recommendations and notify the College's Consultant and/or College Representative if there are significant discrepancies with the requirements of this section.
 - b) Review the fire watch procedures with the College's alarm monitoring staff (University Police – 914-251-6900) and the fire department prior to disabling a fire protection system. Submit a plan for the fire watch for approval by the College's Consultant and/or College Representative, and schedule a pre-system shutdown meeting with the College's Consultant and/or College Representative.
 - c) Employ, instruct and maintain competent fire watch personnel. Provide the sufficient number of dedicated personnel that are required to patrol all portions of the means of egress system in the facility in the period of time required.
 - d) Notify University Police (UPD) prior to and at the conclusion of the fire watch.
 - e) Employ competent personnel to fix the fire protection system (see section 1.11 below).
- 3). Fire Watch Duties: Personnel serving as a fire watch have the following duties:
 - a) Conduct periodic patrols of the entire facility as specified below.
 - b) Identify any fire, life or property hazards.
 - c) Notify the UPD if a fire is discovered by call (914-251-6911), with the exact address and type of emergency.
 - d) Notify occupants of the facility of the need to evacuate. If sirens or public address function of the alarm system are still functional, use them to assist with evacuation of the building.
 - e) Have access to at least one means of direct communication with UPD. A cell phone is acceptable.
 - f) Maintain a written log of fire watch activities.
 - g) Have knowledge of the location and use of fire protection equipment, such as fire extinguishers. (Note: The fire watch will not perform fire-fighting duties beyond the scope of the ordinary citizen).
 - h) Perform no other duties that are not directly part of the fire watch duties.
- 4). Frequency of Inspections: Fire watch personnel should patrol the entire facility patrol every 30 minutes except in the following situations, where patrols shall be every 15 minutes:
 - a) The facility has people sleeping.
- 5). Record Keeping: A fire watch log should be maintained at the facility. The log should show the following:
 - a) Address of the facility.
 - b) Times that the patrol has completed each tour of the facility.
 - c) Name of the person(s) conducting the fire watch.
 - d) Records of communication(s) to the University Police.
 - e) Record of other information directed by the College's Consultant and/of the College Representative.

1.11 Modifications / Alterations to Campus Existing Fire Alarm Systems

NA

Part 2 – Party Responsibilities

2.1 Information and Services Required of the College

- A. Furnished Information: College shall furnish (if available) surveys, existing plans, or other required information describing physical characteristics, legal limitation and utility locations for the site of the Project, and a legal description of the site. These documents are for information purposes only. They are to be field verified by the Contractor for accuracy. The College will not be responsible if actual conditions vary from what is indicated on the documents. Plans will be released to awarded Bidder in PDF electronic format.
- B. College's Right to Stop the Work: If Contractor fails to correct Work which is not in accordance with the requirements outlined, or fails to carry out Work in accordance with the Contract Documents, the College, by written order signed personally or by an agent specifically so empowered by the College in writing, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the College to stop the Work shall not give rise to a duty on the part of the College to exercise this right for the benefit of Contractor or any other person or entity.
- C. College's Right to Carry Out the Work: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten (10) business-day period after receipt of written notice from College to commence and continue correction of such default or neglect with diligence and promptness, College may, without prejudice to other remedies College may have, correct such deficiencies. *College may offset* from payments then or thereafter due Contractor the cost of correcting such deficiencies, including compensation for Consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to the College.

2.2 Information and Services Required of the Contractor

- A. Review of Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the College, and shall at once report to the College Representative errors, inconsistencies or omissions discovered.
- B. Review of Field Conditions: Contractor shall, *sufficiently in advance of undertaking the Work*, take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to Contractor with the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported to the College Representative at once. *If Contractor performs any construction activity which involves an error, inconsistency or omission which Contractor knew of or should reasonably have known of, without notice to College, Contractor shall assume responsibility for such performance and shall bear all costs of correction.*
- C. Construction Schedule: Contractor, promptly after being awarded the Contract, shall prepare and submit for College Representative, a Contractor's construction schedule for the Work.
- D. Supervision:
 - 1). Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over *construction means*, methods, techniques, sequences and procedures *including safety programs and procedures*, and for coordinating all portions of the Work under the Contract.
 - 2). Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Contract. Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

- 3). Contractor shall be responsible for inspection of related portions of Work already performed, *as well as existing conditions*, to determine that such are in proper condition to receive subsequent Work.
- E. Contractor shall be responsible to College for acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and other *persons or entities directly or indirectly employed by them* performing portions of the Work under a contract with Contractor
- F. Cutting and Patchwork:
- 1). Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
 - 2). Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying or load-deflection ratio.
 - 3). Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety (i.e., mechanical systems, plumbing, fire alarm, etc.).
 - 4). Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 5). Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 6). Dispose of demolished items and materials promptly.
 - 7). Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
 - 8). Existing utilities services to the College must be maintained at all times. If the Contractor is required to affect these services in order to complete the Work, Contractor must obtain written permission from the College prior to this work (also see Special Requirements Section). Any damage or disruption of services shall need to be repaired immediately and at the Contractor's expense.
- G. Hot Work Permits:
- 1) If the work requires any Hot Work (including cutting, welding, Thermit welding, brazing, soldering (except soldering electronics or electrical components with an electric soldering iron or gun), grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar situation), the Contractor shall be required to obtain a Hot Work Permit issued by the College. The Contractor shall request this through the College Representative, and be given a copy of the College's "Hot Work Guidelines and Permit Process" and the permit forms to be filled out. The Contractor must request, submit, and be given a permit before any Hot Work begins.
- H. Cleaning Up:
- 1). Contractor shall *at all times* keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work Contractor shall remove from and about Project waste materials, rubbish, Contractor's tools, construction equipment, machinery and surplus materials.
 - 2). If Contractor fails to clean up as provided in the Contract Documents, College may do so and the cost thereof shall be charged to Contractor.
 - 3). If a dispute arises among Contractor, separate contractors and College as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described above, College may clean up and allocate the cost among those responsible
- I. Access to Work: Contractor shall provide College access to *all portions of* the Work in preparation and progress wherever located.

2.3 Communications Protocol for Contract Administration

- A. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, Contractor shall communicate through the College Representative to the College. Communications by

and with College's consultants shall be through College Representative. Communications by and with Subcontractors and material suppliers shall be through Contractor.

ELECTRICAL WORK PRICE LISTING

PRIME CONTRACT: ELECTRICAL WORK

SUBMITTED BY 3 LOW BIDDERS WITHIN 72 HOURS AFTER BID OPENING

For the convenience of the Owner's preliminary analysis of the BID, itemize (in figures) the Work included in the BASE BID sum in accordance with the following categories

Panel and transformer
Gear.....\$ _____

Conduit and Pull
Boxes.....\$ _____

Feeders.....\$ _____

Site lighting and
foundations.....\$ _____

Sports field lighting and
foundations.....\$ _____

Other
(.....)\$ _____

EQUIVALENT LISTING

PRIME CONTRACT: ELECTRICAL WORK

SUBMITTED BY 3 LOW BIDDERS WITHIN 72 HOURS AFTER BID OPENING

In accordance with the Instructions To Bidder, list proposed equivalents and corresponding specified products below. Complete and submit additional copies of this form as necessary for additional products.

Attach additional sheet identifying any aspect of the Contract Documents that cannot be complied with by the manufacturer of supplier of the proposed equivalent product.

Specified Product

Equivalent Product

Technical Section: _____

Manufacturer: _____

Specified Product: _____

Product

Designation: _____

Technical Section: _____

Manufacturer: _____

Specified Product: _____

Product

Designation: _____

Technical Section: _____

Manufacturer: _____

Specified Product: _____

Product

Designation: _____

Technical Section: _____

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Product

Designation: _____

Technical Section: _____

Manufacturer: _____

Specified Product: _____

Product

Designation: _____

STATEMENT OF BIDDER'S QUALIFICATIONS

PRIME CONTRACT: ELECTRICAL WORK

NOTARIZED AND SUBMITTED BY 3 LOW BIDDERS WITHIN 72 HOURS UPON REQUEST BY ARCHITECT

All questions must be answered and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheet.

1. Name of Bidder
2. Permanent main office address
3. When Organized
4. If a corporation, where incorporated
5. How many years have you been engaged in the contracting business under you present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company
8. Have you ever failed to complete any work awarded to you?
If so, where and why?
9. Have you ever defaulted on a contract?
If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List you major equipment available for Contract.
12. List your experience in work similar to this project.
13. List the background and experience of the principal members of your organization, including officers.
14. List the work to be performed by Subcontractors and summarize the dollar value of each Subcontract.
15. Credit available: \$
16. Give Bank reference:
17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?
18. Attach a sample copy of proposed manufacturer's roofing guarantees (where applicable)
19. The undersigned hereby authorizes and requests any person, firm or corporation o furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated _____ this _____ date of _____, 20__.

(Name of Bidder)

By _____

Title _____

State of _____)
) ss.

County of _____

_____being duly sworn deposes and says that he is_____

_____ of _____

(Name of Organization)

And that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me

this _____ day of _____, 20____

My commission expires _____, 20____

CONTRACTOR'S SUBCONTRACTOR LIST

PRIME CONTRACT: ELECTRICAL WORK

NOTARIZED AND SUBMITTED BY 3 LOW BIDDERS WITHIN 72 HOURS UPON REQUEST BY ARCHITECT

Approval of proposed subcontractors shall be in accordance with the General Conditions and Supplementary Conditions.

Instructions:

1. List below various subcontractors whose figures have been used in preparing the Bid, and to whom subcontractors are expected to be awarded, upon Architect's approval, should the contract be awarded to the Bidder.
2. List only one (1) subcontractor for each item, unless otherwise indicated. Changes on approved subcontractors will not be permitted.

Panel and Transformer Gear (if a subcontractor, name subcontractor)

Conduits and Pull Boxes (if a subcontractor, name subcontractor)

Feeders (if a subcontractor, name subcontractor)

Site Lighting and Foundations (if a subcontractor, name subcontractor)

Sports Field Lighting and Foundations (if a subcontractor, name subcontractor)

Other _____ (if a subcontractor, name subcontractor)

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

Project Name: Acquisition and Installation of a Synthetic Turf Field Facility

1.02 OWNER INFORMATION

- A. State University of New York Purchase College
735 Anderson Hill Road
Purchase, New York 10577-1400

1.03 PROJECT LOCATION

- A. State University of New York Purchase College
735 Anderson Hill Road
Purchase, New York 10577-01400

1.04 CONTRACTS

- A. Work shall be done under the following separate Prime Contracts as indicated in the Contract Documents:
 - 1. Site Work
 - 2. Electrical Work
- B. All Prime Contracts: Scope of Work
 - 1. Project Manual Sections
 - a. Table of Contents – Project Manual and Drawings, Notice to Bidders, Instruction to Bidders, Bid Form, Price Listing, Equivalent Listing, Statement of Bidders Qualifications, Contractor's Subcontractor List, General Conditions of the Contract for Construction, Supplementary Conditions, Miscellaneous Requirements and Prevailing Wage Rates.
 - b. Division 1 – General Requirements
 - 2. Drawings: Title Sheet, Topographic Survey Drawings.
- C. Site Work Contract: Scope of Work: Unless specifically indicated otherwise on the Drawings, all work shown on the "L" "C" and "S" series drawings, and some work as specifically indicated on the "E" series drawings, and the applicable technical specification sections as follows:
 - 02 05 00 Reports on Exploration
 - 02 41 13 Selective Site Demolition
 - 03 30 00 Cast in Place Concrete
 - 05 12 00 Structural Steel
 - 10 14 53 Traffic Signage
 - 11 68 33 Athletic Field Equipment
 - 11 68 43 Exterior Scoreboards
 - 13 34 14 Angle Frame Bleachers
 - 13 34 24 Modular Pressbox

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

13 34 27 Precast Pre-Engineered Dugout Structure
31 00 00 Earthwork
31 10 00 Site Preparation
31 23 17 Site Trenching
31 25 00 Erosion and Sediment Control
32 12 16 Asphalt Paving
32 13 13 Concrete Paving
32 16 13 Concrete Curbs
32 18 14 Synthetic Grass Surfacing
32 18 25 Infield Skinned Area
32 31 13 Chain Link Fences and Gates
32 92 00 Lawns and Grasses
32 93 00 Exterior Plants
33 40 00 Storm Drainage Utilities

Additionally, the Site Work Contractor shall refer to the following technical specification sections for reference and coordination of work with the Electrical Work Contractor:

26 00 10 General Requirements for Electrical Work
26 01 11 Conduit
26 01 23 Building Wire and Cable
26 01 30 Boxes
26 01 70 Grounding and Bonding
26 01 95 Electrical Identification
26 03 75 Underground Pull Boxes
26 04 27 Power Distribution
26 05 03 Poles and Standards
26 05 10 Exterior Lighting
26 56 68 Exterior Athletic Lighting

- D. Electrical Work Contract: Scope of Work: Unless specifically noted otherwise on the Drawings, all work shown on "E" series drawings, and some work as specifically indicated on the "L" and "S" series drawings, and the Division 26 technical specification sections as follows.

26 00 10 General Requirements for Electrical Work
26 01 11 Conduit
26 01 23 Building Wire and Cable
26 01 30 Boxes
26 01 70 Grounding and Bonding
26 01 95 Electrical Identification
26 03 75 Underground Pull Boxes
26 04 27 Power Distribution
26 05 03 Poles and Standards
26 05 10 Exterior Lighting
26 56 68 Exterior Athletic Lighting

Additionally, the Electrical Work Contractor shall refer to the following technical specification sections for reference and coordination of work with the Site Work Contractor:

02 05 00 Reports on Exploration
02 41 13 Selective Site Demolition
11 68 43 Exterior Scoreboards
13 34 14 Angle Frame Bleachers
13 34 24 Modular Pressbox
13 34 27 Precast Pre-Engineered Dugout Structure
31 00 00 Earthwork
31 10 00 Site Preparation
31 23 17 Site Trenching
32 13 13 Concrete Paving
32 31 13 Chain Link Fences and Gates

1.05 DESCRIPTION OF WORK COVERED BY THE CONTRACT DOCUMENTS

- A. Site Work: Installation of new synthetic turf multi-purpose athletic field, bleacher seating and press box, chain link fencing, dugouts, athletic field equipment, drainage systems and all other associated site improvements.

- B. Electrical Work: Installation of the new electric service, conduits and pull boxes, panels, gears and equipment, athletic field lighting system, parking lot and site lighting and all other associated electrical improvements.

1.06 GENERAL REQUIREMENTS OF CONTRACTS

- A. Perform the work for each contract described above under separate lump sum contracts with the Owner. Furnish all labor, material, tools, equipment, supervision, layout, delivery, trucking, shop drawings, submittals, etc., necessary to complete the work described in the scope of work for each Contract.
- B. All existing conditions to be verified in the field. The Owner takes no responsibility for actual conditions deviating from the drawings. If existing conditions interferes with Contract Work, the Contractor is responsible to eliminate this condition at their cost.
- C. The Contractor is responsible to familiarize himself with jobsite logistics. The Contractor shall completely inspect the job site. A preliminary search for obstructions (underground and above grade) is required.
- D. The Contractor must plan, provide and maintain his own access, ramping, egress, etc., as required into and out of the site, staging of trailers, materials, machinery and equipment in agreement with the Owner's Designated Representative. Maintain safe and free access of the job site for other related personnel and maintain safe pedestrian traffic outside walk areas. Any operations interfering with pedestrian or vehicular traffic must be regulated by a flagman. Trucking and delivery operation should be coordinated with the Owner's Designated Representative and all other trades.
- E. All work must conform to applicable codes including state laws, SUNY policies, local ordinances, OSHA and all requirements of governmental agencies having jurisdiction.
- F. Contractors shall employ the appropriate trades people for the work required. These people shall be experienced in the trade. A shortage of labor in the industry shall not be accepted as an excuse for not properly manning the project.
- G. The Contractor shall schedule and coordinate with other trades as required. The Contractor shall participate, cooperate and fully coordinate his work with other trade contractors.
- H. The Contractor is responsible for his own trailer, telephone, power and water hookups. Space will be limited, where trailers are possible, coordination of their location will be coordinated by the Owner's Designated Representative.
- I. The Contractor's personnel shall not be permitted to use the Owner's facilities (including toilets, telephones, food service, etc.) for their own benefit. The Contractor's Superintendent must explain and enforce with all field personnel.
- J. Full cooperation with all firms providing testing and inspection work is expected from all Contractor personnel. Provide complete data and materials for required reports. The Owner's Designated Representative may request additional testing and inspection.
- K. Decisions made by the Owner's Designated Representative and the Project Designer shall be anticipated by the Contractor to provide ample time to make inspections, investigation or detailed drawings.

- L. Each contractor is responsible for layout by establishing, setting and maintaining lines, locations and elevations to correctly perform work.
- M. The Contractor shall coordinate the use of the premises with the Owner and the Owner's Designated Representative and shall move at his own expense any stored products under the Contractor's control, including excavated material, which interfere with operations of the Owner or separate contractors.
- N. The Contractor shall assume full responsibility for the protection and safekeeping of products under this contract stored on the site and shall cooperate with the Owner's Designated Representative to ensure security for the Owner's property. The Contractor shall obtain and pay for the use of additional storage or work areas needed for operations.
- O. Where required for additional safety, the Contractor shall provide and maintain fences at his own expense, along roadways and around the active work area occupied by his trade for the protection of adjoining property and all persons lawfully using the area. Fences shall be of materials and construction suitable in the opinion of the Owner's Designated Representative and the Project Designer for their intended purpose.
- P. The intention of the work is to follow a logical sequence; however, the Contractor may be required by the Project Designer or the Owner's Designated Representative to temporarily omit or leave out any section of his work, or perform his work out of sequence. All such out of sequence work and return time to these areas shall be performed at no additional cost to the Owner.
- Q. The Contractor shall take care to verify that equipment matches the characteristics of the power being supplied.
- R. Insubordination, unsafe practices, horseplay, abusive behavior or language, wanton destruction of property, use of drugs, alcohol or tobacco products, possession of firearms and solicitation shall not be tolerated. There will be no warnings, and the Contractor shall designate a responsible onsite supervisor to handle any situation that may arise, including termination.
- S. Organize daily cleanups and participate in a weekly joint cleanup involving all Prime Contractors. Cleanup shall be considered a safety issue. All contractors that do not participate in cleanup will be back charged.
- T. The Contractor shall examine surfaces and conditions prior to the start of work and report unacceptable conditions to the Owner's Designated Representative and the Project Designer. Do not proceed until unacceptable conditions are corrected. Start of work implies acceptance.
- U. Each contractor shall be responsible for providing safe access in order to perform their own work (i.e., OSHA designated ladders, grading of landscape, scaffolding, stairs, lifts, removal of snow and ice, etc.).
- V. Each contractor shall enforce and correct safety hazards and or violations immediately. If safety violations are not resolved within 24 hours, the Owner's Designated Representative and the Project Designer will obtain outside sources to correct the violation and back charge the Contractor. Each Contractor shall assign an employee as the Company Safety Engineer, with the power and flexibility to enforce safety and to correct and/or eliminate unsafe conditions.
- W. Any and all shut downs are to be coordinated with the Owner's Designated Representative, Project Designer and the Owner. All existing life safety type systems are to remain operational during the installation of the new system. All temporary work, material and equipment required to keep existing systems operational are the responsibility of the contractor installing the work.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- X. Time is of the essence. Each contactor shall review and closely adhere to the schedules included in the Contract Documents.

1.07 OWNER FURNISHED ITEMS

- A. Not Used

PART 2 PRODUCTS

2.01 MATERIALS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Coordination.
- B. Field engineering.
- C. Job site administration.
- D. Preconstruction conference.
- E. Project meetings.
- F. Pre-installation conferences.
- G. Project superintendent.
- H. Construction mobilization.
- I. Material safety data sheets.
- J. Cutting and patching.
- K. Special Procedures.

1.02 RELATED SECTIONS

- A. Section 01 26 00 – Contract Modification Procedures
- B. Section 01 32 00 – Project Schedule
- C. Section 01 33 00 – Submittals
- D. Section 01 40 00 – Quality Control Plan
- E. Section 01 41 00 – Regulatory Requirements
- F. Section 01 50 00 – Construction Facilities, Temporary Controls and Maintenance
- G. Section 01 55 10 – Traffic Maintenance and Protection
- H. Section 01 60 01 – Material and Equipment
- I. Section 01 77 00 – Closeout Procedures

1.03 COORDINATION AND PROJECT CONDITIONS

- A. Prime Contractors shall coordinate scheduling, submittals and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements with provisions for accommodating items installed at a later date.
- B. Sleeves required at penetrations through concrete and masonry in areas of existing construction shall be furnished by the Prime Contractor needing the sleeve to install work under his contract unless specifically indicated otherwise within the Contract Documents.
- C. Prime Contractors shall coordinate space requirements for electrical work which is indicated diagrammatically on the Contract Documents. Routing shown for conduit shall be followed as closely as practical. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Prime Contractors shall coordinate completion and cleanup of work in preparation for Substantial Completion and for portions of the work designated for the Owner's use.
- E. After Owner use of the work, Prime Contractors shall coordinate access to the site for correction of defective work and for work not in accordance with the Contract Documents to minimize disruption to the Owner's activities.

1.04 FIELD ENGINEERING

- A. Employ a land surveyor registered in the State of New York.
- B. The Prime Contractor shall locate and protect temporary and permanent survey control and reference points. Control datum for survey is that shown on the Contract Documents.
- C. Prime Contractors shall verify setbacks and easements, confirm drawing dimensions and elevations.
- D. Prime Contractors shall provide all necessary field engineering services, establishing elevations, lines and levels using recognized engineering and land survey practices.
- E. A complete and accurate log of control and survey work as construction installations progress shall be maintained by all prime Contractors.
- F. Prime contractors shall promptly report to the Owner's Designated Representative and the Project Designer the loss or destruction of reference points or relations required because of changes in grades or other reasons. Dislocated survey control points shall be relocated based on the original survey control. No changes shall be made without prior written notice to the Owner's Designated Representative.

1.05 JOB SITE ADMINISTRATION

- A. The Owner's Designated Representative shall be the individual employed by the Owner with responsibilities listed below:
 - 1. Contract Document Explanation:
 - a. Assist the Prime Contractor's project superintendent in understanding the intent of the Contract Documents.
 - b. Obtain additional details or information from the Project Designer as required.
 - c. Consider and evaluate suggestions or modifications proposed by the Prime Contractor, and report them with recommendations to the Project Designer for a final decision.
 - 2. Observation: Conduct onsite observations and spot checks of work as a basis for determining conformance of the work with the Contract Documents.
 - a. Tests: Advise the Project Designer in advance of scheduled tests, see that tests required by the Contract Documents are actually conducted, and observe, record and report all details relative to the test procedures to the Project Designer.
 - b. Inspections by Others: Accompany inspectors representing local, state or federal agencies having jurisdiction over the project when visiting the project site, and record and report comments of inspections to the Project Designer.
 - 3. Liaison: Serve as liaison between the Owner, Prime Contractor and the Project Designer and maintain a relationship with the Prime Contractor and their subcontractors only through each Prime Contractor's project superintendent.
 - a. Protect against the Owner issuing instructions to the Prime Contractor or his employees.
 - b. Job Conferences and Meetings: Attend and report to the Project Designer all required conferences held at the site.

- c. Owner's Occupancy: If the Owner occupies the work prior to actual completion of the work by the Prime Contractor, the Owner's Designated Representative shall be especially alert to possibilities of claims for damage to completed work prior to acceptance of the work.
 - d. Owner's Existing Operations (additions and alterations to existing facilities): Where existing facilities must be maintained as an operational unit, be alert to conditions at the site that may affect the Owner's operations.
 - e. Construction Schedule and Completion: Be aware of all milestone and completion dates and alert to conditions that may cause a delay in completion. Report such conditions to the Project Designer.
 - f. Daily Coordination: Conduct and assist with daily coordination efforts with the Prime Contractor. Assist the Contractor in obtaining and scheduling access into any actively used or occupied areas to complete work. Attend all project coordination meetings held between trades.
4. Administrative Requirements:
- a. Submittals:
 - (1) Samples: receive samples specified to be furnished at the site, record date received and from whom they were received, notify the Project Designer that samples are ready for inspection, record Project Designer's approval or rejection and maintain custody of approved samples.
 - (2) Shop Drawings: Do not permit installation of materials and equipment for which shop drawings are required unless required drawings have been approved and issued by the Project Designer.
 - b. Records: Maintain orderly files at the site for:
 - (1) Correspondences.
 - (2) Job conference reports.
 - (3) Shop drawings.
 - (4) Reproductions of original contract documents including all addenda, change orders and additional drawings issues after contract award.
 - (5) Daily log recording hours on job site, weather conditions, list of visiting officials and their jurisdiction, daily activities and decisions, general observations and specified detailed observations such as observation of test procedures.
 - (6) Log of prime contractors and subcontractors, including names, addresses and telephone numbers.
 - c. Prime Contractor Payment Requisitions: Review with all concerned, payment requisitions submitted by the Prime Contractor, and forward with recommendations to the Project Designer for disposition.
 - d. Project Completion:
 - (1) When work of the Prime Contract is completed in accordance with the Contract Documents, advise the Project Designer that work is ready for general inspection and acceptance.
 - (2) Upon notification of substantial completion by the Prime Contractor, prepare a list of items for correction before final inspection and check each item as it is corrected.

5. Limitations of Authority: The Owner's Designated Representative shall not become involved in the following areas of responsibility, unless specific exceptions are issued in writing by the Project Designer:
 - a. Shall not authorize deviations from the Contract Documents.
 - b. Shall not personally conduct any tests.
 - c. Shall not enter into the area of responsibility of the Prime Contractor's project superintendent.
 - d. Shall not expedite work for the Prime Contractor.

1.06 PRECONSTRUCTION CONFERENCE

- A. A Preconstruction Conference will be scheduled by the Owner's Designated Representative or the Project Designer after the Notice to Proceed has been issued.
- B. Attendance by all Prime Contractors is mandatory.
- C. The agenda will include discussions regarding the following:
 1. Channels and procedures for communication.
 2. Organizational arrangements of various contractor's personnel, sub-contractor's personnel, materials suppliers, Owner, Owner's Designated Representative and the Project Designer.
 3. Distribution of various contract documents.
 4. Submission of list of sub-contractors, list of products, schedule of values and progress schedule.
 5. Designation of personnel representing all parties in the work.
 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, construction directives, change orders and contract closeout procedures.
 7. Scheduling, including sequencing of critical work.
 8. Use of the project site by the Contractor and the Owner.
 9. Owner's requirements and use,
 10. Construction facilities and controls provided by the Contractor.
 11. Temporary utilities provided by the Contractor.
 12. Security and housekeeping/cleanup procedures.
 13. Procedures and scheduling for independent testing.
 14. Procedures for maintaining record documents.
 15. Requirements for start up of equipment.
 16. Inspection and acceptance of equipment put into service during the construction period.

1.07 PROJECT MEETINGS

- A. The Owner's Designated Representative will schedule and administer meetings throughout the duration of the work at biweekly intervals.
- B. The Owner's Designated Representative will make arrangements for meetings, preside at meetings, record and distribute minutes to all affected parties.
- C. Attendance of Prime Contractor's as well as key subcontractors and suppliers is required as appropriate to the agenda topics for each meeting.
- D. The agenda will include discussions regarding the following:
 1. Review minutes of previous meetings.
 2. Review progress of work.

3. Field observations, problem discussions, issue resolutions.
4. Review of submittal schedule and status.
5. Review of off-site fabrication and delivery schedules.
6. Maintenance of project schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during upcoming work period.
9. Coordination of projected progress.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Other business relating to work.

1.08 PRE-INSTALLATION CONFERENCES

- A. When required by individual Project Manual sections, convene a pre-installation conference at the project site prior to commencing the work of the specific section. Attendance of parties affecting or affected by the work is required.
- B. The Contractor shall request a pre-installation conference a minimum of seven calendar days prior to beginning the specialized work.
- C. The Prime Contractor shall prepare an agenda, preside over the meeting, record minutes and distribute copies within five days to all conference participants and interested parties.
- D. Review conditions of the installation, preparation and installation procedures and coordination of related work.

1.09 PROJECT SUPERINTENDENT

- A. Each Prime Contractor shall provide a qualified project superintendent with experience in supervision of three or more projects similar in size and scope of the work.
- B. The Project Superintendent shall be responsible for full time field supervision, coordination of contractor's and subcontractor's personnel, and completion of the work as required by the Contract Documents.
- C. Each Prime Contractor shall submit the Project Superintendent's resume, documenting prior experience if requested by the Owner's Designated Representative or the Project Designer.
- D. The Owner, The Owner's Designated Representative or the Project Designer shall have the right to require the Prime Contractor to dismiss from the job any project superintendent whose performance has been deemed as non-satisfactory.
- E. The Contractor shall not replace the Project Superintendent without the consent of the Owner, the Owner's Designated Representative or the Project Designer.

1.10 CONSTRUCTION MOBILIZATION

- F. Each Prime Contractor shall cooperate and coordinate with the Owner's designated Representative for allowable staging areas, storage areas, site access, traffic and parking facilities.

1.11 MATERIAL SAFETY DATA SHEETS

- A. A logbook containing material safety data sheets shall be maintained by the Prime Contractor at the project site containing information for all products installed in this project in accordance with OSHA requirements.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 CUTTING AND PATCHING

- A. Each Prime Contractor shall employ skilled and experienced installers to perform cutting and patching work.
- B. Prime Contractors shall submit written request in advance of cutting or altering elements which affects any of the following:
 - 1. Structural integrity of an element.
 - 2. Integrity of weather exposed or moisture resistant elements.
 - 3. Efficiency, maintenance, or safety of an element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting and patching, including excavation and fill, to complete work and to:
 - 1. Fit parts together to integrate with other work.
 - 2. Uncover work to install or correct ill timed work.
 - 3. Remove and replace defective and non-conforming work.
 - 4. Remove samples of installed work for testing.
 - 5. Provide openings in elements of work for penetrations for electrical work.
- D. Execute work to avoid damage to other work and provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore work with new products in accordance with requirements of the Contract Documents.
- G. Fit work tight to pipes, sleeves, ducts, conduits and other penetrations through surface.
- H. Maintain integrity of wall, ceiling or floor construction; completely seal voids.
- I. At penetrations of fire rated walls, partitions, ceilings or construction, completely seal voids with fire rated or fire resistant material to the full thickness of the penetrated element.
- J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to the nearest intersection; for an assembly, refinish the entire unit.
- K. Identify any hazardous substance or condition exposed during the work to the Owner's Designated Representative for decision or remedy.

3.02 SPECIAL PROCEDURES

- A. Match existing products and work for patching and extending work with materials as specified in the Project Manual.

- B. Employ skilled and experienced personnel to perform the work.
- C. Close openings in surfaces to protect existing work from weather, temperature and humidity extremes.
- D. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to the original and/or specified condition.
- E. Where new work abuts or aligns with existing, provide a smooth and even transition. Patch new work to match existing adjacent work in texture and appearance.
- F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate the existing surface along a straight line at a natural line of division and make recommendation to the Owner's Designated Representative.
- G. Where a change of plane 1/4" or more occurs, submit a recommendation for providing a smooth transition to the Owner's Designated Representative.
- H. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.
- I. Finish surfaces as specified in individual Project Manual sections.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures

1.02 REFERENCES

- A. Refer to the General Conditions for additional requirements and information regarding submittals.
- B. Section 01 32 00 – Project Schedule.

1.03 PROCEDURES

- A. Prime Contractor Responsibilities:

1. Review, stamp and sign submittals prior to submission to the Project Designer.
2. Verify field measurements, field construction criteria, catalog numbers, etc. of products to be submitted.
3. Coordinate each submittal with the project's requirements and the Contract Documents.
4. At the time of submission, notify the Project Designer in writing of all deviations from the requirements specified in the Contract Documents.
5. Electronic Submittal Procedures: Submittals will be reviewed electronically. To avoid issues with email file size limitations all submittals shall be scanned and uploaded to an FTP site designated for the project as will be outlined during the preconstruction meeting. Contractor shall post one pdf copy of all product data and shop drawings to the FTP site with the appropriate submittal cover sheet provided at the end of this section completed and attach to each submittal. Provide a cover sheet for only one type of item with related accessories, equipment and components. Do not combine unrelated items under the same cover sheet.
6. The Prime Contractor shall utilize the "As-Specified Verification Form" included as Attachment #2 at the end of this specification if the exact manufacturer and model specified in the Project Manual will be incorporated in the work.
7. After the Project Designer's review, distribute copies of the submittal with the Project Designer' stamp and signature to other Prime Contractors, municipal officials and other parties requiring copies for coordination.

- B. Project Designer Responsibilities:

1. Review submittals in accordance with the provisions outlined in the General Conditions.
2. Stamp, initial and post submittals to the FTP site for Prime Contractor for distribution.

- C. Timing of Work: Prime Contractors shall not start, fabricate or install any portion of the work for which submittals are required until accepted submittals have been returned to the Contractor.

- D. Resubmission Requirements: When the Project Designer rejects initial submissions, submit revised submittals in accordance with the specified requirements for initial submittals.

- E. Construction Schedule Submittals: Each Prime Contractor shall prepare a construction schedule in accordance the General Conditions for the entire duration of work required of his Prime Contract.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- F. Delegated Design Submittals: In addition to the requirements specified in the General Conditions, comply with the following requirements as applicable:
1. Submit drawings, product data, samples, performance and design criteria, calculations and other information required to fully describe design of components as indicated in the Project Manual.
 2. Complete the cover sheet included as Attachment #3 at the end of this specification section and attach to each submittal of delegated design data.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

As – Specified Verification Form

Project Number: _____

(As shown on Project Manual)

Project Title: _____

(As shown on Project Manual)

Technical Specification Section: _____

(Include Section Number and Title as shown in Project Manual)

Submittal No.: _____

Specified Product: _____

(Include manufacturer's name and product designation)

The undersigned, hereinafter called the Contractor, hereby warrants that the Specified Product listed above will be incorporated into the Project in accordance with requirements specified in the Technical Specification Section identified above without modification or alteration.

By acceptance of this form, HMH Site and Sports Design agrees that submittals identified in the Technical Specification Section identified above are not required, unless otherwise stated in the Submittals article in the Technical Specification Section.

Note: The Contractor is advised that use of this As-Specified Verification Form does not relieve the Contractor from providing all information required in Section 01700 – Contractor Closeout of the Project Manual or from complying with requirements of the General Conditions as amended by Supplementary Conditions.

**Reserved for use by HMH Site and
Sports Design**

(Name of Contractor)

(Authorized Signature)

(Title of Signatory)

(Date)

Attachment No. 2

Submittal Cover

PROJECT:	CONTRACT FOR:
HMH PROJECT NO.:	CONTRACTOR:

SUBMITTAL INFORMATION

<input type="checkbox"/> 1 st Submission Date: _____	<input type="checkbox"/> 1 st Resubmittal Date: _____	<input type="checkbox"/> 2 nd Resubmittal Date: _____
Product Description:		
Shop Drawing Title:		
Shop Drawing No.:		
Contents:	<input type="checkbox"/> Product Data	<input type="checkbox"/> Samples
	<input type="checkbox"/> Tests	<input type="checkbox"/> Schedules
Manufacturer:		
SPEC SECTION:	Paragraph(s):	Drawing #(s):

CONTRACTOR'S APPROVAL

HMH REMARKS

Date: _____	By: _____
<input type="checkbox"/> Submitted product has been reviewed for release to Project Designer	
<input type="checkbox"/> Submitted product is as specified	
<input type="checkbox"/> Submitted product is equal to specified product	

DESIGNER'S ACTION

Date: _____	By: _____
<input type="checkbox"/> No Exception Taken	<input type="checkbox"/> Make Corrections Noted
<input type="checkbox"/> Rejected	<input type="checkbox"/> Revise and Resubmit

Reviewing is only for conformance with the Project's design concept and compliance with the information in the Contract Documents. The contractor is responsible for quantities and dimensions to be confirmed and correlated at the site; for information that pertains solely to the fabrication processes or to the mean, methods, techniques, sequences & procedures of construction; and for coordination of the Work of all trades. Any corrections on the submittal shall not be deemed an order for extra work.

Attachment No. 1

Delegated Design Submittal Cover Sheet

PROJECT:	LOCATION:
	CONTRACT FOR:
HMH PROJECT NO.:	CONTRACT DATE:
	CONTRACTOR:

SUBMITTAL INFORMATION		
<input type="checkbox"/> 1 st Submission Date: _____	<input type="checkbox"/> 1 st Resubmittal Date: _____	<input type="checkbox"/> 2 nd Resubmittal Date: _____
Product Description:		
Shop Drawing Title:		
Shop Drawing No.:		
Contents:	<input type="checkbox"/> Product Data	<input type="checkbox"/> Samples <input type="checkbox"/> Tests <input type="checkbox"/> Schedules
Manufacturer:		
SPEC SECTION:	Paragraph(s):	Drawing #(s):
CONTRACTOR'S APPROVAL		HMH REMARKS
Date: _____ By: _____ <input type="checkbox"/> Submitted product has been reviewed for release to Project Designer <input type="checkbox"/> Submitted product is as specified <input type="checkbox"/> Submitted product is equal to specified product		
DESIGN PROFESSIONAL'S CERTIFICATION		
By: _____ Date: _____ By stamping this Delegated Design Submittal Cover Sheet, I certify that I am a design professional currently licensed in the State where the project is located and confirm my responsibility for work included in this submittal in accordance with the General Conditions. Further, I certify to the best of my knowledge, information and belief, the plans and specifications are in accordance with applicable requirements of the State Building Code, the State Energy Conservation Construction Code and construction standards of the State Education Department.		

SECTION 01 41 11

SPECIAL INSPECTIONS AND TESTING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 GENERAL REQUIREMENTS

- A. Special Inspections and Testing shall be in accordance with Chapter 17 of the Building Code of New York State, adopted 2002.
- B. The program of Special Inspection and Testing is a Quality Assurance program intended to ensure that the work is performed in accordance with the Contract Documents.
- C. This Specification Section is intended to inform the Contractor of the Owner's quality assurance program and the extent of the Contractor's responsibilities. This Specification Section also serves to inform the Special Inspector and Inspection and Testing Agents of their requirements and responsibilities.

1.3 SCHEDULE OF INSPECTIONS AND TESTS

- A. Required inspections and tests are described in the Schedule at the end of the Statement of Special Inspections.

1.4 QUALIFICATIONS

- A. The Special Inspector shall have extensive experience in the building design and construction industry, be professionally trained in engineering, and be approved by the Design Professional in Responsible Charge and the Authority Having Jurisdiction.
- B. The Inspection and Testing Agents, including testing laboratories, shall be approved by the Owner's Representative and the Authority Having Jurisdiction.
- C. The following specific requirements for Inspection and Testing Agents may be waived by the Authority Having Jurisdiction.
 - 1. Inspectors performing inspections of soils and foundations shall have an education and background in geotechnical engineering.
 - 2. The testing laboratories shall maintain a full time licensed Professional Engineer on staff who shall certify all test reports. This Engineer shall be responsible for the training of the testing technicians and shall be in responsible charge of the field and laboratory testing operations.
 - 3. Technicians performing sampling and testing of concrete shall be ACI certified Concrete Field Testing Technicians - Grade 1.
 - 4. Inspectors performing inspections of concrete work such as inspections of concrete placement, batching, reinforcing placement, curing and protection, shall be ACI certified Concrete Construction Inspectors or ICBO certified Reinforced Concrete Special

Inspector in lieu of being a licensed P.E. or EIT.

5. Inspectors performing inspections of masonry shall be ICBO certified Structural Masonry Special Inspectors.
6. Inspectors performing inspections of structural steel shall be individuals who are either licensed Professional Engineers (P.E.) or Engineers-In-Training (EIT) with an education and background in structural engineering, and ICBO certified as Structural Steel Special Inspectors.
7. Technicians performing visual inspection of welding shall be AWS Certified Welding Inspectors or ICBO certified Structural Steel and Welding Special Inspectors. Technicians performing non-destructive testing such as ultrasonic testing, radiographic testing, magnetic particle testing, or dye-penetrant testing shall be certified as an ASNT-TC Level II or Level III Technician.
8. Inspectors performing inspections of spray fireproofing shall be ICBO certified Spray-Applied Fireproofing Special Inspectors.
9. Technicians performing standard tests described by specific ASTM Standards shall have training in the performance of such tests and must be able to demonstrate either by oral or written examination competence for the test to be conducted. They shall be under the supervision the Owner's Representative and shall not be permitted to independently evaluate test results.

1.5 SUBMITTALS

- A. The Special Inspector and Inspection and Testing Agents shall submit to the Owner's Representative and the Authority Having Jurisdiction for review a copy of their qualifications which shall include the names and qualifications of each of the individual inspectors and technicians who will be performing inspections or tests.
- B. The Special Inspector and Inspection and Testing Agents shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested.

1.6 PAYMENT

- A. The Owner will engage and pay for the services of the Special Inspector and Inspection and Testing Agents.
- B. If any materials which require Special Inspections are fabricated in a plant which is not located within 100 miles of the project, the Contractor shall be responsible for the travel expenses of the Special Inspector or Inspection and Testing Agents.
- C. The Contractor shall be responsible for the cost of any retesting or reinspection of work which fails to comply with the requirements of the Contract Documents.

1.7 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall cooperate with the Special Inspector and the Inspection and Testing Agents so that the Special Inspections and Testing may be performed without hindrance.
- B. The Contractor shall provide adequate OSHA-compliant access for the Special Inspector and the

Inspection and Testing Agents, for them to perform their work.

- C. The Contractor shall review the Statement of Special Inspections and shall be responsible for coordinating and scheduling inspections and tests. The Contractor shall notify the Special Inspector or Inspection and Testing Agents at least 24 hours in advance of a required test, and 3 working days in advance of a required inspection. Un-inspected work that required inspection may be rejected solely on that basis.
- D. The Contractor shall provide incidental labor and facilities to provide access to the work to be inspected or tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- E. The Contractor shall keep at the project site the latest set of construction drawings, field sketches, approved shop drawings, and specifications for use by the Special Inspector and Inspection and Testing Agents.
- F. The Special Inspection program shall in no way relieve the Contractor of his obligation to perform work in accordance with the requirements of the Contract Documents or from implementing an effective Quality Control program. All work that is to be subjected to Special Inspection and Testing shall first be reviewed by the Contractor's quality control personnel.
- G. The Contractor shall be solely responsible for construction site safety.

1.8 LIMITS ON AUTHORITY

- A. The Special Inspector or the Inspection and Testing Agents may not release, revoke, alter, or enlarge on the requirements of the Contract Documents.
- B. The Special Inspector and the Inspection and Testing Agents will not have control over the Contractor's means and methods of construction.
- C. The Special Inspector or the Inspection and Testing Agents shall not be responsible for construction site safety.
- D. The Special Inspector or the Inspection and Testing Agents have no authority to stop the work.

1.9 STATEMENT OF SPECIAL INSPECTIONS

- A. The Statement of Special Inspections will be prepared by the Design Professional in Responsible Charge.
- B. The Statement of Special Inspections shall be submitted to the Authority Having Jurisdiction with the application for Building Permit.

1.10 RECORDS AND REPORTS

- A. Inspection and Testing Agents shall prepare detailed daily reports of each inspection or test and submitted to the Special Inspector. Reports shall include:
 - 1. Date of test or inspection.
 - 2. Name of inspector or technician.
 - 3. Location of specific areas tested or inspected.
 - 4. Description of test or inspection and results.
 - 5. Applicable ASTM standard.

6. Weather conditions (for site inspections or testing).
 7. Signature of inspector, or of the individual overseeing the testing.
- B. The Special Inspector shall submit interim reports to the Authority Having Jurisdiction, Owner's Representative, and Contractor at the end of each week which include all inspections and test reports received that week.
- C. The Special Inspector shall report any discrepancies from the Contract Documents found during an inspection. If the discrepancies are not corrected during the inspection, the Special Inspector shall notify the Owner's Representative and Authority Having Jurisdiction. Reports shall document all discrepancies identified and the corrective action taken.
- D. The Testing Laboratory shall promptly notify the Special Inspector and the Owner's Representative by telephone, fax or email of any test results which fail to comply with the requirements of the Contract Documents.
- E. The Inspection and Testing Agents shall submit reports to the Special Inspector within 7 days of the inspection or test. Handwritten reports may be submitted if final typed copies are not available.
- F. At the completion of the work requiring Special Inspections, each Inspection and Testing Agent, including laboratories, shall provide a statement to the Special Inspector that all work was completed in substantial conformance with the Contract Documents and that all appropriate inspections and tests were performed.

1.11 FINAL REPORT OF SPECIAL INSPECTIONS

- A. The Final Report of Special Inspections shall be completed by the Special Inspector and submitted to the Owner's Representative and Authority Having Jurisdiction prior to the issuance of a Certificate of Use and Occupancy.
- B. The Final Report of Special Inspections will certify that all required inspections have been performed and will itemize any discrepancies that were not corrected or resolved.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

PART 4 – SCHEDULE

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
A. Steel Construction						
1. Material verification of high-strength bolts, nuts and washers.		X	Applicable ASTM material specifications. AISC ASD, Section A3.4; AISC LRFD, Section A3.3	1704.3	√	SPEC 05 12 00 SPEC 11 68 43 SPEC 13 34 17 SPEC 13 34 27
2. Inspection of high- strength bolting.	X	X	AISC LRFD, Section M2.5	1704.3, 1704.3.3	√	SPEC 05 12 00 SPEC 11 68 43 SPEC 13 34 17 SPEC 13 34 27
3. Material verification of structural steel.			ASTM A 6 or A 568	1704.3, 1708.4	<input type="checkbox"/>	
4. Material verification of weld filler materials.			AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	1704.3	<input type="checkbox"/>	
5. Inspection of welding:			AWS D1.1, D1.3, D1.4; ACI 318: 3.5.2	1704.3, 1704.3.1, 1903.5.2	<input type="checkbox"/>	
a. Structural steel	X	X			√	SPEC 05 12 00 SPEC 11 68 43 SPEC 13 34 17 SPEC 13 34 27
b. Reinforcing steel	X	X			<input type="checkbox"/>	
6. Inspection of steel frame joint details.		X		1704.3, 1704.3.2	√	SPEC 05 12 00 SPEC 11 68 43 SPEC 13 34 17
B. Concrete Construction						
1. Inspection of reinforcing steel, including prestressing tendons, and placement.		X	ACI 318: 3.5, 7.1- 7.7	1704.4, 1903.5, 1907.1, 1907.7, 1914.4	√	SPEC 03 30 00 SPEC 32 13 13 SPEC 32 16 13
2. Inspection of reinforcing steel welding.			AWS D1.4; ACI 318: 3.5.2	1704.4, 1903.5.2	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
3. Inspection of bolts to be installed in concrete prior to and during placement.	X			1704.4, 1912.5	√	SPEC 03 30 00
4. Verify use of required design mix.		X	ACI 318: Ch. 4, 5.2-5.4	1704.4, 1904, 1905.2- 1905.4, 1914.2, 1914.3	√	SPEC 03 30 00 SPEC 32 13 13 SPEC 32 16 13
5. Sampling fresh concrete: slump, air content, temperature, strength test specimens.	X		ASTM C 172, C 31; ACI 318: 5.6, 5.8	1704.4, 1905.6, 1914.10	√	SPEC 03 30 00 SPEC 32 13 13 SPEC 32 16 13
6. Inspection of placement for proper application techniques.	X		ACI, 318: 5.9, 5.10	1704.4, 1905.9, 1905.10, 1914.6, 1914.7, 1914.8	√	SPEC 03 30 00 SPEC 32 13 13 SPEC 32 16 13
7. Inspection for maintenance of specified curing temperature and techniques.		X	ACI, 318: 5.11, 5.13	1704.4, 1905.11, 1905.13, 1914.9	√	SPEC 03 30 00 SPEC 32 13 13 SPEC 32 16 13
8. Inspection of prestressed concrete.	X		ACI 318: 18.18, 18.164	1704.4	<input type="checkbox"/>	
9. Erection of precast concrete members.		X	ACI 318: Ch. 16	1704.4	<input type="checkbox"/>	
10. Verification of in-situ concrete strength prior to stressing of tendons and prior to removal of shores and forms from beams and slabs.		X	SVI 318: 6.2	1704.4, 1906.2	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD		BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
C. Masonry Construction L1 = Level 1 Inspection required for nonessential facilities. L2 = Level 2 Inspection required for essential facilities. In general, schools are not considered essential facilities unless they are a designated emergency shelter.			ACI 530/ ASCE 5/TMS 402, Ch. 35	ACI 530.1/ ASCE 6/TMS 602, Ch. 35		<input type="checkbox"/>	
1. Verify to ensure compliance:							
a. Proportions of site prepared mortar and grout.		X L1 L2		2.6A	1704.5	<input type="checkbox"/>	
b. Placement of masonry units and construction of mortar joints.		X L1 L2		3.3B	1704.5	<input type="checkbox"/>	
c. Location and placement of reinforcement, connectors, tendons, anchorage.		X L1 L2		3.4, 3.6A	1704.5	<input type="checkbox"/>	
d. Prestressing technique and installation.		X L1 L2		3.6A, 3.6B	1704.5	<input type="checkbox"/>	
e. Grade and size of tendons and anchorage.		X L1 L2		2.4B, 2.4H	1704.5	<input type="checkbox"/>	
f. Grout specs prior to grouting.	X L2			3.2D	1704.5	<input type="checkbox"/>	
g. Placement of grout.	X L2			3.5	1704.5	<input type="checkbox"/>	
h. Grouting of tendons.	X L2			3.6C	1704.5	<input type="checkbox"/>	
2. Inspection shall verify:					1704.5	<input type="checkbox"/>	
a. Size and location of structural elements.		X L1 L2		3.3G	1704.5	<input type="checkbox"/>	
b. Type, size, and location of anchors.	X L2	X L1	1.15.4, 2.1.1		1704.5	<input type="checkbox"/>	
c. Specified size, grade, and type of reinforcement.		X L1 L2	1012	2.4, 3.4	1704.5	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD		BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
d. Welding of reinforcing bars.	X L1 L2		2.1.8.6, 2.1.8.6		1704.5, 2108.9.2.11	<input type="checkbox"/>	
e. Cold/hot weather protection of masonry construction.		X L1 L2		108	1704.5, 2104.3, 2104.4	<input type="checkbox"/>	
f. Prestressing force measurement and application.	X L2	X L1		3.6B	1704.5	<input type="checkbox"/>	
3. Inspection prior to grouting.		X L1 L2	1.12	3.2D, 3.4, 2.6B, 3.3B	1704.5	<input type="checkbox"/>	
4. Grout placement.	X L1 L2			3.5, 3.6C	1704.5	<input type="checkbox"/>	
5. Preparation of grout specimens, mortar specimens, and/or prisms.	X L1 L2			1.4	1704.5	<input type="checkbox"/>	
6. Compliance with documents and submittals.		X L1 L2		1.5	1704.5	<input type="checkbox"/>	
D. Wood Construction: Fabrication of wood structured elements and assemblies.					1704.6, 1704.2	<input type="checkbox"/>	
E. Soils							
1. Site preparation.					1704.7.1	√	SPEC 31 00 00 SPEC 31 10 00 SPEC 31 23 17
2. During fill placement.					1704.7.2	√	SPEC 31 00 00 SPEC 31 10 00 SPEC 31 23 17
3. Evaluation of in-place density.					1704.7.3	√	SPEC 31 00 00 SPEC 31 10 00 SPEC 31 23 17
F. Pile Foundations: Installation and load tests.					1704.8	<input type="checkbox"/>	
G. Pier Foundations: Seismic Design Category C, D, E, F.					1704.9, 1616.3	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
H. Wall Panels and Veneers: Seismic Design Category E, F.				1704.10, 1616.3, 1704.5	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
I. Sprayed Fire- Resistant Materials						
1. Structural member surface conditions.				1704.11.1	<input type="checkbox"/>	
2. Application.				1704.11.2	<input type="checkbox"/>	
3. Thickness.			ASTM E 605	1704.11.3	<input type="checkbox"/>	
4. Density.			ASTM E 605	1704.11.4	<input type="checkbox"/>	
5. Bond strength.			ASTM E 736	1704.11.5		
6. Thickness.			ASTM E 605	1704.11.3		
7. Density.			ASTM E 605	1704.11.4		
8. Bond strength.			ASTM E 736	1704.11.5		
J. Exterior Insulation and Finish Systems (EIFS)				1704.12	<input type="checkbox"/>	
K. Special Cases				1704.13	<input type="checkbox"/>	
L. Smoke Control				1704.14	<input type="checkbox"/>	
M. Special Inspections for Seismic Resistance: Applicable to specific structures, systems, and components.						
1. Structural steel.	X		AISC Seismic	1707.2	<input type="checkbox"/>	
2. Structural wood.	X			1707.3	<input type="checkbox"/>	
3. Cold-formed steel framing.		X		1707.4	<input type="checkbox"/>	
4. Storage racks and access floors.		X		1707.5	<input type="checkbox"/>	
5. Architectural components.		X		1707.6	<input type="checkbox"/>	
6. Mechanical and electrical components.		X		1707.7	<input type="checkbox"/>	
7. Seismic isolation system.		X		1707.8	<input type="checkbox"/>	

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the BCNYS)	CONTINUOUS	PERIODIC	REFERENCE STANDARD	BCNYS REFERENCE	CHECK IF REQUIRED	IDENTIFY SPEC SECTION AND PROVIDE CLARIFYING NOTES IF NECESSARY
N. Structural Testing for Seismic Resistance: Applicable to specific structures, systems, and components.						
1. Testing and verification of masonry materials and assemblies.				1708.1	<input type="checkbox"/>	
2. Testing for seismic resistance.				1708.2	<input type="checkbox"/>	
3. Reinforcing and prestressing steel.			ACI 318	1708.3, 1903.5.2	<input type="checkbox"/>	
4. Structural steel.			AISC Seismic	1708.5	<input type="checkbox"/>	
5. Mechanical and electrical equipment.				1708.5	<input type="checkbox"/>	
6. Seismically isolated structures.				1708.6, 1623.8	<input type="checkbox"/>	
O. Structural Observations				1709.1	<input type="checkbox"/>	
Applicable to specific structures.						
P. Test Safe Load				1712.1	<input type="checkbox"/>	
Q. In-Situ Load Tests				1713.1	<input type="checkbox"/>	
R. Preconstruction Load Tests				1714.1	<input type="checkbox"/>	
S. Other (list)						

END OF SECTION

SECTION 01 50 00

CONSTRUCTION FACILITIES, TEMPORARY CONTROLS AND MAINTENANCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Construction facilities and temporary controls provided by each Prime Contractor for their respective Prime Contract.

1.02 SECTION INCLUDES

- A. Temporary toilets.
- B. Construction aids.
- C. Barriers and enclosures.
- D. Temporary fence enclosure.
- E. Protection of work and existing property.
- F. Water controls.
- G. Fire prevention.
- H. Access roads.
- I. Parking.
- J. Rubbish removal.
- K. Placement, relocation and removals.
- L. Project sign.
- M. Maintenance of project site

1.03 TEMPORARY TOILETS

- A. Existing toilet rooms to be used by the Prime Contractor and subcontractor employees will be identified by the Owner's Designated Representative.
- B. Provide temporary facilities for the Prime Contractor and subcontractor employees engaged on the project. Locate toilets where directed and maintain them in a sanitary condition.

Number of Employees	Minimum Number of Facilities*
20 or less	1 toilet
20 or more	1 toilet and 1 urinal per 40 employees
200 or more	1 toilet and 1 urinal per 50 employees

*Toilet/urinal combinations shall count as only one facility

- 1. Locate toilet facilities no more than 1000 feet from any work location except for mobile crews that have readily available transportation to nearby toilet facilities.

1.04 CONSTRUCTION AIDS

- A. Install and maintain construction aids in accordance with applicable state labor laws, OSHA regulations and other federal, state and local laws. Maintenance of the construction aids in a safe condition shall remain the exclusive responsibility of the Prime Contractor providing the construction aid.

1.05 BARRIERS AND ENCLOSURES

- A. Provide barriers during performance of the work to:
 - 1. Prevent unauthorized entry into work areas.
 - 2. Allow for the Owner's occupancy of the project site.
 - 3. Protect existing facilities and adjacent properties from damage.
 - 4. Protect vehicular and pedestrian traffic.
- B. Scaffolding, Hoist, and Equipment Barriers: Provide temporary fence enclosures as required to prevent unauthorized persons from coming in contact with ground supported scaffolding, hoists and equipment.

1.06 TEMPORARY FENCE ENCLOSURE

- A. Provide temporary fence not less than 6' in height above grade.
 - 1. Fabric: 9 gauge galvanized steel, or equal gauge aluminum, woven together into a 2" diamond mesh, with both top and bottom edges having a twisted finish.
 - 2. Posts, Rails and Connections: Standard galvanized steel products of an approved manufacturer, of the size and types as required and approved.
 - 3. Gates: Provide access gates for passage of employees and materials complete with padlock. Fabricate gates with galvanized steel pipe perimeter covered with the same fabric specified for the fence. Furnish the Owner's Designated Representative with two keys per gate.
 - 4. Erection: Set posts four feet into the ground and not more than ten feet apart. Install bottom of fence fabric no more than 2" above existing grade. Pull fabric taught and wire tightly to posts and rails at no more than two feet on center.
 - 5. Wrap fence in black fabric.
 - 6. Refer to Division 1 – General Conditions for additional requirements.

1.07 PROTECTION OF WORK AND EXISTING PROPERTY

- A. Protect installed work and existing construction and finishes during performance of the work.
- B. Maintain buildings if in the scope of the project in a watertight condition during performance of the work.
- C. Provide temporary and removable protection for installed products. Control activity in the immediate work area to prevent damage.
- D. Protect existing trees and plants during performance of the work unless otherwise indicated. Box trees and plants within the contract limit lines. Do not deposit excavated materials or store building materials around trees or plants. Do not attach guy wires to trees.
- E. Prohibit traffic from landscaped areas.

1.08 WATER CONTROLS

- A. Provide and maintain pumping equipment necessary to keep work areas free from accumulating water. Discharge water into existing storm water drainage systems or otherwise disperse as directed.

1.09 FIRE PREVENTION

- A. Take precautions necessary to prevent fires.
- B. Fuel for cutting and heating torches shall be gas only and shall be contained in Underwriters Laboratory approved containers.
- C. Furnish and maintain a currently inspected 20 pound capacity multi-class A-B-C fire extinguisher in the immediate vicinity where welding tools or torches are in use.
- D. Furnish and maintain a currently inspected fire extinguisher of the appropriate class and size whenever the temporary storage of materials changes that areas classification of fire load or life safety.
- E. Do not use flammable liquids other than those specified within a structure without approval from the Owner's Designated Representative.
- F. Tarpaulins shall be flameproof and shall be securely anchored when attached to scaffolding or when used to enclose any portion of a structure.

1.10 ACCESS ROADS

- A. Refer to Division 1 – General Conditions for additional requirements
- B. Routes of ingress and egress on the premises to the location of the work shall be as directed by the Owner's Designated Representative.
- C. Keep designated access roads clean of dirt and debris resulting from the work.
- D. Provides means of removing mud from vehicle wheels before entering paved roads.
- E. The Contractor shall construct temporary access roads to serve the construction area as indicated on the Contract Documents. Extend and relocate access roads as construction progresses, providing detours as necessary for unimpeded traffic flow.
- F. Construct temporary bridges and culverts to span low areas and to allow for unimpeded drainage.
- G. Provide unimpeded access for emergency vehicles to the site, and provide and maintain access to fire hydrants and control valves free of obstructions.
- H. Maintain access roads in sound condition, free of excavated materials, construction equipment, construction products, mud, snow and ice and maintain existing paved areas used for construction access. Promptly repair potholes, low areas, standing water and other deficiencies not existing at the start of construction.
- I. Remove temporary access roads at the completion of the project, unless otherwise required for the construction of permanent facilities, and repair component of permanent facilities used for access roads to comply with the requirements of applicable specification sections for new facilities.
- J. Where permanent paving is to be installed over temporary access roads, remove and replace approximately the top 4" of stone or gravel prior to the installation of the permanent paving.

1.11 PARKING

- A. Contractor parking areas shall be as designated by the Owner's Designated Representative. Refer to Division 1 – General Conditions for additional requirements
 - 1. Keep designated parking areas clear of dirt and debris resulting from the work.
 - 2. If requested, register vehicles which are to be parked at the project site with the Owner.
 - 3. Remove ignition keys from unattended vehicles and lock all doors.
- B. The Contractor shall construct temporary parking areas to accommodate use of all personnel of all Prime Contractors in locations and in accordance with the requirements shown on the Drawings.
- D. Maintain parking lots in sound condition, free of excavated materials, construction equipment, construction products, mud, snow and ice. Promptly repair potholes, low areas, standing water and other deficiencies not existing at the start of construction.
- E. Remove temporary parking lots at the completion of the project, unless otherwise required for construction of permanent facilities, and repair component of permanent facilities used for parking to comply with the requirements of applicable specification sections for new facilities.
- F. Where permanent paving is to be installed over temporary parking areas, remove and replace approximately the top 4" of stone or gravel prior to the installation of the permanent paving.

1.12 RUBBISH REMOVAL

- A. Clean up and containerize rubbish, refuse, debris, waste materials and removed materials and equipment resulting from the work at the end of each work day and leave work areas broom clean except where more stringent cleaning is specified. Locate containerized rubbish in locations directed by the Owner's Designated Representative.
- B. Remove rubbish from the project site at least once per week and more often if the rubbish presents a hazard.
- C. Burning or burying of rubbish will not be permitted.

1.13 PLACEMENT, RELOCATION AND REMOVALS

- A. Unless otherwise directed by the Owner's Designated Representative, locate construction facilities and temporary controls to avoid interference with work of this project, future project indicated in the Contract Documents and the Owner's activities on the site.
- B. Avoid locating welding equipment, gasoline engines, paving and other fume generating construction operations where fumes could be drawn into occupied portions of structures or into fresh air intakes.
- C. Should a change in location of any construction facilities and temporary controls be necessary in order to progress the work properly, remove and relocate such items as directed without additional cost to the Owner.
- D. Remove the construction facilities and temporary controls when they are no longer required. Restore permanent facilities used for or connected to temporary facilities to their original condition or better.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

1.14 PROJECT SIGN

- A. The Site Work Prime Contractor shall provide, erect and maintain a 4 foot by 8 foot exterior grade plywood project identification sign with wood frame and all required supports, painted with text and colors as follows:
 - 1. Name and address of Owner in minimum 4 inch high letters.
 - 2. Name of project in minimum 3 inch high letters.
 - 3. Name and address of project designer's in minimum 1 1/2" high letters.
 - 4. Name, address and name of prime contractor in minimum 1 1/2" letters.

1.15 MAINTENANCE OF PROJECT SITE

- A. The Site Work Prime Contractor shall maintain all lawns and other landscape materials within temporary fenced enclosures or within the project contract limit line.
 - 1. Lawn areas shall be mowed a minimum of once every two weeks unless otherwise specifically agreed to at the project preconstruction meeting.
 - 2. Refer to Division 1 – General Conditions for additional requirements

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 55 10

TRAFFIC MAINTENANCE AND PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work of this section consists of maintaining traffic and protecting the public from damage to persons and property within the limits of and for the duration of the project.
- B. Maintain traffic over a reasonably smooth traveled way marked with signs, delineators guiding devices and other acceptable methods in conformance with State Department of Transportation standards.

1.02 APPLICABILITY

- A. The work of this section shall be required in all areas within the project limits that will be open to public vehicular traffic.

1.03 RESPONSIBILITY

- A. Assume responsibility for conducting operations in a manner to insure the safety and convenience of all travelers and adjoining property owners within the limits of and for the duration of the project.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Comply with the requirements outlined in the State Department of Transportation Standard Specifications as they apply to the various materials required for the work of this section.
- B. Provide sign panels of aluminum, galvanized steel or plywood with faces of reflective sheet metal and non-reflective black characters conforming to Department of Transportation standards.
- C. Provide delineators, barricades and lighting for construction barricades in accordance with the requirements of the State Department of Transportation.

PART 3 EXECUTION

3.01 GENERAL

- A. Remove construction equipment and materials from the roadway during non-working hours or provide protection in such a manner that they will not constitute a traffic hazard.
- B. Conduct and schedule the work in a manner that will minimize the time during which the traveling public will be exposed to hazards.
- C. Do not park employee's personal vehicles within the work area in a manner that will constitute a traffic hazard.

- D. Provide a traveled way suitable for two lanes of moving traffic. Keep traveled way reasonably smooth and hard at all times.
- E. Keep the traveled way of all public ways utilized for hauling materials to or from the project free of foreign objects that may fall or drop from transporting vehicles.
- F. Correct dusty conditions resulting from the work by the use of calcium chloride and/or water. When using water, distribute uniformly by the use of suitable spray heads or a spray bar. The Owner's Designated Representative will be the sole judge of the need for the application of water for dust control. Apply water at the intervals and locations ordered by the Owner's Designated Representative.
- G. Whenever it becomes necessary to maintain traffic on one lane, provide adequate traffic controls on the section of roadway on which vehicle traffic is maintained. Provide competent flag persons or traffic signals at the location which will in the judgement of the Owner's Designated Representative adequately and continuously control one lane traffic.
- H. Provide a sufficient number of flag persons in areas where construction operations are in potential conflict with public vehicular traffic. Flag persons shall wear orange hats or caps and vests in conformance with State Department of Transportation standards.
- I. Maintain safe and adequate ingress and egress to and from intersecting highways, residences and commercial establishments.
- J. Maintain existing and new drainage structures, culverts and ditches to adequately drain the traveled way.
- K. Provide, maintain, move and remove delineation and guiding devices to properly delineate a safe and reasonable roadway. Delineate areas on which it is unsafe to travel.
- L. Maintain existing highway signs, markers, delineators and their supports. Where necessary, relocate existing signs in conformance with State Department of Transportation standards. Replace signs lost or damaged as a result of contractual work.

3.02 CONSTRUCTION SIGNS

- A. Provide, maintain, move and remove reflectorized construction signs in accordance with State Department of Transportation standards.
- B. Paint supports and backs of sign panels with two coats of white paint.
- C. Mount construction signs a minimum of 5 feet above the surface of the traveled way.

3.03 CONSTRUCTION BARRICADES

- A. Provide, maintain, move and remove lighted construction barricades in accordance with State Department of Transportation standards.
- B. Provide low intensity, flashing barricade lights conforming to the State Department of Transportation standard requirements.
- C. Hours of operation for barricade lights shall be from dusk to dawn.

3.04 OPENING ROADWAY TO TRAFFIC PRIOR TO APPROVAL

- A. Maintain and protect traffic on any portion of pavement or structure ordered in writing by the Owner's Designated Representative or as shown on the Contract Documents to be opened to traffic prior to formal contract acceptance.

3.05 REMOVAL OF TRAFFIC CONTROL DEVICES

- A. Promptly remove all delineators, signs, barricades and pavement workings when in the opinion of the Owner's Designated Representative their presence constitutes a hazard or inconvenience to the traveling public.
- B. Remove all remaining traffic control devices upon completion of the work of this contract unless otherwise ordered in writing by the Owner's Designated Representative.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Final cleaning requirements.
- B. Project record document requirements.
- C. Operating and maintenance data requirements.
- D. System demonstration requirements.
- E. Warranty and bond requirements.
- F. Spare parts and maintenance material requirements.
- G. Contract closeout procedures.

1.02 FINAL CLEANING

- A. Each Prime Contractor shall provide for thorough cleaning of the site immediately before the final inspection, unless otherwise specified. The site shall be kept in a clean condition until the Owner occupies the area.
- B. Protection During Final Cleaning
 - 1. Fire Protection: Store volatile waste removed in covered metal containers, and remove from the premises in accordance with local and state ordinances and OSHA requirements.
 - 2. Pollution Control: Comply with local and state pollution control ordinances and OSHA pollution control requirements for cleaning and disposal operations.
 - a. Do not burn and bury rubbish and waste materials on the site.
 - b. Do not dispose of volatile fluid wastes such as mineral spirits, oil, hydraulic fluids and similar materials in storm sewers, sanitary sewers, streams or other waterways.
- C. Materials: Use cleaning materials recommended by the manufacturer of products or surfaces to be cleaned.

1.03 PROJECT RECORD DOCUMENTS

- A. Prime Contractors shall maintain at the site for the Owner one record copy of the drawings, specifications, addenda, change orders, and other contract modifications in good order and marked current to record field changes and selections made during construction, and one record copy of approved shop drawings, product data, samples and similar required submittals. These shall be available to the Owner's Designated Representative and the Project Designer and shall be delivered to the Project Designer for submittal to the Owner upon completion of the work.
- B. One set of Contract Drawings will be provided to each Prime Contractor at the beginning of the work at no cost. These are to be used for the purposes listed in this specification and delivered to the Owner at the completion of the project.
 - 1. If Documents are lost, stolen or destroyed, the Prime Contractor shall pay for replacement drawings at a cost of \$50.00 for 30" X 42" sheets and \$15.00 for 11" X 17" sheets.
 - 2. Clearly and neatly incorporate all changes due to addenda, change orders, field conditions and record all items on Contract Documents.
 - 3. Clearly and neatly incorporate the Prime Contractor's name and address on each record document in black permanent ink.

4. Submit prints of the record drawings when requested for interim approval.
 - C. Accurately locate by horizontal measurement and vertical level the locations of all new and discovered underground infrastructure and all changes to new above ground improvements.
- 1.04 OPERATING AND MAINTENANCE DATA
- A. Each Prime Contractor: Submit one complete manual set including operating and maintenance instructions on all materials and systems involved in the Project.
 - B. Format
 1. Binder: Good quality, three ring binder with hard cover of ample size with the following information neatly labeled on the binder spine and on the front cover:
 - a. Project title.
 - b. Title of prime contract (i.e. Site Work, General Work, etc.)
 - c. Brief descriptive title of binder contents.
 2. Each Prime Contractor shall provide typewritten instructions when manufacturer's written instructions are not available or where special instructions are required.
 3. Provide punched and labeled manila envelope for items too thick or too large to insert into the binder in a folded arrangement.
 - C. Contents
 1. Indexes
 - a. Item index: Listing of all items indicating locations and usage, manufacturer's name and manufacturer's catalog and model number.
 - b. Manufacturer/Service Representative Index: Listing of all manufacturers and nearest representative to whom the Owner should go for service for all items, including names, addresses and telephone numbers for all index entries.
 2. Include the following information for each item in the manual, as applicable:
 - a. Complete, up to date copy of all submittals bearing the Project Designer's acceptance.
 - b. Manufacturer's maintenance and service instructions.
 - c. Parts list and wiring diagrams.
 - d. Copies of Materials Safety Data Sheets (MSDS) for all products installed as part of this project.
 - e. Other information required for complete operation and maintenance by the Owner's personnel.
- 1.05 SYSTEM DEMONSTRATIONS
- A. Owner's Instruction: Thoroughly instruct the Owner's personnel on care and operation of all materials and equipment furnished in the Prime Contract. Submit a letter attesting to the instruction, including the date of the instruction, items covered and a list of the personnel attending the instruction.
- 1.06 WARRANTIES AND BONDS
- A. Deliver to the Owner all warranties, guarantees, bonds and similar items required by technical specification sections.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Deliver to the Owner prior to the final inspection, all spare parts, extra materials and similar items required by individual specification sections.

1.08 CONTRACT CLOSEOUT PROCEDURES

- A. Substantial Completion: Comply with the requirements of the General Conditions and the following procedures:
 - 1. Construction Deficiency Reports
 - a. Format for Reports: Itemized listing indicating location of each item within the work area and describing in detail the work required to complete the item.
 - b. The Owner's Designated Representative or the Project Designer shall submit Construction Deficiency Reports to the appropriate Prime Contractor.
 - c. The Prime Contractor shall provide a written status of completion on all Construction Deficiency Reports and ongoing corrective work no later than 30 days prior to the Substantial Completion Inspection.
 - 2. Substantial Completion Inspection: Completed within seven working days after date of substantial completion. Upon completion of the inspection and in accordance with the General Conditions, the Project Designer will issue a Substantial Completion Inspection report documenting the status of the work, identifying if the work, or designated portion thereof meets the criteria for Substantial Completion.
- B. Final Completion
 - 1. Final Inspection: On the date or within seven working days following the Final Completion Date, the Project Designer will conduct a final inspection. As a result of this inspection and in accordance with the General Conditions, the Project Designer will issue a Final Inspection Report documenting the status of the work, indicating but not limited to the following:
 - a. All associated items identified in the General Conditions have been completed and submitted to the Project Designer.
 - b. All systems and equipment have been cleaned, tested and adjusted and all motors have been lubricated.
 - c. All items on the Project Designer's Substantial Completion Inspection Report have been completed.
 - d. All operating and maintenance data, project record documents, warranties, spare parts and similar items specified in this section and other sections of the Project Manual have been prepared and submitted to the Owner.
 - e. Instruction of the Owner's personnel in accordance with the specified requirements has been completed and required submittals made.
 - f. All receipts and similar documentation have been obtained and delivered to the Owner as specified.
 - g. Certification to the following items by the Prime Contractors has been prepared and attached to the final inspection notice:
 - (1) Each Prime Contractor has reviewed the contract documents and the work has been completed in accordance with the Contract Documents.
 - (2) The project has been inspected by the Prime Contractors and is in compliance with Contract Document requirements.

- (3) Equipment and systems have been tested in the presence of the Owner's Designated Representative and are operational.
 - (4) The project has been completed and is ready for final inspection.
- 2. Submit in duplicate items identified in Paragraph 9.10.2 of the General Conditions in the following forms:
 - a. AIA G706, Contractor's Affidavit of Payment of Debts and Claims
 - b. AIA G706A, Contractor's Affidavit of Release of Liens
 - c. AIA G707, Consent of Surety to Final Payment
- 3. Project Designer's Final Inspection shall be completed within seven days following the Final Completion Date.
 - a. Refer to the General Conditions for procedures if work is considered by the Project Designer to be complete after the Final Inspection.
 - b. Should the Project Designer consider work as not being complete, written notice shall be sent to the appropriate Prime Contractor that the work is not complete, identifying the reasons why the work is not considered complete.
 - (1) Prime Contractors shall take immediate steps to correct conditions identified in the Project Designer's notification and shall notify the Project Designer in writing when conditions have been corrected and the work is ready for re-inspection.
 - (2) The Project Designer shall re-inspect the work as soon as possible upon receipt of the Contractor's notification that work is ready for re-inspection.
 - (3) The cost of the Project Designer's re-inspection, as well as additional services required for the extension of the Project Designer's contract, shall be deducted from the Prime Contractor's final payment, in accordance with the General and Supplementary Conditions.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 02 05 00

REPORTS ON EXPLORATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes reference data collected by the Owner prior to the bidding period as follows:
 - 1. Geotechnical evaluation of the site.

1.03 REPORTS

- A. Any Prime Contract, both during bidding and after execution of the Contract, are permitted to investigate 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 is at the Contractor's risk.
- B. No claim whatsoever shall be made by any Prime Contractor against the Owner or the Project Designer for, or on account of such available data, or neglected of such data to be made available by the Owner or the Project Design team.

PART 2 PRODUCTS

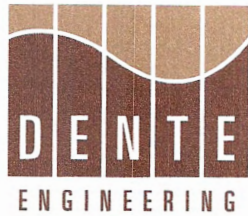
NOT USED

PART 3 EXECUTION

3.01 APPENDIX

- A. Geotechnical evaluation titled, "Geotechnical Evaluation, Baseball Field & Lighting Improvements, State University College Purchase", dated June 29, 2012.
- B. Geotechnical evaluation titled, "Geotechnical Evaluation, Parking Facility Expansion, State University College @ Purchase", dated November 29, 2012.
- C. Geotechnical evaluation titled, "Stockpile Material Evaluation, SUNY Purchase", dated December 14, 2012.

END OF SECTION

**ALBANY AREA**

594 Broadway
Watervliet, NY 12189
Voice 518-266-0310
Fax 518-266-9238

BUFFALO AREA

PO Box 482
Orchard Park, NY 14127
Voice 716-649-9474
Fax 716-648-3521

June 29, 2012

State University College Purchase
c/o Mr. Scott Hughes
HMH Site & Sports Design
330 East State Street
Ithaca, NY 14850

Re: Geotechnical Evaluation for
Baseball Field & Lighting Improvements
State University College Purchase
FILE NO. FDE-12-89

Gentlemen:

This report presents the results of our Geotechnical Evaluation completed for the Baseball Field and Lighting Improvements planned for construction at a site located between Lincoln Avenue and Bridgid Flanigan Drive at the State University College Purchase in Westchester County, New York.

In general, our services included:

- Locating and completing 11 test borings across the proposed site,
- Completing 2 infiltration tests,
- Performing laboratory index tests upon several of the overburden samples collected,
- Evaluating the data available to us and preparing this report, which presents our conclusions and recommendations concerning the design and construction of the geotechnical aspects for your planned project.

This report and the recommendations contained within it were developed for specific application to the site and construction planned, as we currently understand it. Corrections in our understanding, changes in the locations, grades, loads, etc. should be brought to our attention so that we may evaluate their effect upon the recommendations offered in this report.

It should be understood that this report was prepared, in part, on the basis of a limited number of site explorations. The explorations were made at discrete locations and the overburden soils sampled at specific depths. Conditions are only known at the locations and through the depths investigated. Conditions at other locations and depths may be different, and these differences may impact upon the conclusions reached and the recommendations offered.

A sheet entitled "*Important Information about your Geotechnical Engineering Report*" prepared by the Association of Engineering Firms Practicing in the Geosciences is presented following the title page of this report. This sheet should never be separated from this report and be carefully reviewed as it sets the only context within which this report should be used.

This report was prepared for informational purposes only and should not be considered part of the contract documents. It should be made available to interested parties in its entirety only. Should the data contained in this report not be adequate for the contractor's purposes, the contractor may make their own investigations, tests, and analyses for use in bid preparation.

SITE AND PROJECT DESCRIPTION

The project area is located between Lincoln Avenue and Bridgid Flanigan Drive at the State University College Purchase Campus. The site is located on sections of the current and 1899 USGS Topographic Maps of the Glenville Quadrangle which are attached to this report. The mapping shows the site as sloping down from north to south between elevations of about 300 and 280 feet.

As we understand it, the existing soccer field is to be converted to a baseball field and the existing baseball fields are to be improved and lighting possibly provided for all. The fields are to be developed as natural turf and possibly synthetic surfaced athletic play fields, along with small 1 story masonry walled buildings for storage.

SUBSURFACE CONDITIONS

The subsurface conditions at the site were explored through the completion of 11 exploratory test borings. The boring locations are depicted on the attached Subsurface Investigation Plan.

The borings were advanced using a rotary drill rig employing hollow stem augers with the overburden soils sampled and their relative density determined through the procedures of ASTM D-1586. The Subsurface Logs should be reviewed for the specific conditions encountered at each investigated location. It should be understood that conditions are only known at the investigated locations and at the depths sampled and that conditions at locations and depths other than those investigated may or may not be similar. It should also be understood that conditions can change with time and may be seasonally influenced.

Infiltration tests were conducted at 2 locations at the site and the test reports are attached. Unfortunately heavy rains occurred on June 12 and 13 and they saturated the fields and created saturated ground conditions which caused the infiltration tests to be erroneous as groundwater actually rose up and into the pipes which had been installed and presoaked earlier.

Four principle overburden strata were encountered within the depths explored at this site. The strata are discussed below in their order of occurrence below grade.

Topsoil: The ground surface is mantled with between about 4 and 10 inches of topsoil. However, it should be understood that the topsoil thickness was measured within a sampler used for other purposes, and that the sampler usually compresses the soft and loose topsoil stratum and may as a result underestimate the thickness of the topsoil. Further, only 11 locations were investigated and these may or may not be representative areas.

Fill Stratum: Beneath the topsoil in some areas investigated is a fill layer composed of brown sand, silt and gravel which extended to depths beneath the ground surface between 2 and 4 feet. These soils were generally loose to firm in relative density and moist. The individual subsurface logs attached to this report should be reviewed for the depths of this layer at the specific locations investigated.

Alluvium Stratum: Beneath the topsoil and the fills is a discontinuous layer composed of brown sand and silt with lesser amounts of gravel which extended to varied depths beneath the ground surface. These soils were generally loose and moist grading to wet. Mottling was noted in the layer suggesting seasonal saturation at a shallow depth. The individual subsurface logs attached to this report should be reviewed for the depths of this layer at the specific locations investigated.

Till Stratum: Beneath the fill and alluvium are, fine to coarse textured sands, silts and gravels with occasional boulders and cobbles. These soils were of a generally firm grading to compact relative density with increasing depth. Within the till at various elevations are sandy seams and layers which are saturated and appear to be under a slight artesian pressure head as groundwater entered the borings and rapidly rose within the borehole when the more granular layers within the till, were encountered. The till extended to depths ranging between 15 and about 20 feet where refusal was met at several locations.

Groundwater: Groundwater collected within the majority of the test borings in the time allotted following their advancement and was measured, the levels reported upon the Subsurface Logs. It should be noted that groundwater levels rose following the heavy precipitation which occurred on June 12 and 13 by several feet. The groundwater levels at the site should be expected to vary seasonally and as noted through the precipitation event during the investigation, form perched waters within the surface soils above the less permeable deeper strata.

GEOTECHNICAL EVALUATION & RECOMMENDATIONS

In our opinion, the construction of the fields may proceed provided site drainage is designed and constructed so that precipitation and runoff is collected and directed off the site. Further, underdrainage features must be installed which collect and eliminate perched ground water from the shallow subsoils. We caution that the surface drainage and underdrainage works must be comprehensive. Further the plans and specifications should be clear and unambiguous concerning the sequence of their installation. Failure to install these drainage works well in advance of the site work could cause disturbance of the subgrade soils which may require remedial works to be performed.

SITE DEVELOPMENT AND EARTHWORK

Site Preparation

Site preparation should commence with the installation of the site drainage and underdrainage works designed to intercept runoff and drain groundwater from the work area. After these works are installed, stripping of vegetation and topsoil and surficial organic matter from beneath the athletic fields and any new pavement areas may follow. The site earthwork bidders should not rely solely on the topsoil thickness measured at the discrete test boring locations made for this investigation, but should perform their own explorations as needed to obtain a representative thickness of topsoil throughout the areas where stripping is required.

Drainage swales and/or deep cutoff trenches, as appropriate, should be installed around the upgradient sides of the area being developed to intercept and divert surface runoff and groundwater perched in the upper few feet of soil away from the development area.

The excavated and filled subgrades must be shaped and sloped to direct runoff away from the fields and work areas both during construction and afterwards. At the end of each day, the subgrade surface should be "sealed" with a steel drum roller to promote runoff away from the site or to the drainage features. Subgrade soils which are or become soft/wet should be removed and replaced.

After the site has been stripped of topsoil, the exposed subgrade surface should be shaped to promote runoff and proof-rolled by completing at least three passes with a pneumatic tired or a steel drum roller with a static weight of at least seven tons. The roller should operate in its static mode, unless otherwise directed by the Geotechnical Engineer observing the work, and travel at a speed of about three feet per second (two miles per hour). Soft areas which are identified by the proof-rolling should be investigated to ascertain the cause and, where determined to be necessary, undercut and replaced.

Because possible artesian layers were found within the till soils at this site cuts should be carefully planned and minimized to the extent possible. As grading plans are developed, we should be allowed to review them and where required, perform additional investigations to assess the artesian conditions in specific cut areas.

Fill and Backfill

Soils excavated on-site may be considered for use as a source of fill beneath the new athletic fields and pavement areas. We caution that the on-site soils may be too wet for compaction and prove impractical to use, especially if wet or cool weather conditions prevail during or immediately prior to construction. In this case, it may be necessary to use an imported soil as fill. The imported materials should be composed of well graded sand and gravel with no particles greater than about 3 inches and with between 30 and 70% finer than the #10 sieve and no more than 10% finer than the US Std. #200 sieve. Site and granular soils should not be intermixed so as to form pockets of granular soils which could trap water and become saturated.

All fill should be placed in uniform loose layers no more than about one foot thick where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 92 percent of the maximum dry density for the soil established by the Modified Proctor Compaction Test, ASTM D1557. The soils should be compacted at a moisture content within two percent of the optimum determined by ASTM D1557.

Slope Design

Permanent cut and fill slopes should be inclined no steeper than one vertical on three horizontal. A crest swale should be incorporated into the design to prevent runoff from traversing the slope, and a thick vegetative growth should be established on the slopes to inhibit erosion. If steeper slopes are desired, we should review the proposed site grading plans to determine whether any stability concerns are raised.

SEISMIC DESIGN CONSIDERATIONS

For seismic design purposes, we have evaluated the site conditions in accord with Sections 1615 and 1616 of the New York State Building Code on this basis of the test borings completed at this and other nearby sites in similar deposits, and have determined that Seismic Site Class "D - Stiff Soil Profile" is applicable to this project. Based on the composition and density of the subgrade soils, the potential for liquefaction to occur during an earthquake is minimal, and no special design considerations are needed to address liquefaction.

BLEACHER & STORAGE BUILDING FOUNDATIONS

New bleacher foundations should be seated directly on the till deposits or upon compacted structural fill which extend to the till. If any water enters the excavations, it should be promptly removed together with any softened/wet bearing grade soils. The final bearing grades should be firm, stable, and free of loose soil, mud, water, and frost.

The foundations may be proportioned for a maximum net allowable bearing pressure equal to 3,000 pounds per square foot and have a minimum width of two feet. The foundations should bear at least four feet beneath final adjacent exterior grades to afford frost penetration protection.

Assuming standard care is used in preparing the foundation bearing grades, we estimate that total foundation settlement should be less than one-half inch. The settlements should occur within a few days after the loads are applied. If the dead and live loads are roughly equal, then half of the settlements will occur during and immediately following construction, with the balance as live loads are actually transmitted.

LIGHT TOWER FOUNDATIONS

Pier and pad footings, if selected for use, should be designed following the recommendations presented for the Bleacher and Storage Buildings.

Uplift resistance for pier and pad footings may be provided by the weight of the foundations and the soils used as backfill. The volume of soil acting to resist uplift forces may include the soil directly above the footing plus the wedge of soil within a line drawn upward at a 20-degree angle from vertical from the outside edge of the footing. Assuming that the foundations are backfilled using imported Structural Fill which is compacted to the 95 percent density specification, the total unit weight of compacted backfill may be assumed equal to 120 pounds per cubic foot (pcf). A factor of safety equal to 1.5 should be applied to the weight of the soil to determine the allowable uplift resistance.

Assuming that the bearing grades are prepared as recommended, the pad foundation settlements should be less than one-half (1/2) inch.

Drilled Shafts, if considered for use at this site will require an experienced shaft contractor who will have to install a temporary casing because of the soil types and groundwater conditions.

Listed below are soil parameters which may be assumed for design of the drilled shaft foundations. Unless listed as "Allowable", the parameters given are "Ultimate" values and include no factor of safety. The depths are referenced to the existing site grade at the boring location.

Sand, Gravel & Silt:

Angle of Internal Friction	= 36 degrees
Cohesion	= 0 psf
Total Unit Weight	= 135 pcf
Allowable End Bearing	= 3,000 psf

Foundations which bear on the overburden soils are estimated to experience total settlements of less than one-half (1/2) inch. These settlement estimates assume that the bearing grades are cleaned of loose soil/mud and construction of drilled shafts follows the recommended practices of ACI 336.1-89 and ACI 336.3R-93.

FLEXIBLE PAVEMENTS

Flexible asphaltic concrete pavements are suitable for vehicle roadways and parking lots at the site. Two pavement sections may be considered depending on the expected traffic loads; a Heavy Section should be used for entrance drives and areas subject to bus or truck traffic, and a Light Section for areas subject primarily to automobile parking. The recommended pavement section material and thickness requirements are summarized in Table 1.

TABLE 1 - FLEXIBLE PAVEMENT SECTIONS			
Course	NYSDOT Reference	Layer Thickness	
		Heavy Section	Light Section
Asphalt Top	Section 403 - Type 6 or 7	1.5"	1"
Asphalt Binder	Section 403 - Type 3	3"	2"
Granular Base	Section 304 - Type 2	12"	8"
Stabilization Fabric (Mirafi 500X or eq.)	Not Applicable	Single Ply	Single Ply

It should be understood that these pavement sections are intended for the final traffic types at the site and are not intended to support construction period equipment traffic. The contractor should develop temporary haul road sections specific to his intended equipment in order to minimize damage to these or other school pavements.

All materials and construction should conform with the NYSDOT Standard Specifications, Construction and Materials. The base course materials should be compacted to 95 percent of the maximum dry density for the material established through the Modified Proctor Compaction Test, ASTM D1557.

Prior to constructing the pavement sections, the subgrades should be prepared as previously recommended.

To assist in draining the base materials, underdrains should be installed at minimum 40 foot spacings in large parking lots and interceptor trenches or drainage swales installed along the edges of parking lots and entrance drives.

It should be understood that frost may penetrate several feet beneath the final grades at this site during any winter and may cause the siltier soils to expand and the surface to heave. The heave may occur beneath the turf surface, sidewalks or pavements, and the heave may be differential, particularly where sidewalks and pavements meet building doorways. A thickened crushed stone base course composed of ASTM 57 Blend Stone with underdrains may be placed beneath these more sensitive junctions with its thickness determined dependent when final grades, drainage features, and the frost risk tolerance for the project are defined.

CONSTRUCTION MONITORING

Dente Engineering should be retained to review grading and drainage plans as they are developed and allowed an opportunity to review and comment on the plans well in advance of their bidding.

We should also observe bearing grade preparations for the bleacher foundations, and subgrade preparation for new pavements and surfaced athletic fields. It should be noted that actual subsurface conditions will only be known when excavated, and the presence of the Geotechnical Engineer during construction will serve to validate the conditions assumed to exist and design recommended in this report.

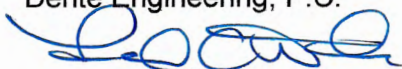
CLOSURE

This report was prepared for HMM and SUNY Purchase for specific application to the project site and construction planned based on a limited number of explorations made at discrete locations. As previously recommended, Dente Engineering should be retained during construction to validate the actual site conditions are similar to those assumed for development of the recommendations contained in this report. We should also review plans and specifications related to foundations and earthwork prior to their release for bidding to confirm that our recommendations were properly interpreted and applied.

This report was prepared using methods and practices common to Geotechnical Engineering in the general area and at the time of preparation, no other warranties expressed or implied are made.

We appreciate the opportunity to be of service. Should questions arise or if we may be of any other service, please contact us at your convenience.

Yours Truly,
Dente Engineering, P.C.



Fred A. Dente, P.E.
President

Attachments;

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. Do not rely on a geotechnical engineering report whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. Those recommendations are not final, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but preface it with a clearly written letter of transmittal.* In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any *geoenvironmental* findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own *geoenvironmental* information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention.* Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.

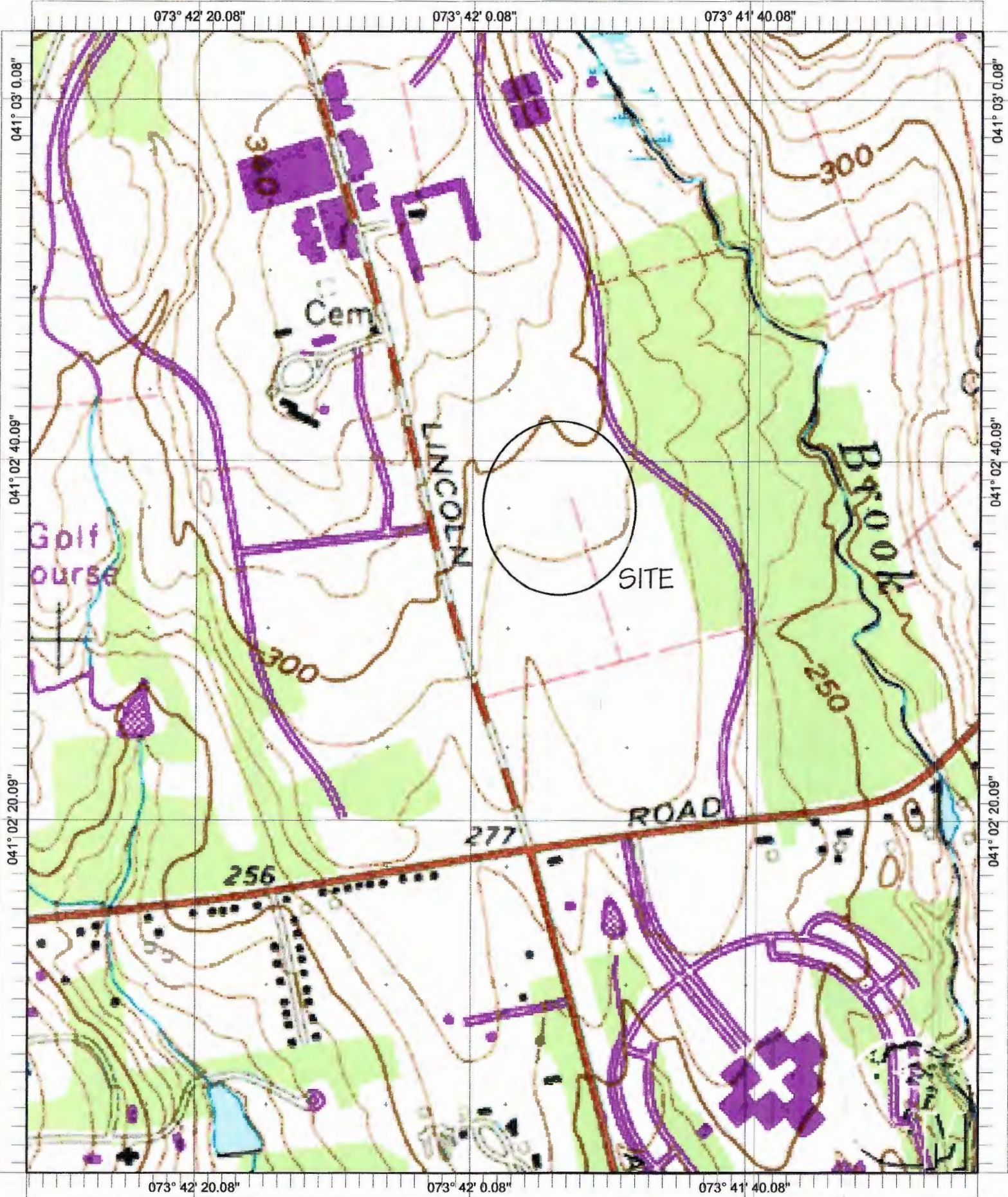
Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



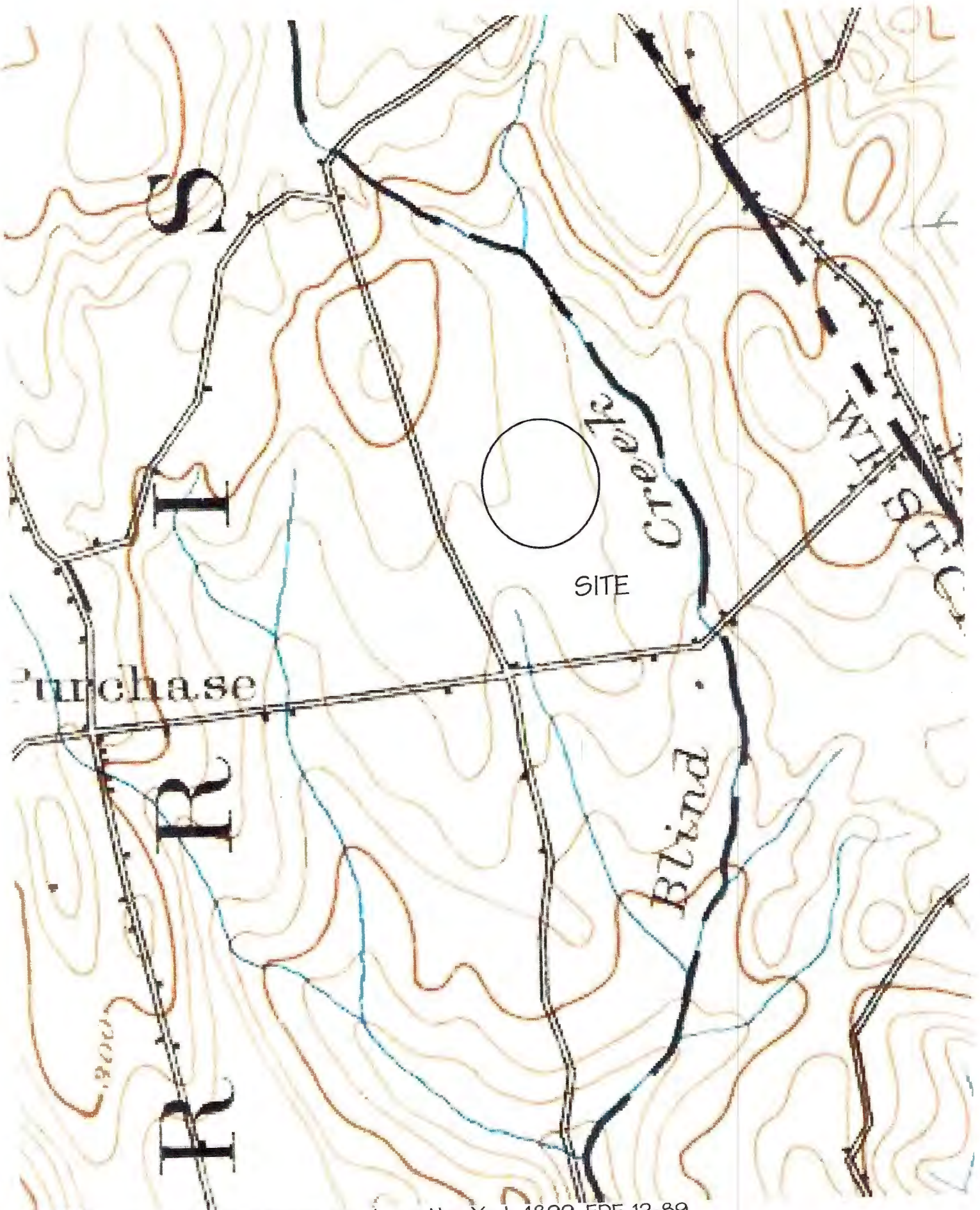
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Name: GLENVILLE
Date: 6/25/112
Scale: 1 inch equals 666 feet

Location: 041° 02' 32.2" N 073° 41' 57.8" W
Caption: SUNY PURCHASE
PURCHASE, NEW YORK
FDE-12-89



SUNY Purchase Baseball Fields, Purchase, New York 1899, FDE-12-89

INTERPRETATION OF SUBSURFACE LOGS

The Subsurface Logs present observations and the results of tests performed in the field by the Driller, Technicians, Geologists and Geotechnical Engineers as noted. Soil/Rock Classifications are made visually, unless otherwise noted, on a portion of the materials recovered through the sampling process and may not necessarily be representative of the materials between sampling intervals or locations.

The following defines some of the terms utilized in the preparation of the Subsurface Logs.

SOIL CLASSIFICATIONS

Soil Classifications are visual descriptions on the basis of the Unified Soil Classification ASTM D-2487 and USBR, 1973 with additional comments by weight of constituents by BUHRMASTER. The soil density or consistency is based on the penetration resistance determined by ASTM METHOD D1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED.

SIZE DESCRIPTION		RELATIVE DENSITY/CONSISTENCY (basis ASTM D1586)			
SOIL TYPE	PARTICLE SIZE	GRANULAR SOIL		COHESIVE SOIL	
BOULDER	> 12	DENSITY	BLOWS/FT.	CONSISTENCY	BLOWS/FT.
COBBLE	3" - 12"	LOOSE	< 10	VERY SOFT	< 3
GRAVEL-COARSE	3" - 3/4"	FIRM	11 - 30	SOFT	4 - 5
GRAVEL - FINE	3/4" - #4	COMPACT	31 - 50	MEDIUM	6 - 15
SAND - COARSE	#4 - #10	VERY COMPACT	50 +	STIFF	16 - 25
SAND - MEDIUM	#10 - #40			HARD	25 +
SAND - FINE	#40 - #200				
SILT/NONPLASTIC	< #200				
CLAY/PLASTIC	< #200				

SOIL STRUCTURE		RELATIVE PROPORTION OF SOIL TYPES	
STRUCTURE	DESCRIPTION	DESCRIPTION	% OF SAMPLE BY WEIGHT
LAYER	6" THICK OR GREATER	AND	35 - 50
SEAM	6" THICK OR LESS	SOME	20 - 35
PARTING	LESS THAN 1/4" THICK	LITTLE	10 - 20
VARVED	UNIFORM HORIZONTAL PARTINGS OR SEAMS	TRACE	LESS THAN 10

Note that the classification of soils or soil like materials is subject to the limitations imposed by the size of the sampler, the size of the sample and its degree of disturbance and moisture.

ROCK CLASSIFICATIONS

Rock Classifications are visual descriptions on the basis of the Driller's, Technician's, Geologist's or Geotechnical Engineer's observations of the coring activity and the recovered samples applying the following classifications.

CLASSIFICATION TERM	DESCRIPTION
VERY HARD	NOT SCRATCHED BY KNIFE
HARD	SCRATCHED WITH DIFFICULTY
MEDIUM HARD	SCRATCHED EASILY
SOFT	SCRATCHED WITH FINGERNAIL
VERY WEATHERED	DISINTEGRATED WITH NUMEROUS SOIL SEAM
WEATHERED	SLIGHT DISINTEGRATION, STAINING, NO SEAMS
SOUND	NO EVIDENCE OF ABOVE
MASSIVE	ROCK LAYER GREATER THAN 36" THICK
THICK BEDDED	ROCK LAYER 12" - 36"
BEDDED	ROCK LAYER 4" - 12"
THIN BEDDED	ROCK LAYER 1" - 4"
LAMINATED	ROCK LAYER LESS THAN 1"
FRACTURES	NATURAL BREAKS AT SOME ANGLE TO BEDS

Core sample recovery is expressed as percent recovered of total sampled. The ROCK QUALITY DESIGNATION (RQD) is the total length of core sample pieces exceeding 4" length divided by the total core sample length for N size cored.

GENERAL

- Soil and Rock classifications are made visually on samples recovered. The presence of Gravel, Cobbles and Boulders will influence sample recovery classification density/consistency determination.
- Groundwater, if encountered, was measured and its depth recorded at the time and under the conditions as noted.
- Topsoil or pavements, if present, were measured and recorded at the time and under the conditions as noted.
- Stratification Lines are approximate boundaries between soil types. These transitions may be gradual or distinct and are approximated.

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-1****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/12/12

FINISH: 6/12/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMM Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	3				+/- 8" Topsoil
				6	5	9	Dark Brown SILT, Little Fine Gravel (MOIST)
	2	7	9				
				10	10	19	(MOIST, LOOSE TO FIRM)
5'	3	9	9				Brown Mottled F-C SAND, Some to Little
				13	12	22	Silt (MOIST, FIRM)
	4	10	10				Brown/Gray Mottled F-C SAND and SILT,
				9	7	19	Little Fine Gravel
10'	5	11	12				Similar, stone in shoe noted
				11	19	23	
15'	6	17	16				Grades Brown/Gray (WET)
				16	17	32	
							(MOIST TO WET, FIRM TO COMPACT)
20'	7	27	30				Brown Mottled F-C SAND and Weathered
				21	23	51	ROCK (MOIST, VERY COMPACT)
							End of boring 22.0' depth.
25'							Groundwater measured at 19.0' depth within
							auger casings upon completion of borehole.
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-2****PROJECT:** SUNY Purchase Baseball Fields**DATE****START:** 6/14/12**FINISH:** 6/14/12**LOCATION:** Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	2				+/- 10" Topsoil
				3	3	5	Brown F-C SAND and SILT, Little Fine Gravel (MOIST, LOOSE)
	2	2	9				Brown/Gray Mottled SILT, Some F-C Sand, trace fine gravel
				9	9	18	
5'	3	5	6				
				7	7	13	
	4	5	6				Grades (WET)
				5	6	11	
							(MOIST TO WET, FIRM)
10'	5	7	29				TILL: Brown/Gray F-C SAND and SILT, Little Gravel
				23	24	52	
15'	6	27	30				
				35	50	65	
20'	7	19	25				Grades Gray
				29	48	54	(WET, VERY COMPACT)
							End of boring 22.0' depth.
25'							Groundwater measured at 5.9' depth within auger casings after Sample #4.
30'							

SUBSURFACE LOG B-3

PROJECT: SUNY Purchase Baseball Fields

DATE _____

START: 6/14/12

FINISH: 6/14/12

LOCATION: Purchase, New York

METHODS: 2 1/4" Hollow Stem Augers with

CLIENT: HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89

SURFACE ELEVATION:

DRILL TYPE: CME 55

CLASSIFICATION: O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 4" Topsoil
5'	1	1	5				FILL: Brown F-C SAND and SILT, Some Gravel (MOIST) (MOIST, FIRM) Brown F-C SAND, Some Gravel, Some to trace silt, trace clay (WET, FIRM) TILL: Brown/Gray F-C SAND and SILT, trace fine gravel
	2	5	5				
				7	5	12	
	3	5	7				
				7	6	14	
	4	3	3				
10'				5	6	8	Grades Gray
	5	50	17				
				20	20	37	
15'	6	80	40				Grades Little Gravel (WET, LOOSE TO VERY COMPACT)
				45	50	85	
20'							End of boring 15.0' depth. Groundwater measured at 1.0' depth within auger casings 10 minutes after completion of borehole.
25'							
30'							

SUBSURFACE LOG B-4

PROJECT: SUNY Purchase Baseball Fields

DATE _____

START: 6/12/12

FINISH: 6/12/12

LOCATION: Purchase, New York

METHODS: 2 1/4" Hollow Stem Augers with

CLIENT: HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89

SURFACE ELEVATION:

DRILL TYPE: CME 55

CLASSIFICATION: O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	+/- 7" Topsoil
5'	1	1	4				FILL: Brown F-C SAND, SILT, and GRAVEL (MOIST) (MOIST, FIRM) Brown Mottled SILT and CLAY (MOIST, HARD) Brown F-C SAND, Some Gravel, Little Silt (MOIST, COMPACT) TILL: Brown F-C SAND, SILT, and GRAVEL (WET)
				7	12	11	
	2	13	13				
				12	11	25	
	3	6	17				
				18	22	35	
10'	4	10	10				NO RECOVERY, boulder noted
				9	11	19	
	5	50/0				50+	
15'	6	10	14				Grades Little Gravel (WET, FIRM TO COMPACT) End of boring 17.0' depth.
				17	18	31	
20'							
25'							
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-5****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/12/12

FINISH: 6/12/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
5'	1	1	3				+/- 10" Topsoil
				9	7	12	FILL: Brown F-C SAND and SILT, Little Gravel (MOIST, FIRM)
	2	8	11				Brown/Gray Mottled SILT, Some F-C Sand
				11	14	22	(MOIST, FIRM)
	3	5	7				Brown/Gray Mottled F-C SAND and SILT, Little Gravel
	4	5	5				Grades Brown (WET)
10'				5	6	10	
							(MOIST TO WET, FIRM TO LOOSE)
	5	15	17				TILL: Gray F-C SAND and SILT, Little Gravel
				20	25	37	
15'							
	6	7	17				Grades Some Gravel
				20	25	37	
20'							
	7	8	21				Grades Brown/Gray Fine SAND and SILT
				26	28	47	(WET, COMPACT)
25'							
							End of boring 22.0' depth.
							Groundwater measured at 8.5' depth within auger casings after Sample #6.
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-6****PROJECT:** SUNY Purchase Baseball Fields**DATE****START:** 6/12/12**FINISH:** 6/12/12**LOCATION:** Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
5'	1	WH	5				+/- 9" Topsoil
				7	10	12	FILL: Brown F-C SAND, SILT, and GRAVEL
	2	6	6				(MOIST, FIRM)
				5	12	11	Dark Brown SILT
	3	4	5				Grades Brown/gray Mottle, Some F-M Sand,
				7	5	12	trace fine gravel (MOIST TO WET, FIRM)
10'	4	2	3				TILL: Brown/Gray F-C SAND and SILT
				3	4	6	
	5	11	16				Grades Gray, Little Gravel
				19	27	35	
15'							
	6	32	32				
				32	32	64	
20'							
	7	17	28				Grades Some Gravel and Silt
				24	30	52	(WET, LOOSE TO VERY COMPACT)
25'							End of boring 22.0' depth.
							Groundwater measured at 2.7' depth within
							auger casings after Sample #4.
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-7****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/11/12

FINISH: 6/11/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	2				+/- 7" Topsoil
				5	8	7	FILL: Brown F-M SAND, Little Coarse Sand, Gravel, and Silt (MOIST, LOOSE)
	2	6	5				-----
				7	7	12	Brown to Brown/Gray Mottled F-C SAND and SILT, trace gravel
5'	3	5	7				
				7	7	14	
	4	8	13				Grades Some Gravel, cobbles and boulders noted
				11	8	24	
10'	5	7	9				Grades Some Silt, trace gravel (WET)
				13	17	22	
15'	6	9	14				(MOIST TO WET, FIRM)
				20	25	34	Brown Weathered ROCK (MOIST, COMPACT)
							End of boring 17.0' depth.
20'							Groundwater was not present within auger casings upon completion of borehole.
25'							
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-8****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/11/12

FINISH: 6/11/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMM Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	4				+/- 8" Topsoil
				7	7	11	Brown Mottled SILT, Little F-C Sand (MOIST, FIRM)
	2	8	8				Brown Mottled F-M SAND and SILT, Little
				9	12	17	Fine Gravel (MOIST, FIRM)
5'	3	4	5				Brown F-C SAND, Some Silt
				5	7	10	(WET, LOOSE)
	4	3	9				Brown F-C SAND, SILT, and GRAVEL
				12	8	21	
10'	5	5	7				Grades Little Gravel
				12	16	19	
							(WET, FIRM)
15'	6	50/1				50+	Gray ROCK (MOIST, VERY COMPACT)
							End of boring 15.1' depth with split spoon refusal.
20'							Groundwater measured at 3.7' depth within auger casings after Sample #4, and was not present at the completion of borehole.
25'							
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-9****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/12/12

FINISH: 6/12/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
5'	1	1	3				+/- 7" Topsoil
				4	4	7	FILL: Brown F-C SAND and SILT, Little Gravel (MOIST, LOOSE)
	2	4	8				Brown/Gray Mottled F-C SAND and SILT, Little Gravel
				8	6	16	(MOIST, FIRM)
	3	3	2				Gray Mottled SILT, some F-M SAND (WET)
				3	3	5	Similar with Sandy Seams, Grades Brown, trace gravel
	4	2	3				
10'				4	4	7	(WET, LOOSE)
	5	10	19				TILL: Brown/Gray F-M SAND and SILT, Little Coarse Sand and Gravel (MOIST)
				19	24	38	
15'							
	6	27	24				Grades (WET)
				26	27	50	(MOIST TO WET, COMPACT)
20'							
	7	50/2				50+	Brown ROCK (MOIST, VERY COMPACT)
25'							End of boring 20.2' depth with split spoon refusal.
							Groundwater measured at 8.0' depth within auger casings after Sample #6.
							Infiltration pipe installed adjacent to borehole at 4.0' depth.
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-10****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/14/12

FINISH: 6/14/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	3				+/- 6" Topsoil
				5	7	8	FILL: Brown F-C SAND, SILT, and GRAVEL (MOIST)
	2	6	8				Grades to Dark Brown
				8	4	16	(MOIST, LOOSE TO FIRM)
5'	3	6	3				Brown Mottled F-C SAND and SILT (WET, LOOSE)
				2	2	5	TILL: Brown/Gray Mottled SILT, Some F-C
	4	4	7				Sand, Little Clay (MOIST)
				9	17	16	
10'	5	4	5				Grades Brown F-C SAND and SILT, Little
				6	5	11	Gravel
15'	6	9	19				Grades Brown/Gray
				36	38	55	
20'	7	12	45				Grades Some Gravel
				30	30	75	(MOIST, FIRM TO VERY COMAPCT)
							End of boring 22.0' depth.
25'							Groundwater was not present within auger
							casings upon completion of borehole.
30'							

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-11****PROJECT:** SUNY Purchase Baseball Fields**DATE**

START: 6/13/12

FINISH: 6/13/12

LOCATION: Purchase, New York**METHODS:** 2 1/4" Hollow Stem Augers with**CLIENT:** HMM Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-89**SURFACE ELEVATION:****DRILL TYPE:** CME 55**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
							+/- 8" Topsoil
	1	1	5				FILL: Brown F-C SAND, SILT, and GRAVEL (MOIST) <u>(MOIST, FIRM TO VERY COMPACT)</u> Dark Brown SILT (MOIST, FIRM) Gray SILT and CLAY (MOIST, MEDIUM) Brown F-C SAND, Some to trace silt, Little Gravel <u>(WET, FIRM)</u>
				10	13	15	
	2	14	49				
				50/.2		99+	
5'	3	4	5				
				10	21	15	
	4	13	10				
				11	11	21	
10'	5	8	8				TILL: Brown/Gray F-C SAND and SILT, trace gravel Grades Little Gravel
				9	11	17	
15'	6	15	24				
				50/.4		74+	
20'	7	22	22				<u>(WET, FIRM TO VERY COMPACT)</u> End of boring 22.0' depth. Groundwater measured at 3.0' depth within auger casings after Sample #5. Infiltration pipe installed adjacent to borehole
				26	26	48	
25'							
30'							

SUNY Purchase Baseball Fields
Purchase, NY
Moisture Content Results - ASTM D2216

Boring No.	B-6	B-7	B-7	B-11		
Sample No.	587/S6	588/S3	589/S5	590/S4		
Sample Depth	20'-22'	4'-6'	10'-12'	6'-8'		
Tare Weight	297.50	298.00	334.50	337.00		
W _S + Tare	618.00	570.00	631.50	623.50		
W _D + Tare	587.00	536.00	588.50	588.00		
W _{WATER}	31.00	34.00	43.00	35.50		
W _{DRY SOIL}	289.50	238.00	254.00	251.00		
% Moisture (W _W / W _D)	10.7	14.3	16.9	14.1		

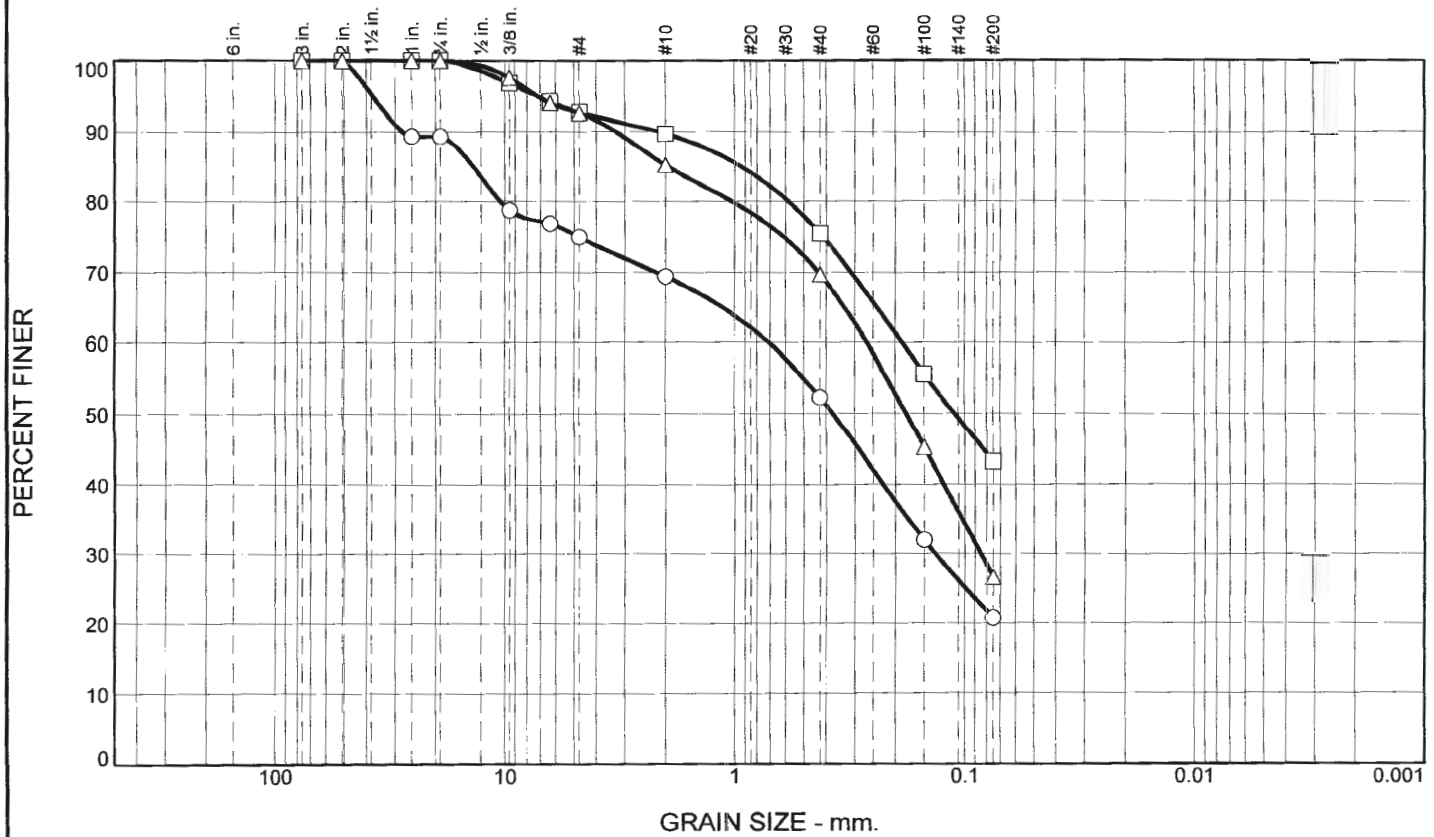
Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W _S + Tare						
W _D + Tare						
W _{WATER}						
W _{DRY SOIL}						
% Moisture (W _W / W _D)						

Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W _S + Tare						
W _D + Tare						
W _{WATER}						
W _{DRY SOIL}						
% Moisture (W _W / W _D)						

DENTE ENGINEERING
594 Broadway
Watervliet, NY 12189
Ph. 518-266-0310
Fax 518-266-9238

Client: HMH Site & Sports Design
File No. FDE-12-89
Date: June 26, 2012

Particle Size Distribution Report



	+3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0	25.0	54.3	20.7		SM	A-2-4(0)	NP	NV
□	0.0	7.1	49.6	43.3		SM	A-4(0)	NP	NP
Δ	0.0	7.3	66.1	26.6		SM	A-2-4(0)	NP	NP

SIEVE inches size	PERCENT FINER		
	○	□	Δ
3	100.0	100.0	100.0
2	100.0	100.0	100.0
1	89.3	100.0	100.0
.75	89.3	100.0	100.0
.375	78.8	96.8	97.6
.25	76.9	94.3	94.1

GRAIN SIZE			
D ₆₀	0.7121	0.1872	0.2664
D ₃₀	0.1344		0.0851
D ₁₀			

COEFFICIENTS			
C _c			
C _u			

SIEVE number size	PERCENT FINER		
	○	□	Δ
#4	75.0	92.9	92.7
#10	69.4	89.7	85.2
#40	52.3	75.4	69.7
#100	32.0	55.7	45.3
#200	20.7	43.3	26.6

Material Description
○ coarse to fine SAND, some Silt, some Gravel
□ coarse to fine SAND and SILT, trace Gravel
Δ coarse to fine SAND, some Silt, trace Gravel

REMARKS:
○ Per ASTM D422 Washed
□ Per ASTM D422 Washed
Δ Per ASTM D422 Washed

○ Source of Sample: Borings	Depth: 20'-22'	Sample Number: 587: B-6/S7
□ Source of Sample: Borings	Depth: 4'-6'	Sample Number: 588: B-7/S3
Δ Source of Sample: Borings	Depth: 10'-12'	Sample Number: 589: B-7/S5

**EVERGREEN
TESTING, INC.
Watervliet, NY**

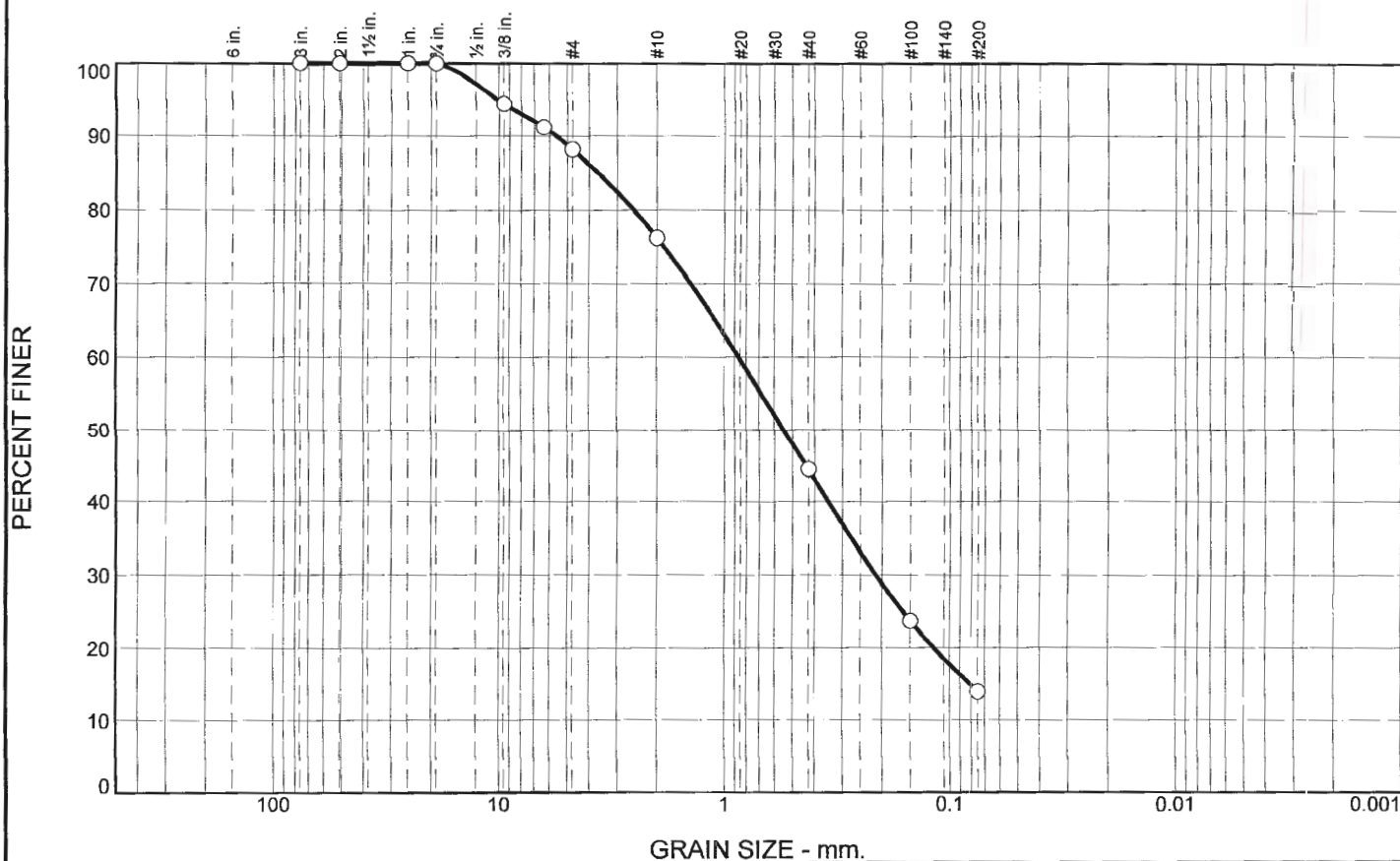
Client: HMH Site & Sports Design
Project: SUNY Purchase Baseball Fields
Purchase, NY
Project No.: FDE-12-89

Figure 587-589

Tested By: ○ EM □ MT Δ CC

Checked By: FD

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.8	11.9	31.9	30.5	13.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1	100.0		
.75	100.0		
.375	94.4		
.25	91.2		
#4	88.2		
#10	76.3		
#40	44.4		
#100	23.7		
#200	13.9		

* (no specification provided)

Material Description
coarse to fine SAND, little Silt, little Gravel

Atterberg Limits
PL= NP LL= NP PI= NP

Coefficients
D₉₀= 5.5811 D₈₅= 3.6258 D₆₀= 0.8644
D₅₀= 0.5470 D₃₀= 0.2134 D₁₅= 0.0814
D₁₀= C_u= C_c=

Classification
USCS= SM AASHTO= A-1-b

Remarks
Per ASTM D422 Washed

Source of Sample: Borings
Sample Number: 590: B-11/S4

Depth: 6'-8'

Date: 6-26-12

**EVERGREEN
TESTING, INC.
Watervliet, NY**

Client: HMM Site & Sports Design
Project: SUNY Purchase Baseball Fields
Purchase, NY

Project No: FDE-12-89

Figure 590

Tested By: MT

Checked By: FD


ALBANY AREA

594 Broadway
Watervliet, NY 12189
Voice 518-266-0310
Fax 518-266-9238

BUFFALO AREA

PO Box 482
Orchard Park, NY 14127
Voice 716-649-9474
Fax 716-648-3521

INFILTRATION TEST RESULTS					
PROJECT: SUNY Purchase Baseball Fields			PROJECT NO. FDE-12-89		
PROJECT LOCATION: Purchase, New York			TEST DATE: 6/14/12		
WEATHER:			TESTER: J. Lamm		
Test Location	Test Depth (feet)	Trial No.	Water Drop (inches)	Elapsed Time (hours)	Infiltration Rate (inches/hour)
B-9	4.0	1	+6.0	1.0	-
		2	+6.0	1.0	-
		Water level within the infiltration pipe rose 6 inches in 1 hour in two consecutive runs.			
B-11	4.0	1	+1.0	1.0	-
		2	+1.0	1.0	-
		Water level within the infiltration pipe rose 1 inch in 1 hour in two consecutive runs.			

Notes:

- (1) Testing was conducted in general accord with the "Infiltration Testing Requirements" contained in Appendix D of the New York State Management Design Manual.
- (2) Test pipes were installed in boreholes made adjacent to test borings B-9 and B-11.

SOIL CLASSIFICATION AT TEST DEPTH

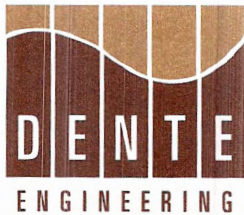
Test Location B-9: Brown/Gray Mottled F-C SAND and SILT, Little Gravel

Test Location B-11: Dark Brown SILT



BORING REQUISITION SKETCH



**ALBANY AREA**

594 Broadway
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Voice 518-266-0310
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BUFFALO AREA

PO Box 482
Orchard Park, NY 14127
Voice 716-649-9474
Fax 716-648-3521

November 29, 2012

State University College @ Purchase
c/o Mr. Josh Mike, RLA
HMH Site & Sports Design
330 East State Street
Ithaca, NY 14850

Re: Geotechnical Evaluation
Parking Facility Expansion
State University College @ Purchase
FILE NO. FDE-12-204

Gentlemen:

This report presents the results of our Geotechnical Evaluation completed for a new parking facility expansion planned for construction at a site located west of the E Road and east of the baseball fields at the State University College @ Purchase in Westchester County, New York.

In general, our services included:

- Locating and completing 2 test borings within the proposed parking lot site,
- Evaluating the data available to us and preparing this report, which presents our conclusions and recommendations concerning the design and construction of the geotechnical aspects for your planned development.

This report and the recommendations presented in it have been prepared for specific application to the proposed construction as we currently understand it. Changes or corrections in our understanding of the project scope, it's size, building type, loads, grades, etc. should be brought to our attention so that we may evaluate their effect, if any, upon the recommendations offered.

A sheet entitled "Important Information about your Geotechnical Engineering Report" prepared by the Association of Engineering Firms Practicing in the Geosciences is attached. This sheet should be carefully reviewed with each use of this report as it sets the only context within which this report should be used. If this sheet is missing from the report, please contact our office for a replacement.

SITE AND PROJECT DESCRIPTION

The project site is a grass covered and wooded tract of land located between the E Road and the baseball fields at the State University College @ Purchase Campus. The site is located on sections of the USGS Topographic Maps of the Glenville Quadrangle and the historic 1899 map which are attached to this report. The mapping shows the site as sloping down from west to east between elevations of about 310 and 300 feet with storm water detention basins on the east and west sides whose base grades are about 300 and 290 feet. It appears the site was cut and filled in some areas to create the existing grades.

As we understand it, the site is to be developed with an asphaltic concrete surfaced parking lot for the adjacent fields.

SUBSURFACE CONDITIONS

The subsurface conditions at the site were explored through the completion of 2 exploratory test borings. The boring locations are depicted on the attached Subsurface Investigation Plan.

The borings were advanced using a rotary drill rig employing hollow stem augers with the overburden soils sampled and their relative density determined through the procedures of ASTM D-1586. The Subsurface Logs should be reviewed for the specific conditions encountered at each investigated location. It should be understood that conditions are only known at the investigated locations and at the depths sampled, and that conditions at locations and depths other than those investigated may or may not be similar. It should also be understood that conditions can change with time and may be seasonally influenced.

Three (3) principle overburden strata were encountered within the depths explored at this site. The strata are discussed below in their order of occurrence below grade.

Topsoil: The ground surface is mantled with about 2 to 3 inches of topsoil. However, it should be understood that the topsoil thickness was measured within a sampler used for other purposes and that the sampler usually compresses the soft and loose topsoil stratum and may as a result underestimate the thickness of the topsoil. Further, only 2 locations were investigated and these may or may not be representative areas.

Fill: Was encountered beneath the topsoil layer at location B-1. The fill is composed of a fine to coarse textured sand, silt and gravel with some demolition rubble and construction fabric within it. The fill extended to a depth of about 4 feet and was firm to loose and moist.

Alluvium Stratum: Beneath the topsoil and fill is a discontinuous layer composed of brown sand and silt with lessor amounts of gravel which was about 2 feet thick. These soils were generally firm and moist.

Till Stratum: Beneath the alluvium are fine to coarse textured sands, silts, and gravels with occasional boulders and cobbles. These soils were of a generally firm grading to compact relative density with increasing depth. Mottling was noted in the layer suggesting seasonal saturation at a shallow depth. The till extended through the depths explored, about 10 to 12 feet.

Groundwater: Groundwater did not collect within the test borings in the time allotted following their advancement. It should be noted that groundwater levels can vary seasonally and perched waters may form above the less permeable strata as evidenced by the mottling within the surface of the till soils.

GEOTECHNICAL EVALUATION & RECOMMENDATIONS

In our opinion, the construction of the athletic field parking areas may proceed provided site drainage is designed and constructed so that precipitation and runoff is collected and directed off the site. Further, underdrainage features must be installed which collect and eliminate perched ground water from the shallow subsoils.

SITE DEVELOPMENT AND EARTHWORK

Site Preparation

Site preparation should commence with the installation of the site drainage and underdrainage works designed to intercept runoff and drain groundwater from the work area. After these works are installed, stripping of vegetation and topsoil and surficial organic matter from beneath the athletic fields and any new pavement areas may follow. The site earthwork bidders should not rely solely on the topsoil thickness measured at the discrete test boring locations made for this investigation, but should perform their own explorations as needed to obtain a representative thickness of topsoil throughout the areas where stripping is required.

Drainage swales and/or deep cutoff trenches, as appropriate, should be installed around the upgradient sides of the area being developed to intercept and divert surface runoff and groundwater perched in the upper few feet of soil away from the development area.

The excavated and filled subgrades must be shaped and sloped to direct runoff away from the fields and work areas both during construction and afterwards. At the end of each day, the subgrade surface should be "sealed" with a steel drum roller to promote runoff away from the site or to the drainage features. Subgrade soils which are or become soft/wet should be removed and replaced.

After the site has been stripped of topsoil, the exposed subgrade surface should be shaped to promote runoff and proof-rolled by completing at least three passes with a pneumatic tire or steel drum roller with a static weight of at least seven tons. The roller should operate in its static mode, unless otherwise directed by the Geotechnical Engineer observing the work, and travel at a speed of about three feet per second (two miles per hour). Soft areas which are identified by the proof-rolling should be investigated to ascertain the cause and, where determined to be necessary, undercut and replaced.

Fill and Backfill

Soils excavated on-site may be considered for use as a source of fill beneath the new pavement areas, however, we caution that the on-site soils may be too wet for compaction and prove impractical to use, especially if wet or cool weather conditions prevail during or immediately prior to construction. In this case, it may be necessary to use an imported soil as fill. The imported materials should be composed of well graded sand and gravel with no particles greater than about 3 inches and with between 30 and 70% finer than the #10 sieve and no more than 10% finer than the US Std. #200 sieve. Site and granular soils should not be intermixed so as to form pockets of granular soils which could trap water and become saturated.

All fill should be placed in uniform loose layers no more than about one foot thick where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated

equipment is required for compaction. Each lift should be compacted to no less than 92 percent of the maximum dry density for the soil established by the Modified Proctor Compaction Test, ASTM D1557. The soils should be compacted at a moisture content within two percent of the optimum determined by ASTM D1557.

Slope Design

Permanent cut and fill slopes should be inclined no steeper than one vertical on three horizontal. A crest swale should be incorporated into the design to prevent runoff from traversing the slope, and a thick vegetative growth should be established on the slopes to inhibit erosion. If steeper slopes are desired, we should review the proposed site grading plans to determine whether any stability concerns are raised.

FLEXIBLE PAVEMENTS

Flexible asphaltic concrete pavements are suitable for vehicle roadways and parking lots at the site. Two pavement sections may be considered depending on the expected traffic loads; a Heavy Section should be used for entrance drives and areas subject to bus or truck traffic, and a Light Section for areas subject primarily to automobile parking. The recommended pavement section material and thickness requirements are summarized in Table 1.

FLEXIBLE PAVEMENT SECTIONS			
Course	NYSDOT Reference	Layer Thickness	
		Heavy Section	Light Section
Asphalt Top	Section 403 - Type 6 or 7	1.5"	1"
Asphalt Binder	Section 403 - Type 3	3"	2"
Granular Base	Section 304 - Type 2	12"	8"
Stabilization Fabric (Mirafi 500X or eq.)	Not Applicable	Single Ply	Single Ply

It should be understood that these pavement sections are intended for the final traffic types at the site and are not intended to support construction period equipment traffic. The contractor should develop temporary haul road sections specific to his intended equipment in order to minimize damage to these or other school pavements.

All materials and construction should conform with the NYSDOT Standard Specifications, Construction and Materials. The base course materials should be compacted to 95 percent of the maximum dry density for the material established through the Modified Proctor Compaction Test, ASTM D1557.

Prior to constructing the pavement sections, the subgrades should be prepared as previously recommended.

To assist in draining the base materials, underdrains should be installed at minimum 40 foot spacings in large parking lots, and interceptor trenches or drainage swales installed along the edges of parking lots and entrance drives.

It should be understood that frost may penetrate several feet beneath the final grades at this site during any winter and may cause the siltier soils to expand and the surface to heave. The heave may occur beneath sidewalks or pavements, and the heave may be differential. A thickened crushed stone base course composed of ASTM 57 Blend Stone with underdrains may be placed beneath these more sensitive junctions with its thickness determined dependent when final grades, drainage features, and the frost risk tolerance for the project are defined.

CONSTRUCTION MONITORING

Dente Engineering should be retained to review grading and drainage plans as they are developed and allowed an opportunity to review and comment on the plans well in advance of their bidding.

It should be noted that actual subsurface conditions will only be known when excavated, and the presence of the Geotechnical Engineer during construction will serve to validate the conditions assumed to exist and design recommended in this report.

CLOSURE

This report was prepared for the HMM and SUC Purchase for specific application to the project site and construction planned based on a limited number of explorations at discrete locations. As previously recommended, Dente Engineering should be retained during construction to validate the actual site conditions are similar to those assumed for development of the recommendations contained in this report. We should also review plans and specifications related to foundations and earthwork prior to their release for bidding to confirm that our recommendations were properly interpreted and applied.

This report was prepared using methods and practices common to Geotechnical Engineering, no other warranties expressed or implied are made.

We appreciate the opportunity to be of service. Should questions arise or if we may be of any other service, please contact us at your convenience.

Yours truly,
Dente Engineering, P.C.



Fred A. Dente, P.E.
President

Attachments;

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

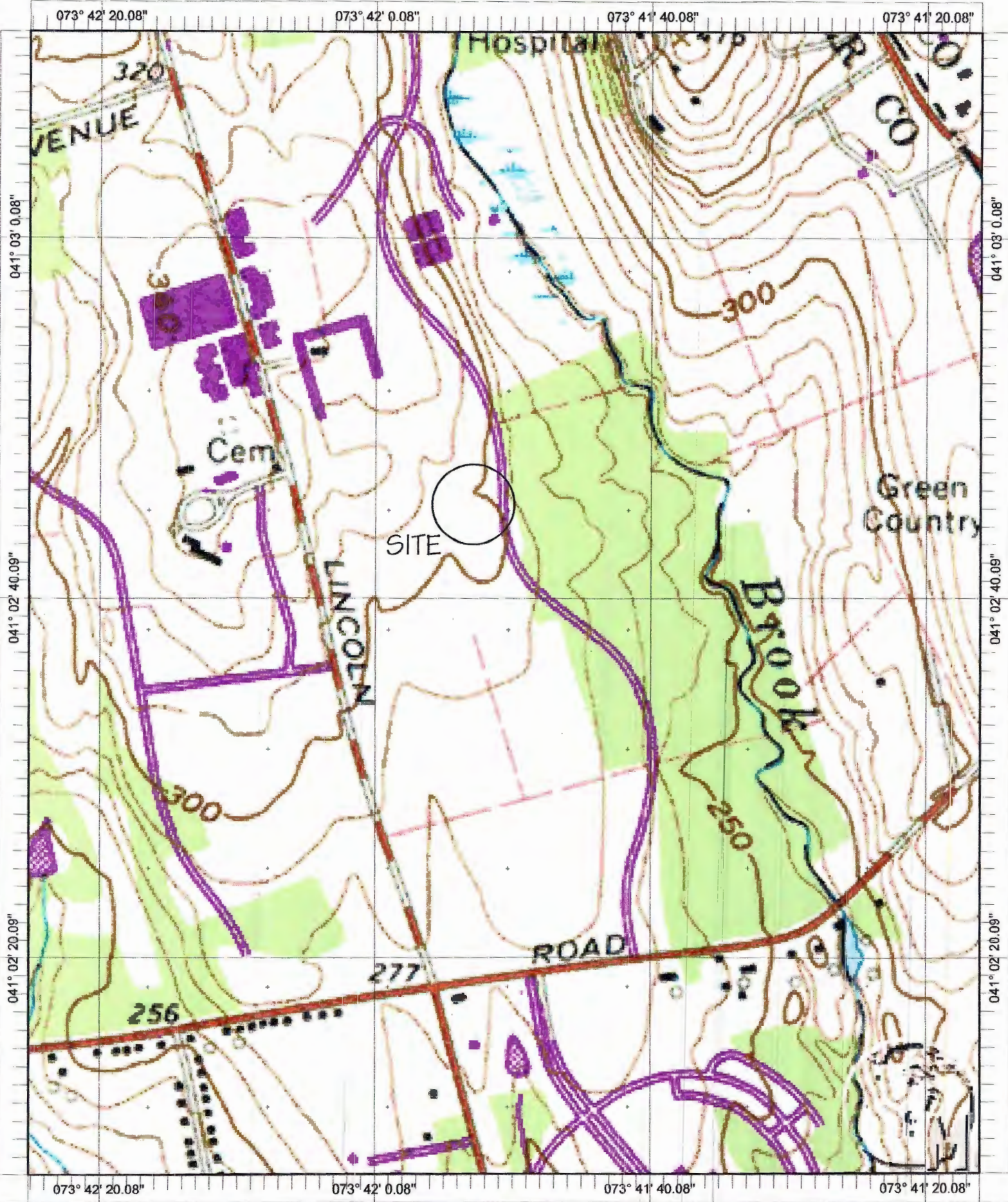
Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



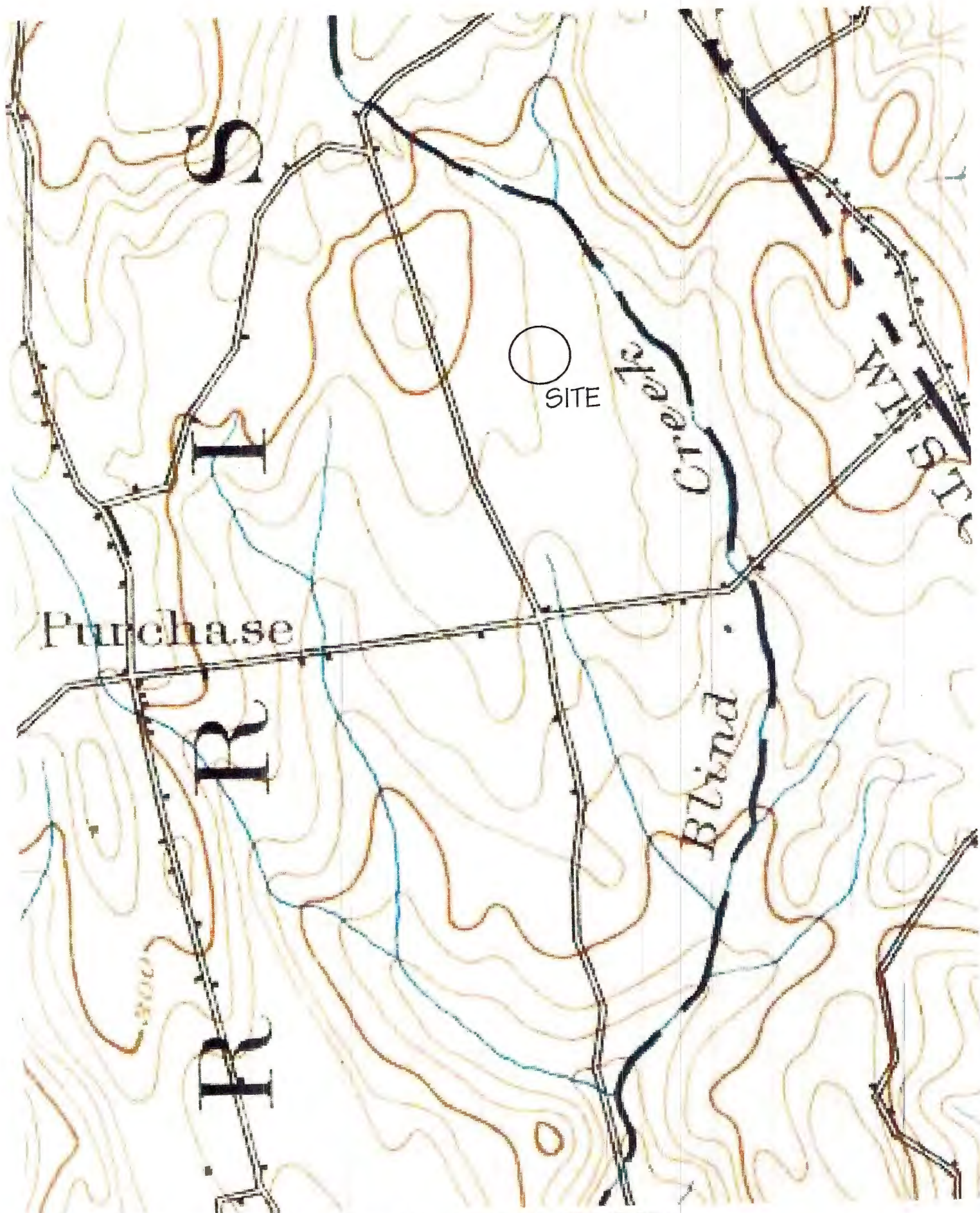
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Name: GLENVILLE
Date: 11/28/112
Scale: 1 inch equals 666 feet

Location: 041° 02' 39.8" N 073° 41' 50.7" W
Caption: SUNY PURCHASE PARKING
PURCHASE, NEW YORK
FDE-12-204



SUNY Purchase Parking Lot, Purchase, New York 1899, FDE-12-204



FDE-12-204
SUNY Purchase
Parking Lot Investigation
Photograph Facing South West
Boring B-2 Marker West of Orange Flagging

11/05/2012



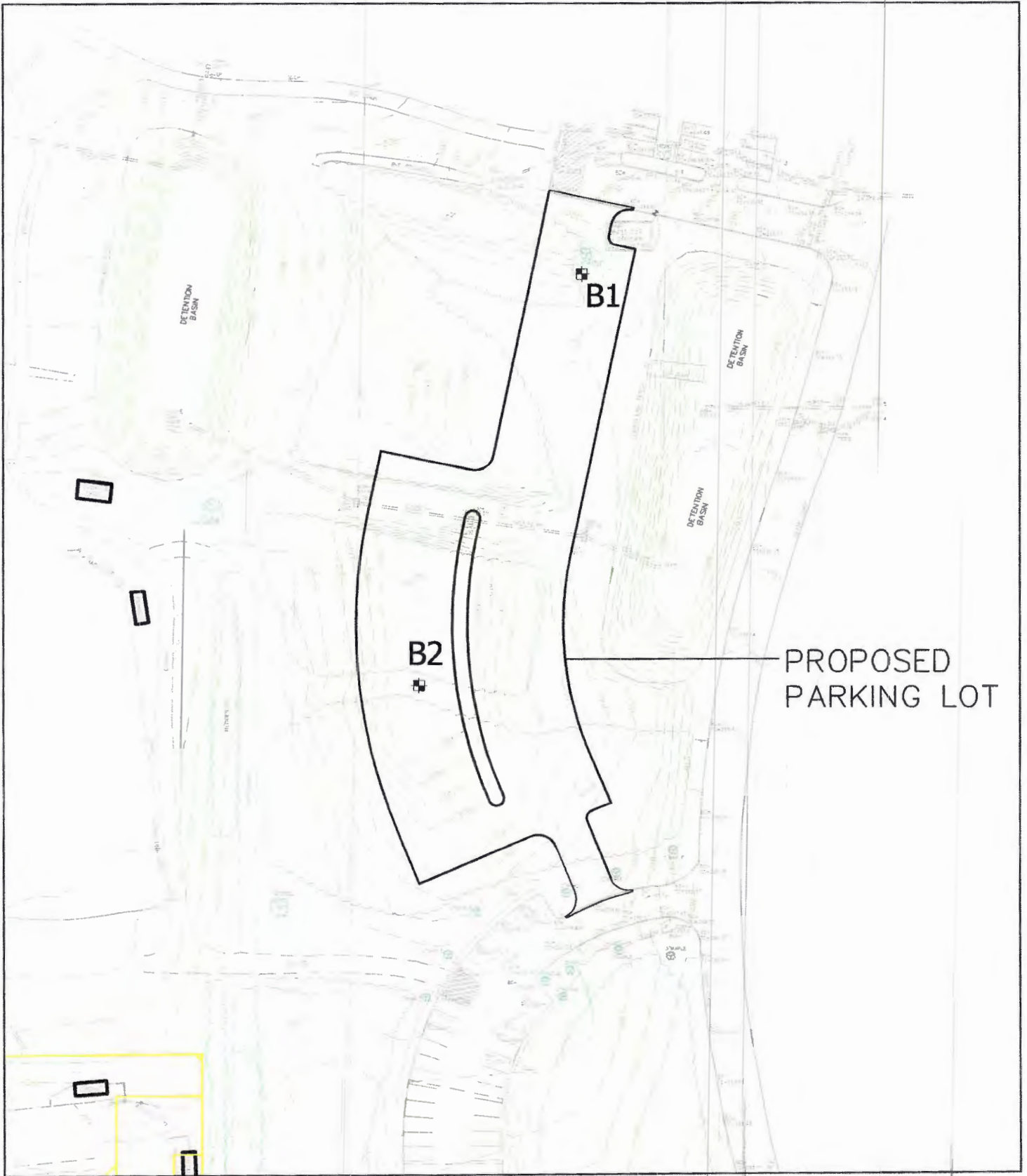
FDE-12-204
SUNY Purchase
Parking Lot Investigation
Proposed Parking Lot Area
Photograph Facing North West

11/05/2012



FDE-12-204
SUNY Purchase
Parking Lot Investigation
Photograph Facing South West Towards
Boring B-1

11/05/2012



1

PURCHASE COLLEGE: BORING LOCATION MAP

Scale: 1"=80'±



INTERPRETATION OF SUBSURFACE LOGS

The Subsurface Logs present observations and the results of tests performed in the field by the Driller, Technicians, Geologists and Geotechnical Engineers as noted. Soil/Rock Classifications are made visually, unless otherwise noted, on a portion of the materials recovered through the sampling process and may not necessarily be representative of the materials between sampling intervals or locations.

The following defines some of the terms utilized in the preparation of the Subsurface Logs.

SOIL CLASSIFICATIONS

Soil Classifications are visual descriptions on the basis of the Unified Soil Classification ASTM D-2487 and USBR, 1973 with additional comments by weight of constituents by BUHRMASTER. The soil density or consistency is based on the penetration resistance determined by ASTM METHOD D1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED.

SIZE DESCRIPTION		RELATIVE DENSITY/CONSISTENCY (basis ASTM D1586)			
SOIL TYPE	PARTICLE SIZE	GRANULAR SOIL		COHESIVE SOIL	
BOULDER	> 12	DENSITY	BLOWS/FT.	CONSISTENCY	BLOWS/FT.
COBBLE	3" - 12"	LOOSE	< 10	VERY SOFT	< 3
GRAVEL-COARSE	3" - 3/4"	FIRM	11 - 30	SOFT	4 - 5
GRAVEL - FINE	3/4" - #4	COMPACT	31 - 50	MEDIUM	6 - 15
SAND - COARSE	#4 - #10	VERY COMPACT	50 +	STIFF	16 - 25
SAND - MEDIUM	#10 - #40			HARD	25 +
SAND - FINE	#40 - #200				
SILT/NONPLASTIC	< #200				
CLAY/PLASTIC	< #200				

SOIL STRUCTURE		RELATIVE PROPORTION OF SOIL TYPES	
STRUCTURE	DESCRIPTION	DESCRIPTION	% OF SAMPLE BY WEIGHT
LAYER	6" THICK OR GREATER	AND	35 - 50
SEAM	6" THICK OR LESS	SOME	20 - 35
PARTING	LESS THAN 1/4" THICK	LITTLE	10 - 20
VARVED	UNIFORM HORIZONTAL PARTINGS OR SEAMS	TRACE	LESS THAN 10

Note that the classification of soils or soil like materials is subject to the limitations imposed by the size of the sampler, the size of the sample and its degree of disturbance and moisture.

ROCK CLASSIFICATIONS

Rock Classifications are visual descriptions on the basis of the Driller's, Technician's, Geologist's or Geotechnical Engineer's observations of the coring activity and the recovered samples applying the following classifications.

CLASSIFICATION TERM	DESCRIPTION
VERY HARD	NOT SCRATCHED BY KNIFE
HARD	SCRATCHED WITH DIFFICULTY
MEDIUM HARD	SCRATCHED EASILY
SOFT	SCRATCHED WITH FINGERNAIL
VERY WEATHERED	DISINTEGRATED WITH NUMEROUS SOIL SEAM
WEATHERED	SLIGHT DISINTEGRATION, STAINING, NO SEAMS
SOUND	NO EVIDENCE OF ABOVE
MASSIVE	ROCK LAYER GREATER THAN 36" THICK
THICK BEDDED	ROCK LAYER 12" - 36"
BEDDED	ROCK LAYER 4" - 12"
THIN BEDDED	ROCK LAYER 1" - 4"
LAMINATED	ROCK LAYER LESS THAN 1"
FRACTURES	NATURAL BREAKS AT SOME ANGLE TO BEDS

Core sample recovery is expressed as percent recovered of total sampled. The ROCK QUALITY DESIGNATION (RQD) is the total length of core sample pieces exceeding 4" length divided by the total core sample length for N size cored.

GENERAL

- Soil and Rock classifications are made visually on samples recovered. The presence of Gravel, Cobbles and Boulders will influence sample recovery classification density/consistency determination.
- Groundwater, if encountered, was measured and its depth recorded at the time and under the conditions as noted.
- Topsoil or pavements, if present, were measured and recorded at the time and under the conditions as noted.
- Stratification Lines are approximate boundaries between soil types. These transitions may be gradual or distinct and are approximated.

DENTE ENGINEERING, P.C.**SUBSURFACE LOG B-1****PROJECT:** SUNY Purchase Parking Lot**DATE****START:** 11/19/12**FINISH:** 11/19/12**LOCATION:** Purchase, New York**METHODS:** 3 1/4" Hollow Stem Augers with**CLIENT:** HMH Site & Sports Design

ASTM D1586 Drilling Methods

JOB NUMBER: FDE-12-204**SURFACE ELEVATION:** +/- 302.0'**DRILL TYPE:** CME 45C**CLASSIFICATION:** O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	4	4				+/- 2.5" Topsoil
				8	8	12	FILL: Brown F-C SAND, SILT, and GRAVEL, trace concrete and fabric (MOIST)
	2	8	6				
				5	3	11	(MOIST, FIRM)
5'	3	1	5				Brown F-M SAND and SILT, Little Gravel
				6	10	11	(MOIST, FIRM)
	4	8	12				TILL: Brown Mottled F-C SAND and SILT, Some Gravel
				13	17	25	
	5	8	13				
10'				17	21	30	
	6	10	12				
				10	15	22	(MOIST, FIRM)
							End of boring 12.0' depth.
15'							
20'							
25'							
30'							

SUBSURFACE LOG B-2

FINISH: 11/19/12

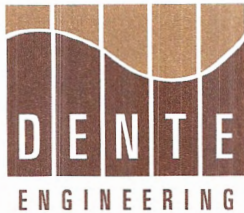
METHODS: 2" x 24" Split Spoon Sampler

JOB NUMBER: FDE-12-204

SURFACE ELEVATION: +/- 310.0'

CLASSIFICATION: O.Burns

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	4	6				+/- 2" Topsoil
				8	8	14	Dark Brown F-M SAND and SILT, trace gravel, roots noted (MOIST, FIRM)
	2	10	17				TILL: Brown F-C SAND and SILT, Some Gravel
				14	14	31	
5'	3	12	17				Similar with cobble noted
				17	15	34	
	4	13	15				
				14	15	29	
	5	19	14				
10'				12	21	26	(MOIST, COMPACT TO FIRM)
							End of boring 10.0' depth.
15'							
20'							
25'							
30'							

**ALBANY AREA**

594 Broadway
Watervliet, NY 12189
Voice 518-266-0310
Fax 518-266-9238

BUFFALO AREA

PO Box 482
Orchard Park, NY 14127
Voice 716-649-9474
Fax 716-648-3521

December 14, 2012

Mr. Josh Mike, RLA
HMH Site & Sports Design
330 E. State Street
Ithaca, New York 14850

Re: Stockpile Material Evaluations
SUNY Purchase
Purchase, New York
File No. FDE-12-205

Gentlemen;

In accord with SUC Purchase purchase order 130375, we have completed an investigation, testing program and analysis of the recycled materials stockpiled off Lincoln Avenue at the campus.

Ten samples were collected and subjected to moisture content, organic content, particle size distribution, Proctor compaction and California Bearing Ratio testing. The test reports are attached together with a sampling location sketch.

In our opinion these materials, where of a gradation and composition similar to those sampled and which meet the criteria recommended in our other reports, are judged suitable for use as structural fill and sub base course materials.

If we may be of any other assistance, please contact us at your convenience.

Yours truly,

A handwritten signature in black ink, appearing to read "Fred A. Dente", with a stylized flourish at the end.

Fred A. Dente, PE
President

Attachments;

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

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- project ownership.

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Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

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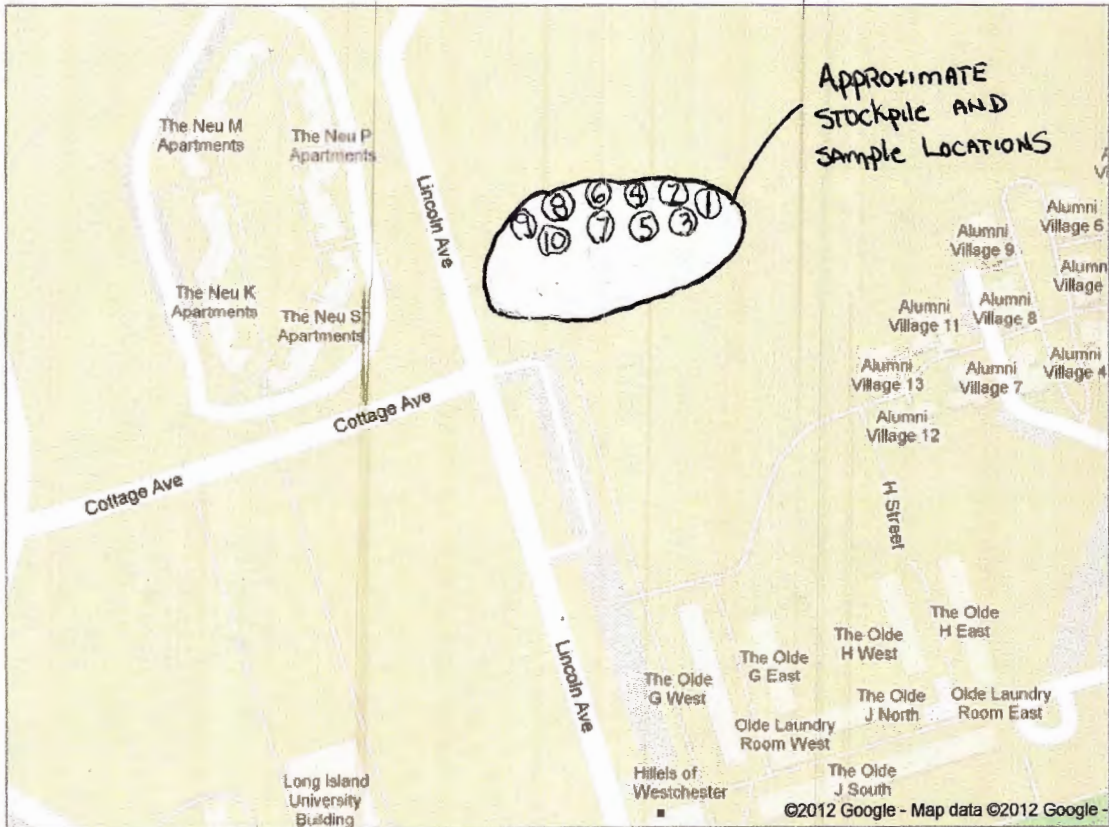
Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual



PURCHASE COLLEGE: STOCKPILE ANALYSIS

Scale: 1"=150'±





FDE-12-205
SUNY Purchase
Stockpile Material Evaluation
View of Stockpile Facing South



FDE-12-205
SUNY Purchase
Material Stockpile Evaluation
View of Stockpile Facing South West



FDE-12-205
SUNY Purchase
Stockpile Material Evaluation
View of Stockpile Facing East



FDE-12-205
SUNY Purchase
Material Stockpile Evaluation
View of Individual Samples



SUNY Purchase
Stockpile Evaluation
Organic Content Results ASTM D2974

Field ID	1	2	3	4	5	6
Sample No.	901	902	903	904	905	906
Sample Depth	N/A	N/A	N/A	N/A	N/A	N/A
Tare Weight	45.03	48.03	69.44	74.48	74.48	69.44
W _S + Tare	85.35	91.95	118.55	118.30	146.78	127.69
W _A + Tare	83.54	90.01	116.88	116.64	143.56	125.11
W _S	40.32	43.92	49.11	43.82	72.30	58.25
W _A	38.51	41.98	47.44	42.16	69.08	55.67
%ASH = W _A / W _S	95.5	95.6	96.6	96.2	95.5	95.6
%ORGANICS	4.5	4.4	3.4	3.8	4.5	4.4

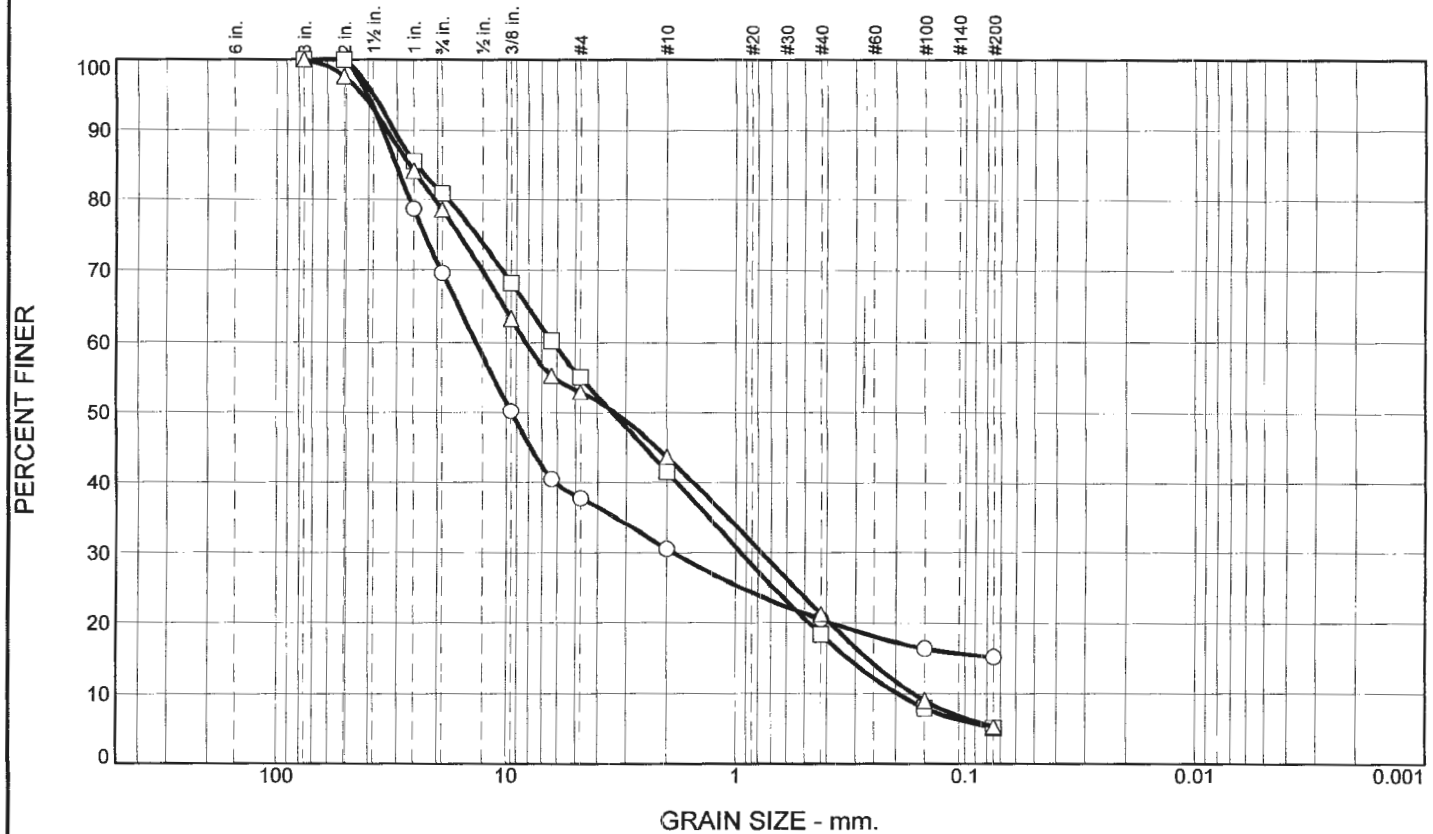
Field ID	7	8	9	10		
Sample No.	907	908	909	910		
Sample Depth	N/A	N/A	N/A	N/A		
Tare Weight	48.04	45.03	74.48	69.42		
W _S + Tare	86.23	81.83	130.85	122.06		
W _A + Tare	85.02	80.59	128.54	119.62		
W _S	38.19	36.80	56.37	52.64		
W _A	36.98	35.56	54.06	50.20		
%ASH = W _A / W _S	96.8	96.6	95.9	95.4		
%ORGANICS	3.2	3.4	4.1	4.6		

Boring No.						
Sample No.						
Sample Depth						
Tare Weight						
W _S + Tare						
W _A + Tare						
W _S						
W _A						
%ASH = W _A / W _S						
%ORGANICS						

DENTE ENGINEERING
594 Broadway
Watervliet, NY 12189
Ph. 518-266-0310
Fax 518-266-9238

Client: HMH Site & Sport Design
File No. FDE-12-205
Date: November 6, 2012

Particle Size Distribution Report



	+3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0	62.3	22.5	15.2		GM	A-1-a	NP	NP
□	0.0	44.8	50.0	5.2		SP-SM	A-1-a	NP	NP
△	0.0	47.0	47.6	5.4		SP-SM	A-1-a	NP	NP

SIEVE inches size	PERCENT FINER		
	○	□	△
3	100.0	100.0	100.0
2	100.0	100.0	97.6
1	78.6	85.5	84.2
.75	69.6	80.9	78.5
.375	50.2	68.2	63.3
.25	40.5	60.2	55.4
GRAIN SIZE			
D60	13.5599	6.2682	8.2220
D30	1.8770	0.9514	0.7718
D10		0.1961	0.1676
COEFFICIENTS			
C _c		0.74	0.43
C _u		31.96	49.05

SIEVE number size	PERCENT FINER		
	○	□	△
#4	37.7	55.2	53.0
#10	30.5	41.6	43.7
#40	20.5	18.4	21.3
#100	16.4	8.1	9.1
#200	15.2	5.2	5.4

Material Description	
○ "Recycled"	GRAVEL, some coarse to fine Sand, little Silt
□ "Recycled"	coarse to fine SAND and GRAVEL, trace Silt
△ "Recycled"	coarse to fine SAND and GRAVEL, trace Silt

REMARKS:	
○	Per ASTM D422 Washed
□	Per ASTM D422 Washed
△	Per ASTM D422 Washed

- Source of Sample: On Site Stockpile
- Source of Sample: On Site Stockpile
- △ Source of Sample: On Site Stockpile

Sample Number: 901
 Sample Number: 902
 Sample Number: 903

**EVERGREEN
TESTING, INC.
Watervliet, NY**

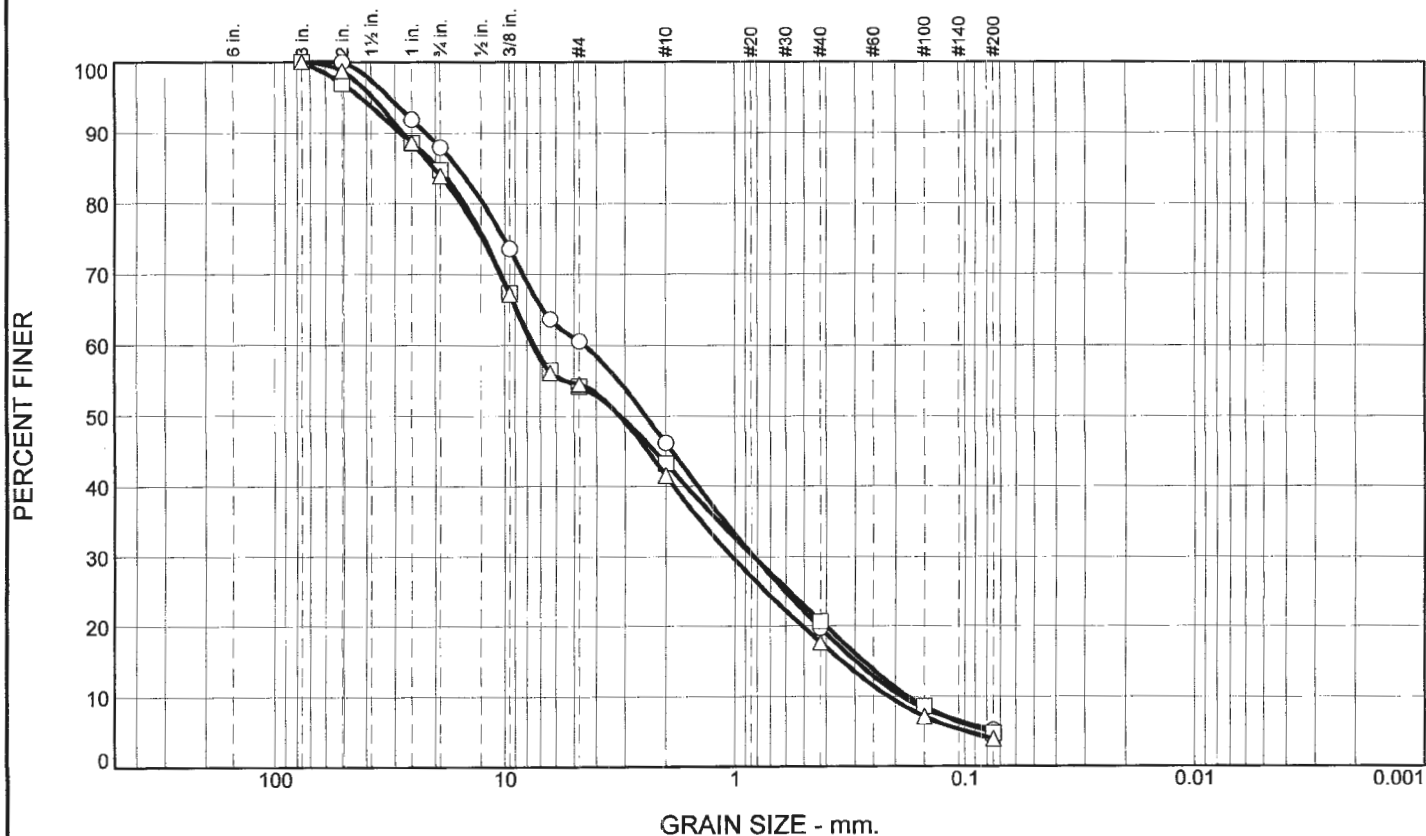
Client: HMM Site & Sports Design
 Project: SUNY Purchase
 Stockpile Evaluation
 Project No.: FDE-12-205

Figure 901-903

Tested By: MT

Checked By: FD

Particle Size Distribution Report



	+3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0	39.4	55.4	5.2		SP-SM	A-1-a	NP	NP
□	0.0	45.7	49.6	4.7		SP	A-1-a	NP	NP
△	0.0	45.4	50.7	3.9		SP	A-1-a	NP	NP

SIEVE inches size	PERCENT FINER		
	○	□	△
3	100.0	100.0	100.0
2	100.0	97.0	98.7
1	91.9	88.6	88.6
.75	88.0	84.8	84.1
.375	73.6	67.3	67.2
.25	63.7	56.6	56.2
GRAIN SIZE			
D ₆₀	4.4899	7.4655	7.5461
D ₃₀	0.8244	0.8284	1.0274
D ₁₀	0.1868	0.1760	0.2138
COEFFICIENTS			
C _c	0.81	0.52	0.65
C _u	24.03	42.41	35.29

SIEVE number size	PERCENT FINER		
	○	□	△
#4	60.6	54.3	54.6
#10	46.1	43.2	41.5
#40	19.7	20.7	17.7
#100	8.3	8.6	7.1
#200	5.2	4.7	3.9

Material Description

○ "Recycled" coarse to fine SAND and GRAVEL, trace Silt

□ "Recycled" coarse to fine SAND and GRAVEL, trace Silt

△ "Recycled" coarse to fine SAND and GRAVEL, trace Silt

REMARKS:

○ Per ASTM D422 Washed

□ Per ASTM D422 Washed

△ Per ASTM D422 Washed

- Source of Sample: On Site Stockpile
- Source of Sample: On Site Stockpile
- △ Source of Sample: On Site Stockpile

Sample Number: 904

Sample Number: 905

Sample Number: 906

**EVERGREEN
TESTING, INC.
Watervliet, NY**

Client: HMM Site & Sports Design

Project: SUNY Purchase
Stockpile Evaluation

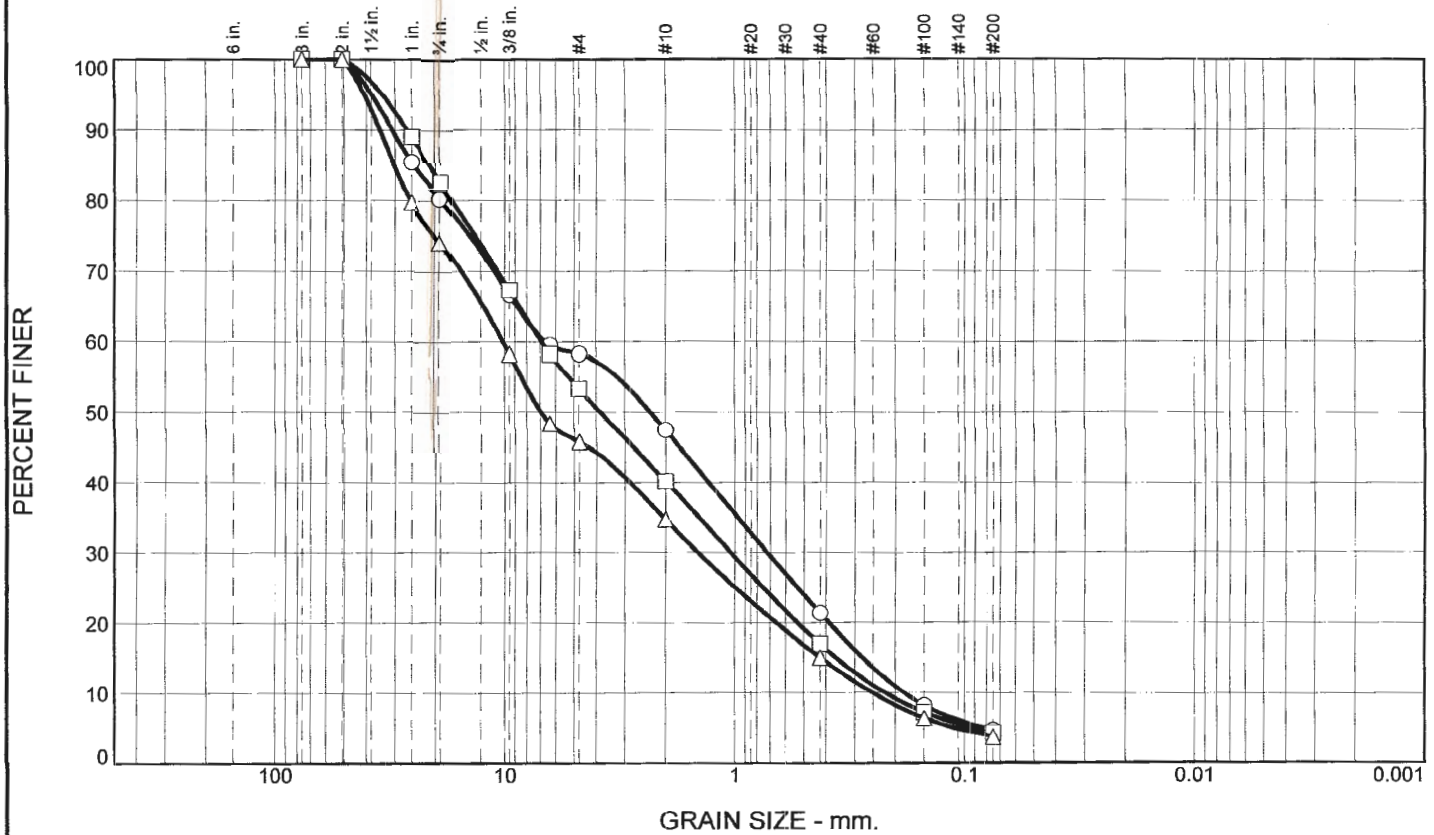
Project No.: FDE-12-205

Figure 904-906

Tested By: ● CC ■ MT ▲ MM

Checked By: FD

Particle Size Distribution Report



	+3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0	41.7	53.7	4.6		SP	A-1-a	NP	NP
□	0.0	46.7	49.1	4.2		SP	A-1-a	NP	NP
△	0.0	54.2	42.1	3.7		GP	A-1-a	NP	NP

SIEVE inches size	PERCENT FINER		
	○	□	△
3	100.0	100.0	100.0
2	100.0	100.0	100.0
1	85.4	89.0	79.7
.75	80.3	82.5	74.0
.375	66.7	67.3	58.3
.25	59.5	58.3	48.3

GRAIN SIZE			
D ₆₀	6.6381	6.8999	10.1465
D ₃₀	0.7236	1.0428	1.4467
D ₁₀	0.1831	0.2212	0.2510

COEFFICIENTS			
C _c	0.43	0.71	0.82
C _u	36.25	31.20	40.42

SIEVE number size	PERCENT FINER		
	○	□	△
#4	58.3	53.3	45.8
#10	47.4	40.2	34.7
#40	21.3	17.0	15.1
#100	8.2	7.2	6.3
#200	4.6	4.2	3.7

Material Description	
○ "Recycled"	coarse to fine SAND and GRAVEL, trace Silt
□ "Recycled"	coarse to fine SAND and GRAVEL, trace Silt
△ "Recycled"	GRAVEL and coarse to fine SAND, trace Silt

REMARKS:	
○	Per ASTM D422 Washed
□	Per ASTM D422 Washed
△	Per ASTM D422 Washed

- Source of Sample: On Site Stockpile
- Source of Sample: On Site Stockpile
- △ Source of Sample: On Site Stockpile

Sample Number: 907
Sample Number: 908
Sample Number: 909

**EVERGREEN
TESTING, INC.
Watervliet, NY**

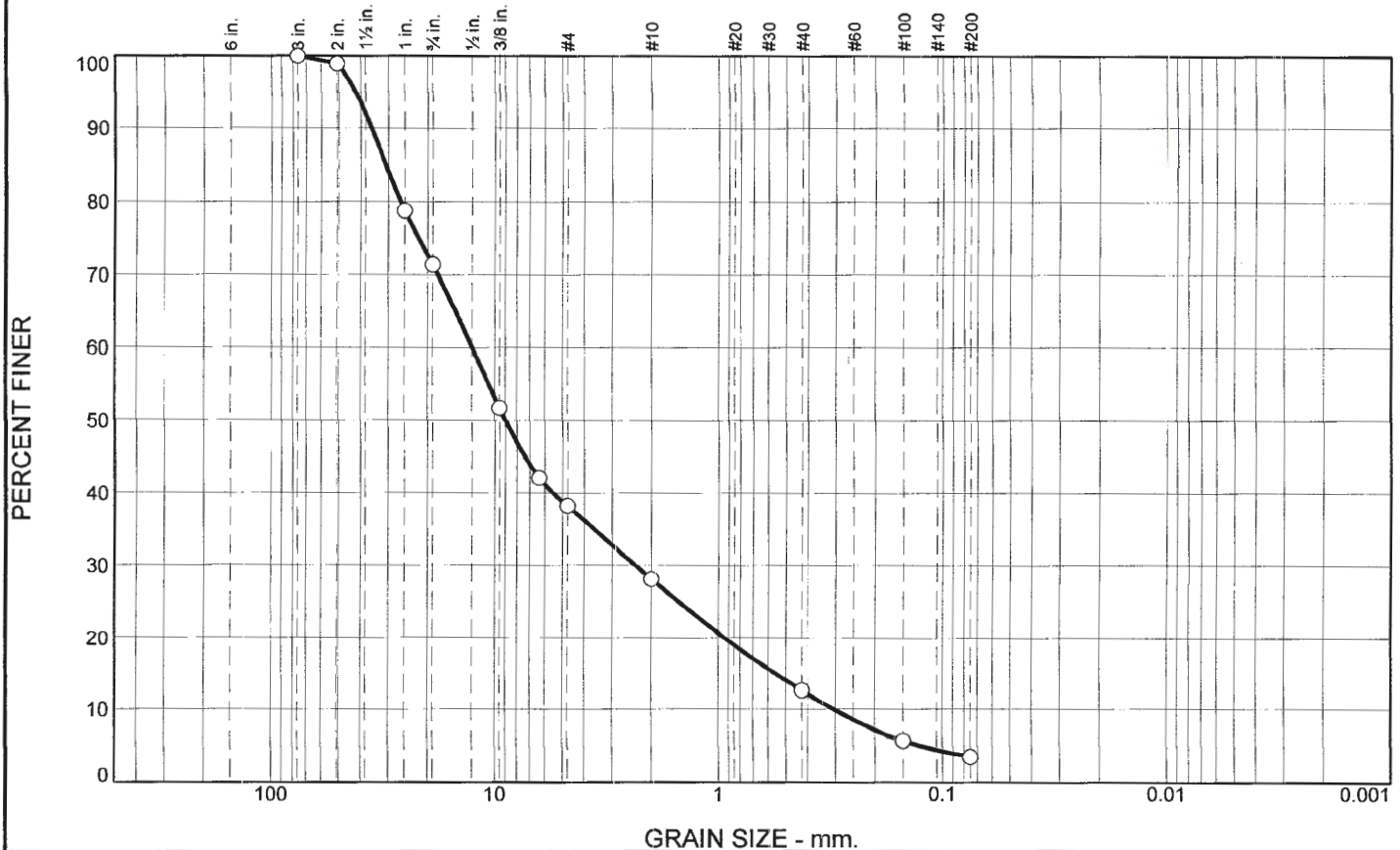
Client: HMH Site & Sports Design
Project: SUNY Purchase
Stockpile Evaluation
Project No.: FDE-12-205

Figure 907-909

Tested By: ● CC ■ CC ▲ MT

Checked By: FD

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	28.6	33.2	10.1	15.5	9.1	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	98.9		
1	78.8		
.75	71.4		
.375	51.7		
.25	42.0		
#4	38.2		
#10	28.1		
#40	12.6		
#100	5.7		
#200	3.5		

* (no specification provided)

Material Description

"Recycled"
GRAVEL, some coarse to fine Sand, trace Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D₉₀= 35.8042 D₈₅= 30.8695 D₆₀= 12.6781
D₅₀= 8.9660 D₃₀= 2.3525 D₁₅= 0.5586
D₁₀= 0.3057 C_u= 41.47 C_c= 1.43

Classification

USCS= GW AASHTO= A-1-a

Remarks

Per ASTM D422 Washed

Source of Sample: On Site Stockpile
Sample Number: 910

Date: 11-6-12

**EVERGREEN
TESTING, INC.
Watervliet, NY**

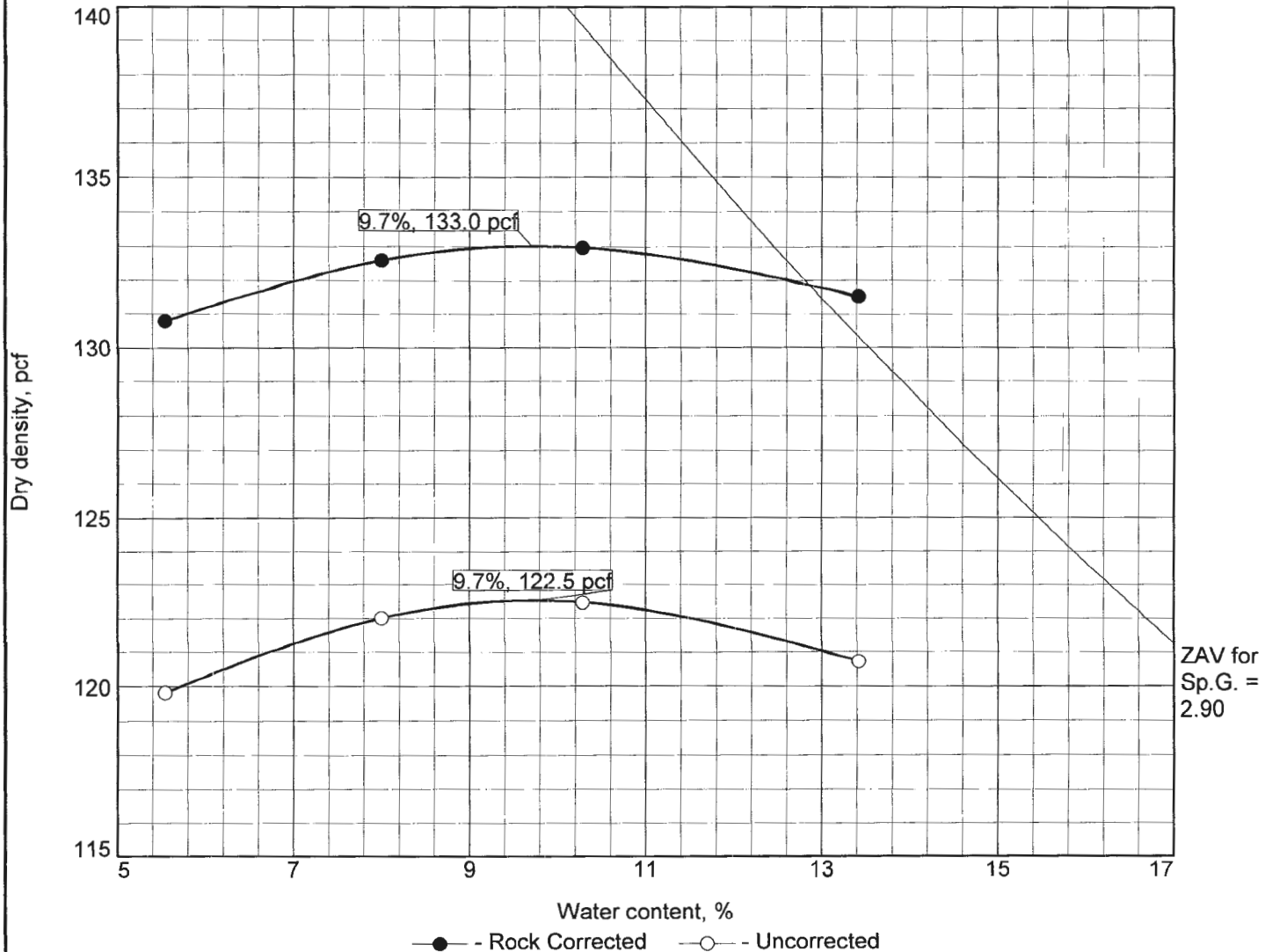
Client: HMM Site & Sports Design
Project: SUNY Purchase
Stockpile Evaluation
Project No: FDE-12-205

Figure 910

Tested By: MM

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	GM	A-1-a		2.65	NP	NP	30.4	15.2

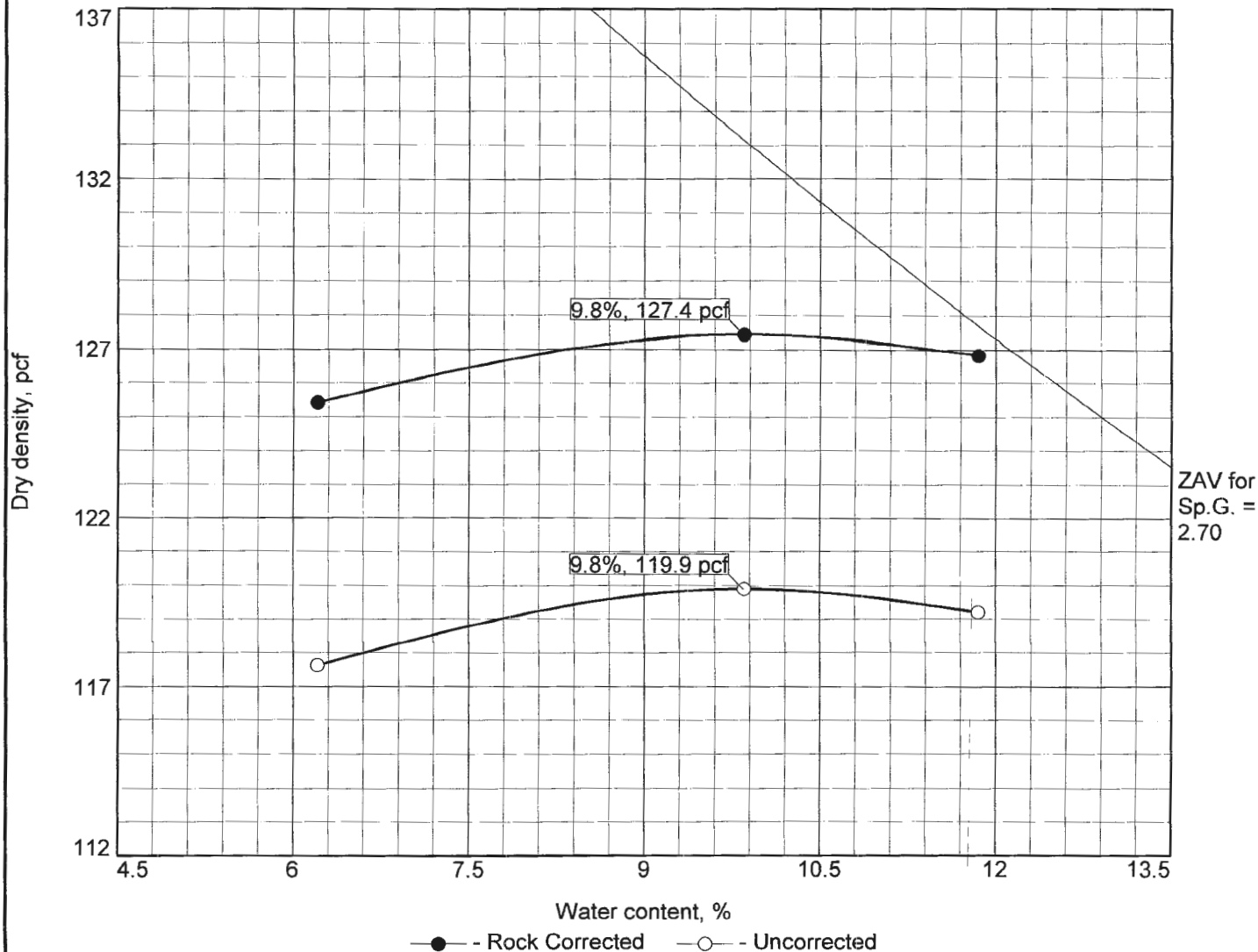
ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 133.0 pcf	122.5 pcf	"Recycled"
Optimum moisture = 9.7 %	9.7 %	GRAVEL, some coarse to fine Sand, little Silt
Project No. FDE-12-205 Client: HMM Site & Sports Design Project: SUNY Purchase Stockpile Evaluation Source of Sample: On Site Stockpile Sample Number: 901 EVERGREEN TESTING, INC. Watervliet, NY		Remarks: Per ASTM D1557-02 11-6-12

Figure 901

Tested By: JC

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

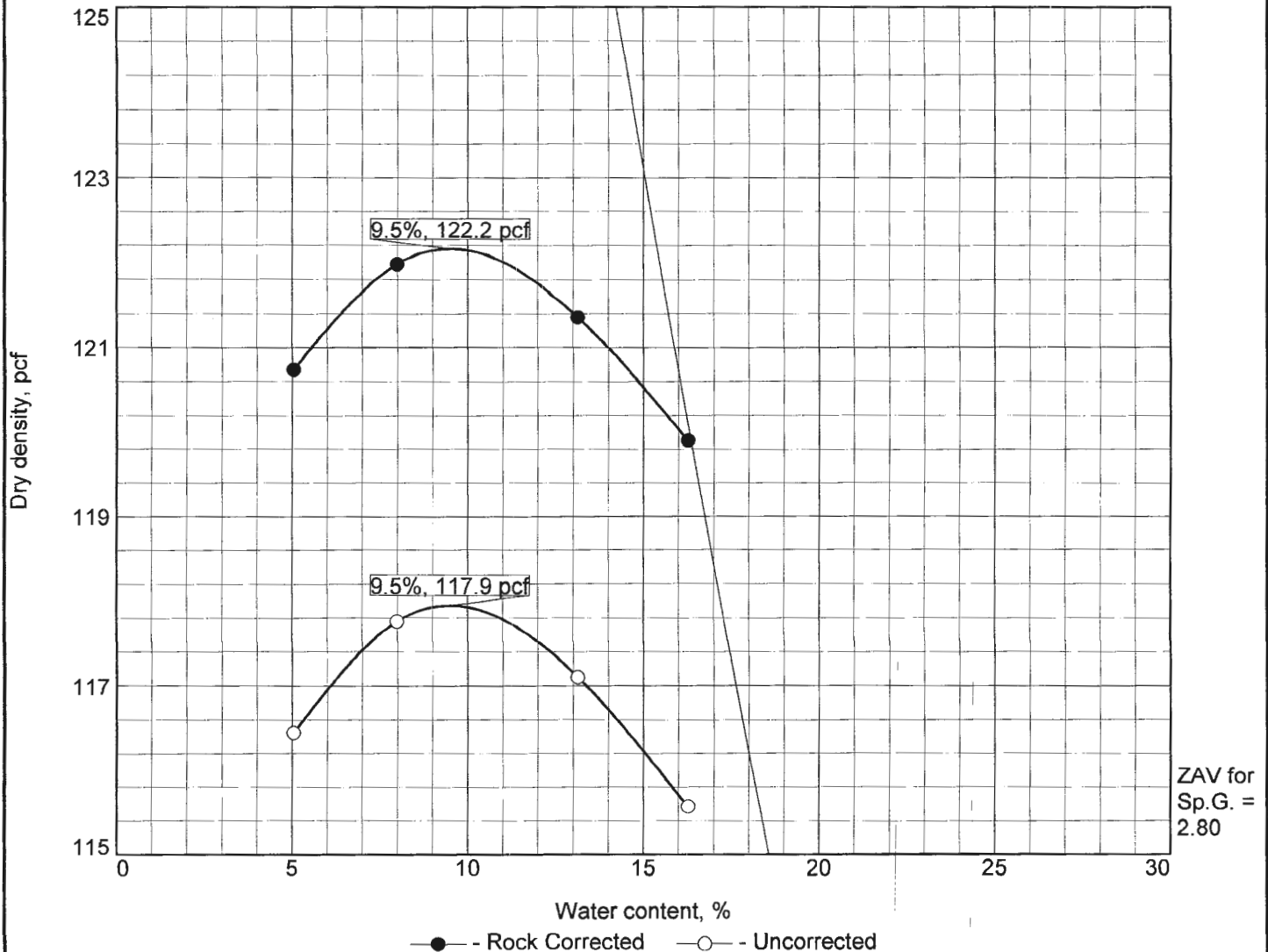
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP-SM	A-1-a		2.65	NP	NP	21.5	5.4

ROCK CORRECTED TEST RESULTS		UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 127.4 pcf		119.9 pcf	"Recycled" coarse to fine SAND and GRAVEL, trace Silt
Optimum moisture = 9.8 %		9.8 %	
Project No. FDE-12-205 Client: HMH Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 903 EVERGREEN TESTING, INC. Watervliet, NY			Remarks: Per ASTM D1557-02 11-6-12 Figure 903

Figure 903

Tested By: CC Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
 ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP-SM	A-1-a		2.65	NP	NP	12.0	5.2

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 122.2 pcf	117.9 pcf	"Recycled"
Optimum moisture = 9.5 %	9.5 %	coarse to fine SAND and GRAVEL, trace Silt

Project No. FDE-12-205 **Client:** HMH Site & Sports Design
Project: SUNY Purchase
 Stockpile Evaluation
 ○ **Source of Sample:** On Site Stockpile **Sample Number:** 904

EVERGREEN TESTING, INC.

Watervliet, NY

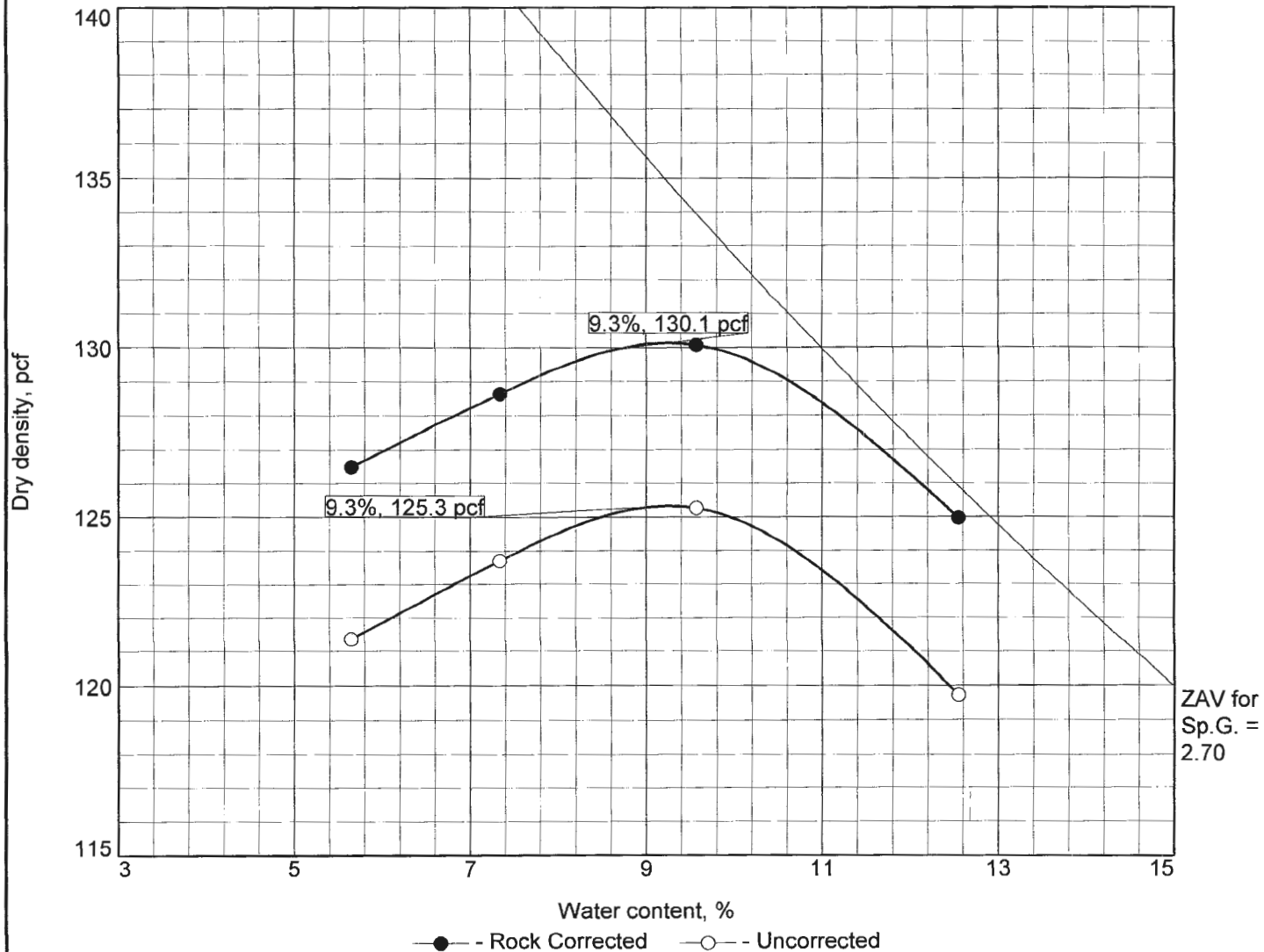
Remarks:
 Per ASTM D1557-02
 11-6-12

Figure 904

Tested By: CC

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP	A-1-a		2.65	NP	NP	15.2	4.7

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 130.1 pcf	125.3 pcf	"Recycled" coarse to fine SAND and GRAVEL, trace Silt
Optimum moisture = 9.3 %	9.3 %	

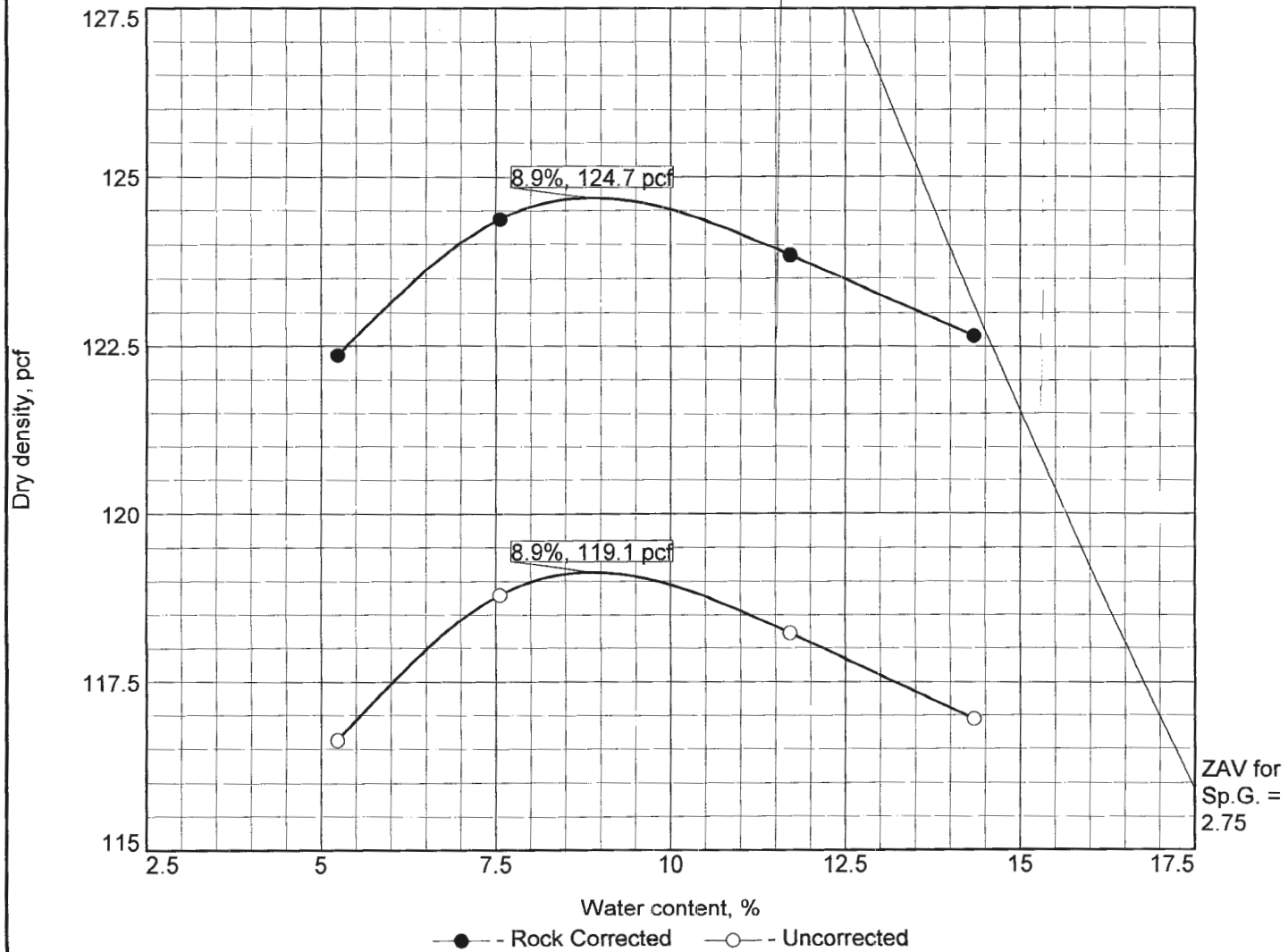
Project No. FDE-12-205 Client: HMH Site & Sports Design Project: SUNY Purchase Stockpile Evaluation ○ Source of Sample: On Site Stockpile Sample Number: 905 <div style="text-align: center; border-top: 1px solid black; padding-top: 5px;"> EVERGREEN TESTING, INC. Watervliet, NY </div>	Remarks: Per ASTM D1557-02 11-6-12
--	---

Figure 905

Tested By: MM

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
 ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP	A-1-a		2.65	NP	NP	15.9	3.9

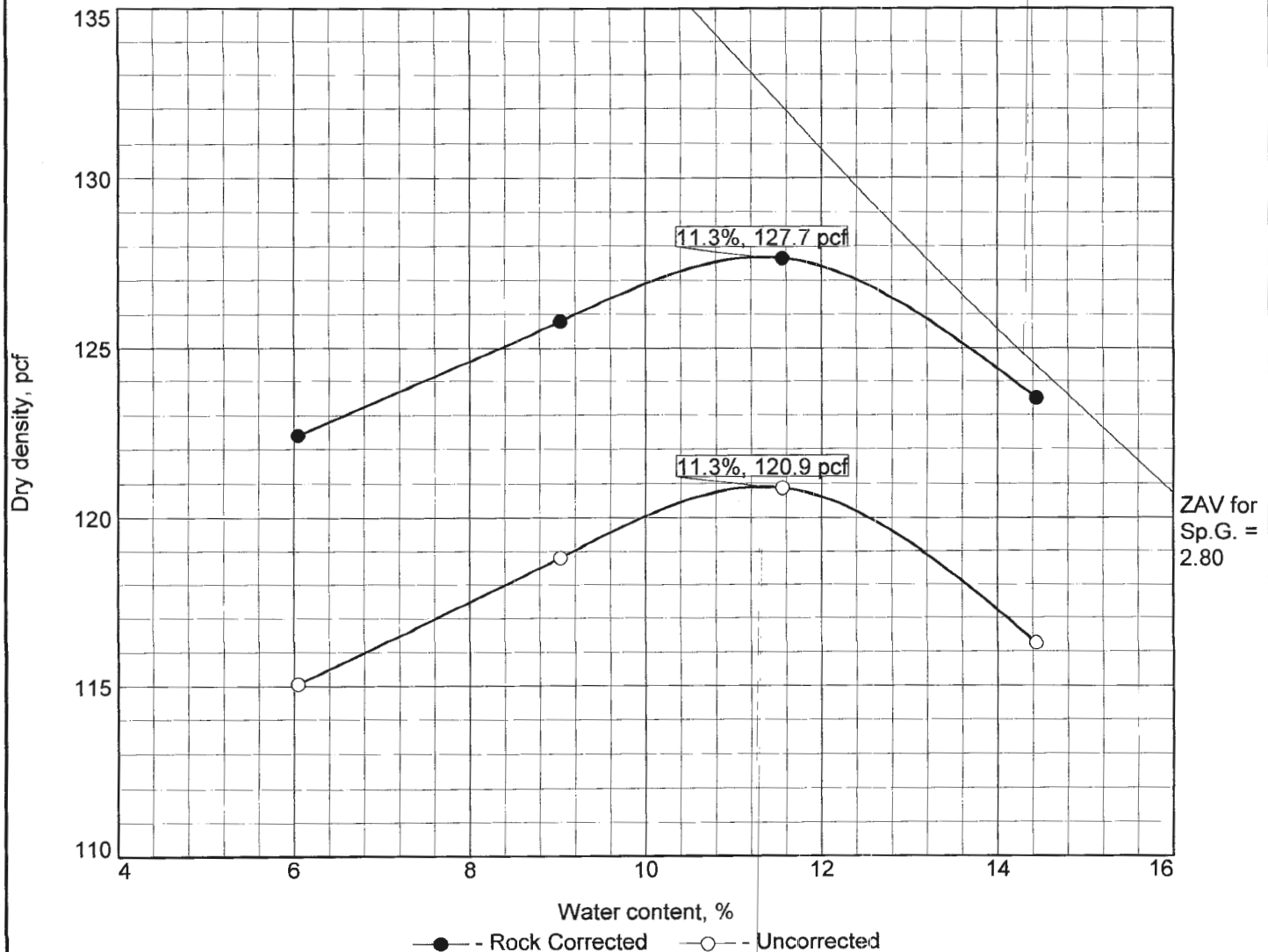
ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 124.7 pcf	119.1 pcf	"Recycled"
Optimum moisture = 8.9 %	8.9 %	coarse to fine SAND and GRAVEL, trace Silt
Project No. FDE-12-205 Client: HMM Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 906 EVERGREEN TESTING, INC. Watervliet, NY		Remarks: Per ASTM D1557-02 11-6-12 Figure 906

Figure 906

Tested By: CC

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP	A-1-a		2.65	NP	NP	19.7	4.6

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 127.7 pcf	120.9 pcf	"Recycled" coarse to fine SAND and GRAVEL, trace Silt
Optimum moisture = 11.3 %	11.3 %	

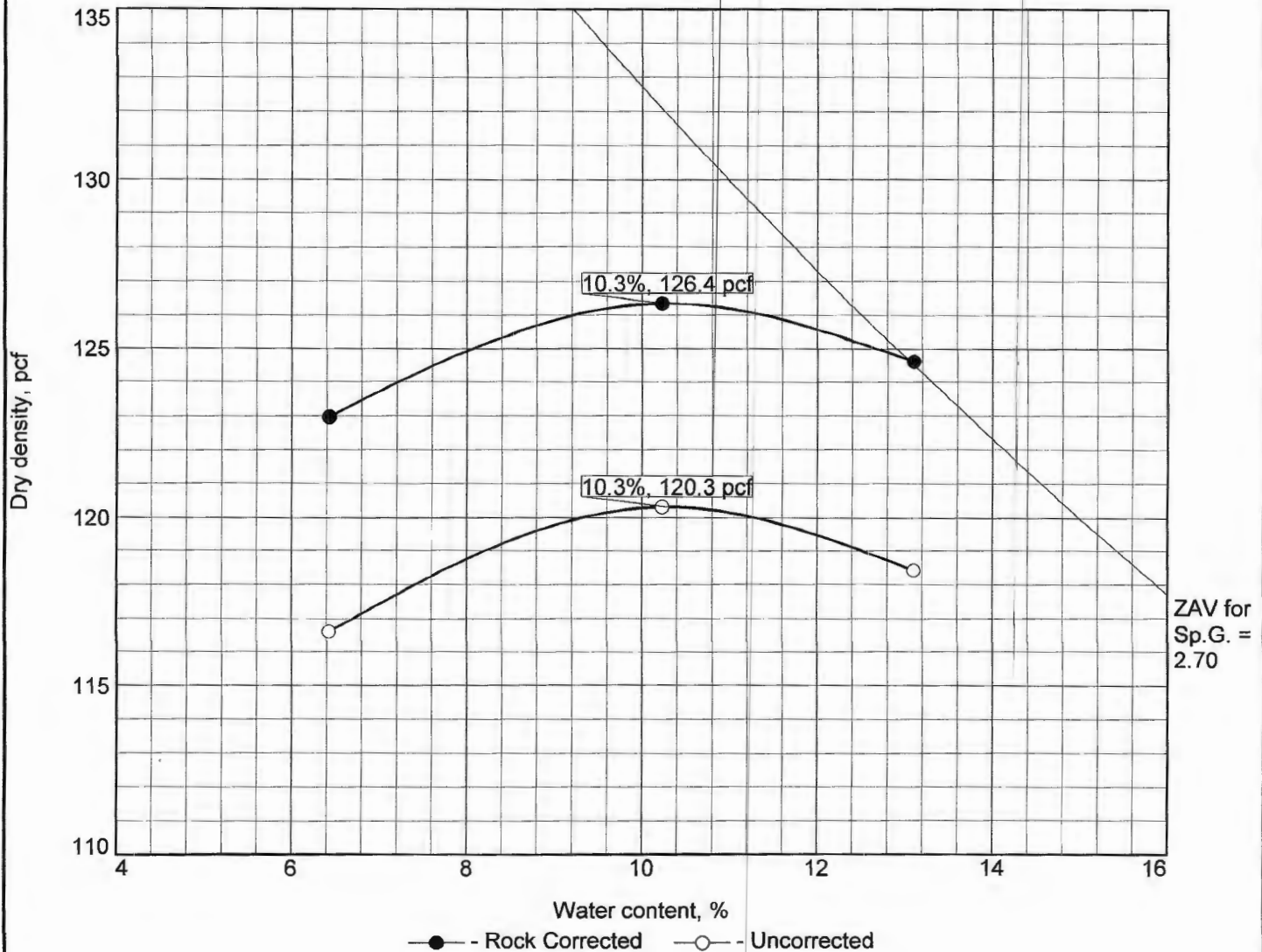
Project No. FDE-12-205 Client: HMM Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 907 EVERGREEN TESTING, INC. Watervliet, NY	Remarks: Per ASTM D1557-02 11-6-12
---	---

Figure 907

Tested By: MM

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
 ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SP	A-1-a		2.65	NP	NP	17.5	4.2

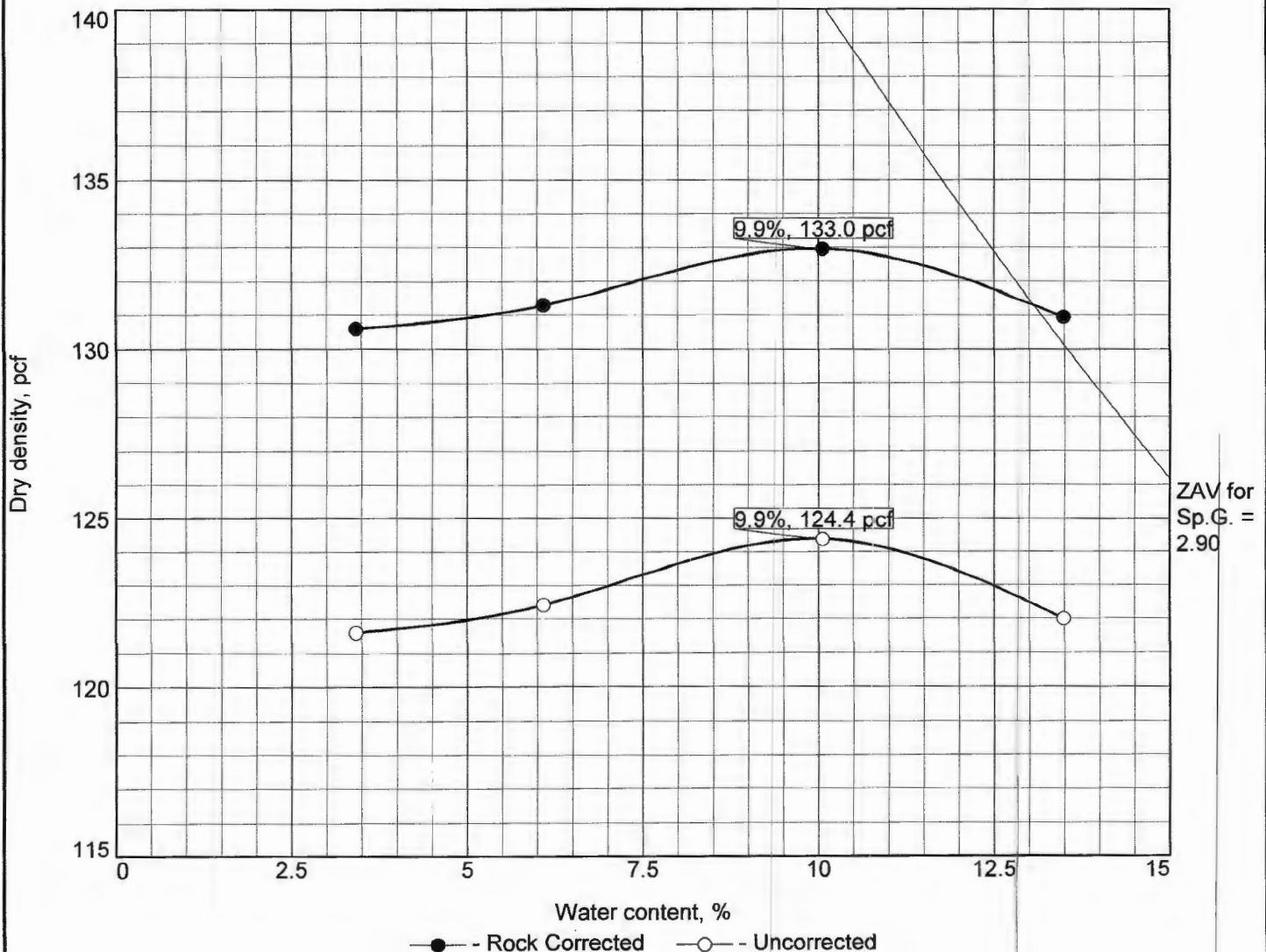
ROCK CORRECTED TEST RESULTS		UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 126.4 pcf		120.3 pcf	"Recycled" coarse to fine SAND and GRAVEL, trace Silt
Optimum moisture = 10.3 %		10.3 %	
Project No. FDE-12-205 Client: HMH Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 908			Remarks: Per ASTM D1557-02 11-6-12
EVERGREEN TESTING, INC. Watervliet, NY			
			Figure 908

Figure 908

Tested By: EM

Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

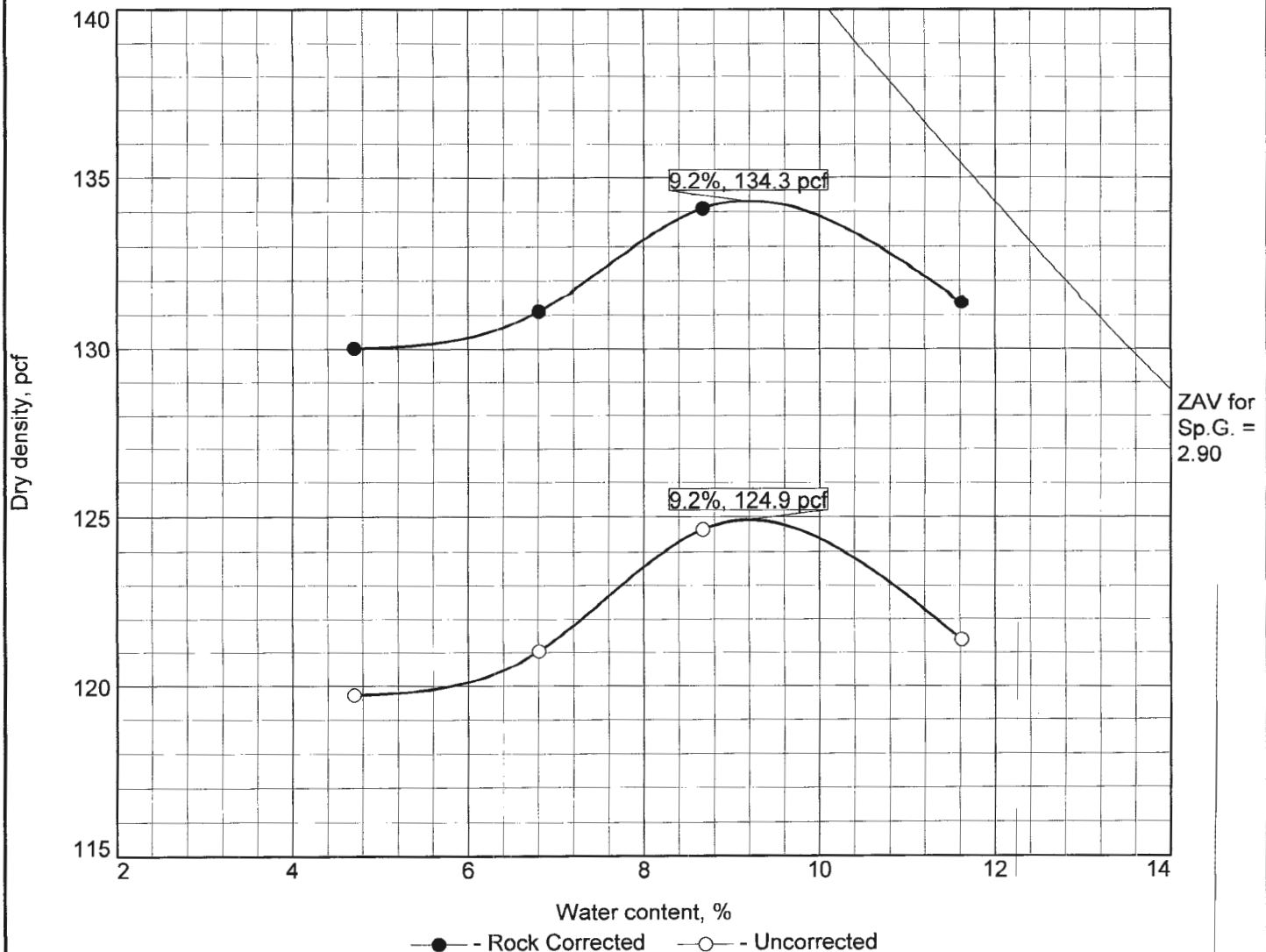
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	GP	A-1-a		2.65	NP	NP	26.0	3.7

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 133.0 pcf	124.4 pcf	"Recycled"
Optimum moisture = 9.9 %	9.9 %	GRAVEL and coarse to fine SAND, trace Silt
Project No. FDE-12-205 Client: HMH Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 909 EVERGREEN TESTING, INC. Watervliet, NY		Remarks: Per ASTM D1557-02 11-6-12

Figure 909

Tested By: EM Checked By: FD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-02 Method C Modified
 ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	GW	A-1-a		2.65	NP	NP	28.6	3.5

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.3 pcf	124.9 pcf	"Recycled" GRAVEL, some coarse to fine Sand, trace Silt
Optimum moisture = 9.2 %	9.2 %	

Project No. FDE-12-205 Client: HMM Site & Sports Design Project: SUNY Purchase Stockpile Evaluation <input type="radio"/> Source of Sample: On Site Stockpile Sample Number: 910 <div style="text-align: center;">EVERGREEN TESTING, INC.</div> <div style="text-align: center;">Watervliet, NY</div>	Remarks: Per ASTM D1557-02 11-6-12
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Figure 910

Tested By: MM

Checked By: FD



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CALIFORNIA BEARING RATIO ASTM D 1883

PROJECT: SUNY Purchase Stockpile Evaluation	JOB NO: FDE-12-205
CLIENT: HMH Site & Sport Design	DATE: 11-6-12
LAB #: 905 : Composite of Samples 902 & 905 (CBR1)	SAMPLE LOCATION: On Site Stockpile

COMPACTION: 10 blows/layer	
DRY DENSITY BEFORE SOAKING: 112.5 pcf	AFTER SOAKING: 115.1 pcf
MOISTURE CONTENT BEFORE COMPACTION: 9.6%	AFTER COMPACTION: 9.7%
TOP 1" AFTER SOAKING: 12.4%	
CBR RATIO (%): 8.7 @ 0.1", 12.5 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: (-) 0.04%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 17.0%	

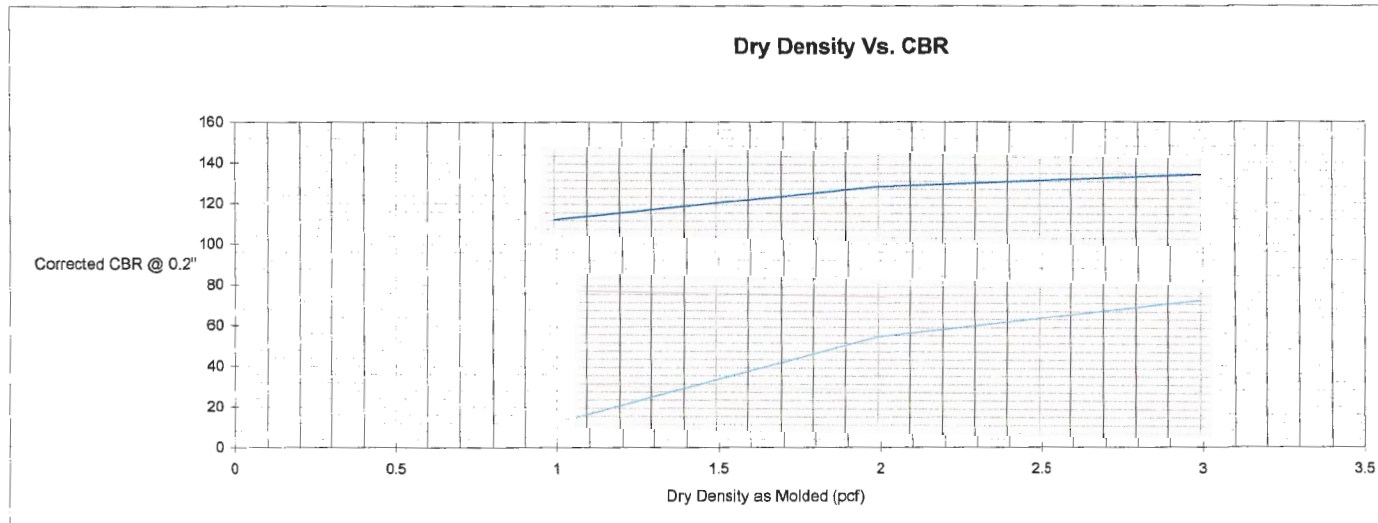
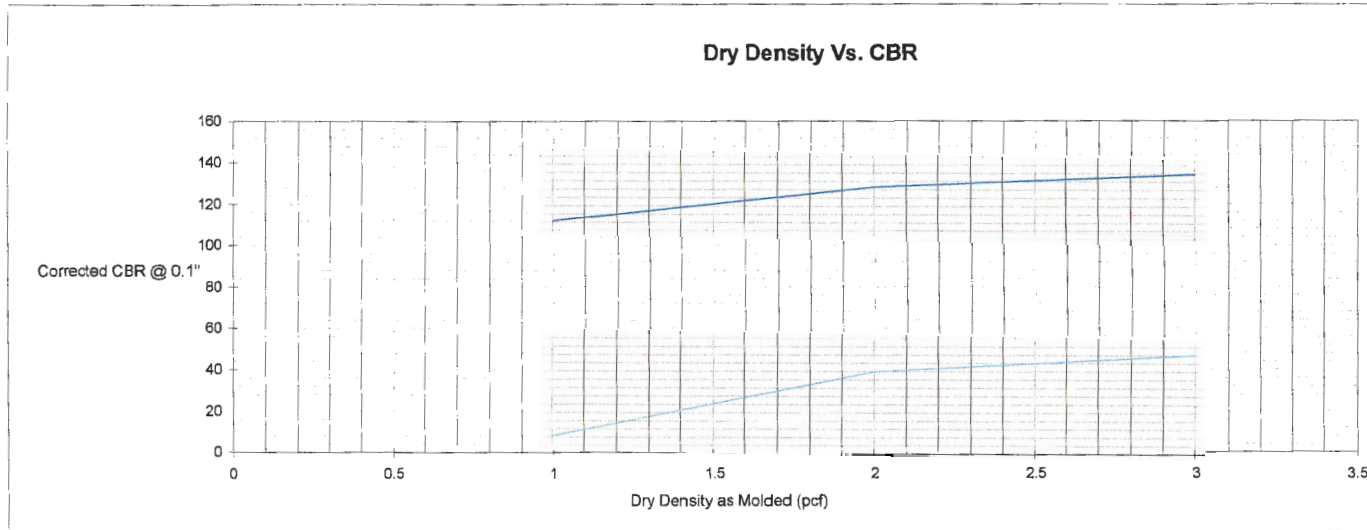
COMPACTION: 25 blows/layer	
DRY DENSITY BEFORE SOAKING: 129.3 pcf	AFTER SOAKING: 128.0 pcf
MOISTURE CONTENT BEFORE COMPACTION: 9.9%	AFTER COMPACTION: 9.8%
TOP 1" AFTER SOAKING: 10.4%	
CBR RATIO (%): 39.8 @ 0.1", 55.3 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: 0.1%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 17.0%	

COMPACTION: 56 blows/layer	
DRY DENSITY BEFORE SOAKING: 135.8 pcf	AFTER SOAKING: 135.1 pcf
MOISTURE CONTENT BEFORE COMPACTION: 8.1%	AFTER COMPACTION: 7.9%
TOP 1" AFTER SOAKING: 11.0%	
CBR RATIO (%): 48.1 @ 0.1", 73.8 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: (-) 0.02%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 17.0%	

Sample #905

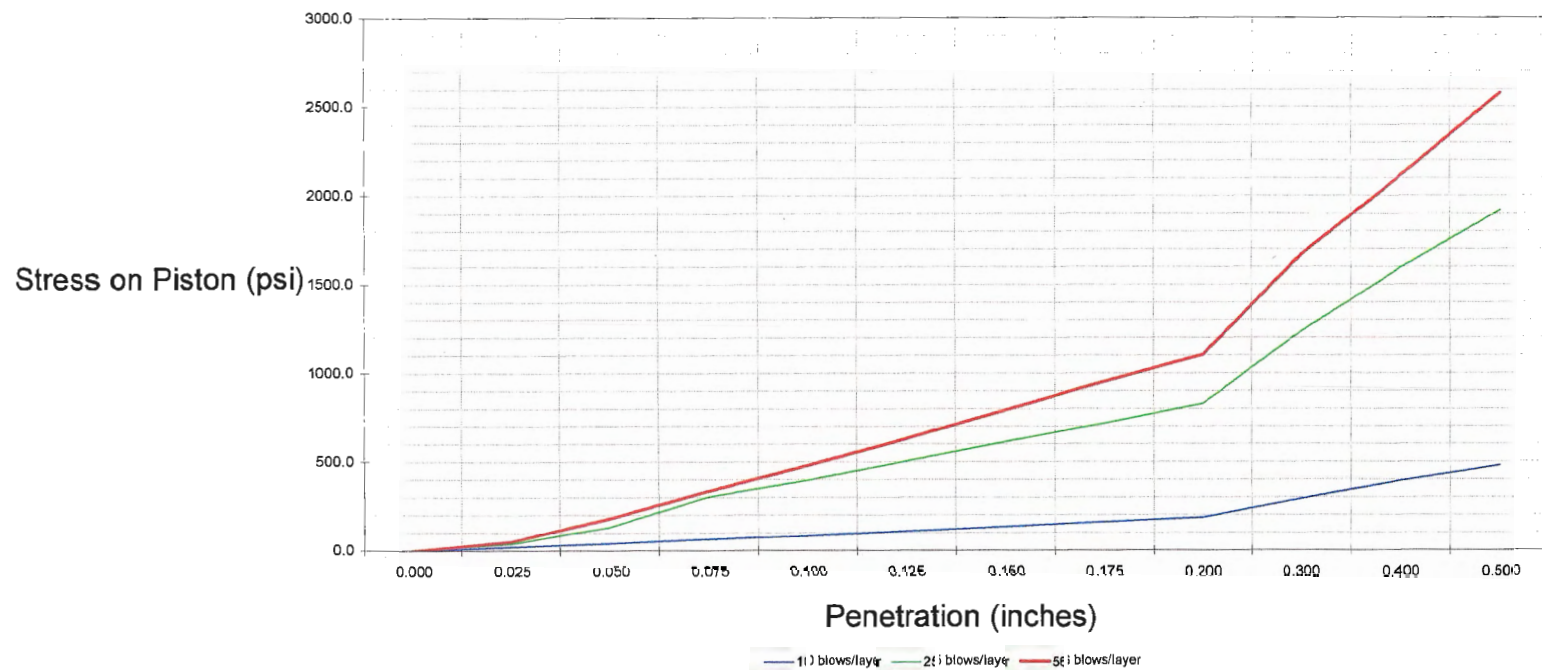
COMPACTION	CBR VALUE @ 0.1"	DRY UNIT WEIGHT
10 BLOWS/LIFT	8.69	112.5
25 BLOWS/LIFT	39.83	129.3
56 BLOWS/LIFT	48.09	135.8

COMPACTION	CBR VALUE @ 0.2"	DRY UNIT WEIGHT
10 BLOWS/LIFT	12.48	112.5
25 BLOWS/LIFT	55.3	129.3
56 BLOWS/LIFT	73.78	135.8



Penetration (in.)	10 bl./lift		25 bl./lift		56 bl./lift	
	Load (pounds)	Load/Stress (psi)	Load (pounds)	Load/Stress (psi)	Load (pounds)	Load/Stress (psi)
0.000	0.000	0.0	0.000	0.0	0.000	0.0
0.025	62	20.8	117	39.3	148	49.7
0.050	131	44.0	398	133.6	542	181.9
0.075	198	66.4	911	305.7	1004	336.9
0.100	259	86.9	1187	398.3	1433	480.9
0.125	327	109.7	1506	505.4	1884	632.2
0.150	402	134.9	1834	615.4	2368	794.6
0.175	483	162.1	2139	717.8	2742	953.7
0.200	558	187.3	2472	829.5	3297	1106.4
0.300	874	293.3	3687	1237.3	4977	1670.1
0.400	1177	395.0	4751	1594.3	6302	2114.8
0.500	1496	481.9	5724	1920.8	7692	2581.2

CALIFORNIA BEARING RATIO




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Fax 716-648-3521

CALIFORNIA BEARING RATIO ASTM D 1883

PROJECT: SUNY Purchase Stockpile Evaluation	JOB NO: FDE-12-205
CLIENT: HMH Site & Sport Design	DATE: 11-6-12
LAB #: 909 : Composite of Samples 902 & 909 (CBR1)	SAMPLE LOCATION: On Site Stockpile

COMPACTION: 10 blows/layer	
DRY DENSITY BEFORE SOAKING: 111.0 pcf	AFTER SOAKING: 114.0 pcf
MOISTURE CONTENT BEFORE COMPACTION: 9.9%	AFTER COMPACTION: 10.9%
TOP 1" AFTER SOAKING: 11.4%	
CBR RATIO (%): 5.2 @ 0.1", 8.7 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: (-) 0.06%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 22.6%	

COMPACTION: 25 blows/layer	
DRY DENSITY BEFORE SOAKING: 118.8 pcf	AFTER SOAKING: 119.0 pcf
MOISTURE CONTENT BEFORE COMPACTION: 10.4%	AFTER COMPACTION: 10.0%
TOP 1" AFTER SOAKING: 11.5%	
CBR RATIO (%): 31.44 @ 0.1", 46.94 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: (-) 0.2%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 22.6%	

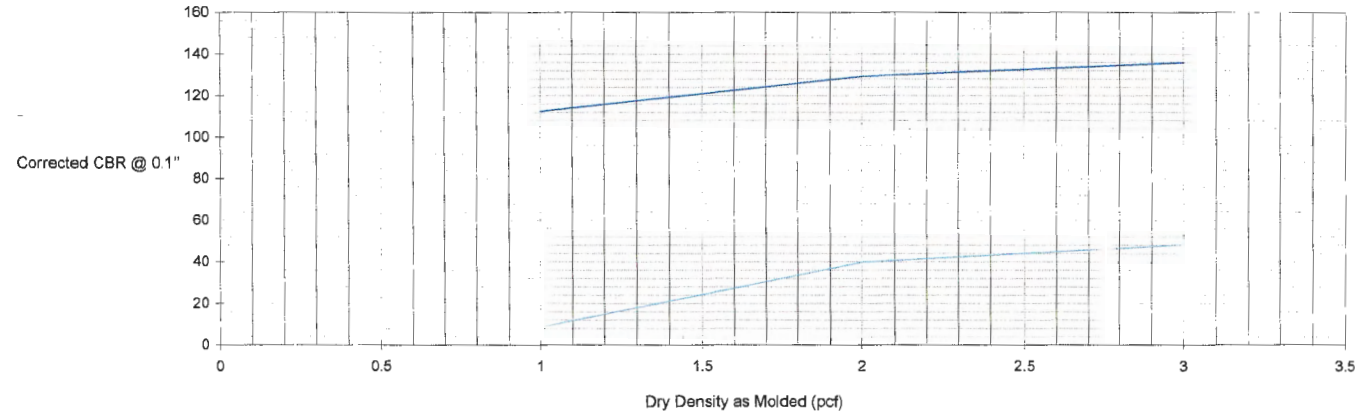
COMPACTION: 56 blows/layer	
DRY DENSITY BEFORE SOAKING: 121.6 pcf	AFTER SOAKING: 122.8 pcf
MOISTURE CONTENT BEFORE COMPACTION: 10.5%	AFTER COMPACTION: 10.2%
TOP 1" AFTER SOAKING: 10.2%	
CBR RATIO (%): 36.14 @ 0.1", 68.43 @ 0.2"	SURCHARGE: 10 lbs.
SOAKING PERIOD: 96 hrs.	SWELL: 0.04%
COMMENTS: Gradation per ASTM D 422. Material greater than 3/4" = 22.6%	

Sample #905

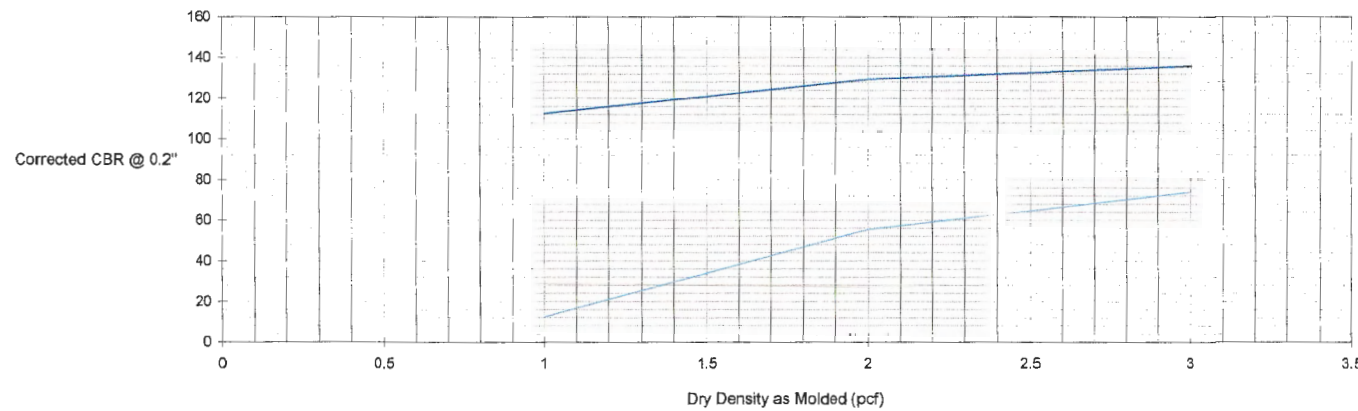
COMPACTION	CBR VALUE @ 0.1"	DRY UNIT WEIGHT
10 BLOWS/LIFT	8.89	112.5
25 BLOWS/LIFT	39.83	129.3
56 BLOWS/LIFT	48.09	135.8

COMPACTION	CBR VALUE @ 0.2"	DRY UNIT WEIGHT
10 BLOWS/LIFT	12.48	112.5
25 BLOWS/LIFT	55.3	129.3
56 BLOWS/LIFT	73.76	135.8

Dry Density Vs. CBR

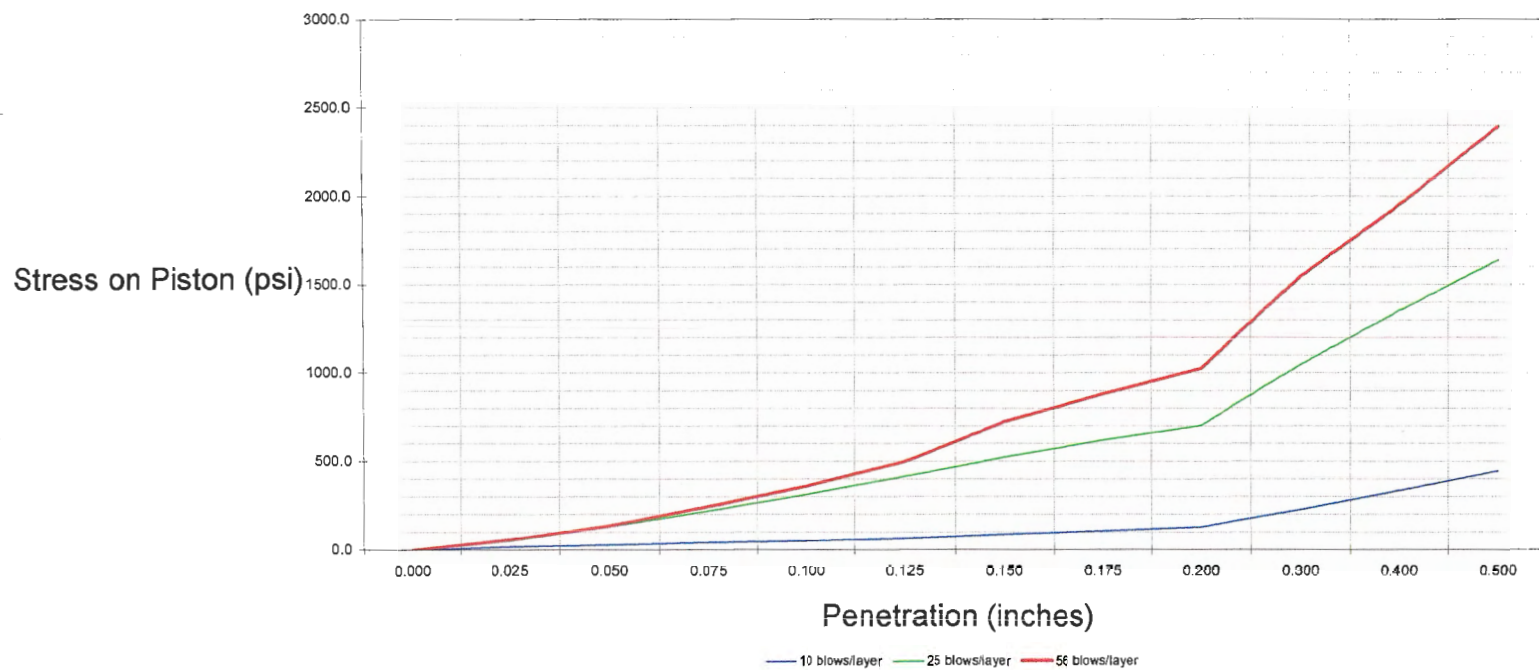


Dry Density Vs. CBR



	10 bl./lift		25 bl./lift		56 bl./lift	
Penetration (in.)	Load (pounds)	Load/Stress (psi)	Load (pounds)	Load/Stress (psi)	Load (pounds)	Load/Stress (psi)
0.000	0.000	0.0	0.000	0.0	0.000	0.0
0.025	53	17.8	149	50.0	168	56.4
0.050	91	30.5	399	133.9	410	137.6
0.075	128	43.0	659	221.1	733	246.0
0.100	155	52.0	937	314.1	1077	361.4
0.125	201	67.5	1238	415.4	1469	500.0
0.150	262	87.9	1562	524.2	2160	724.8
0.175	323	108.4	1849	620.5	2632	883.2
0.200	387	129.9	2098	704.0	3059	1026.5
0.300	687	230.5	3129	1050.0	4614	1548.3
0.400	1003	336.6	4032	1353.0	5815	1951.3
0.500	1332	447.0	4885	1639.3	7135	2394.3

CALIFORNIA BEARING RATIO



SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Demolition of existing site improvements
- B. Disposal of demolition debris
- C. Backfilling and grading of demolished areas

1.02 RELATED SECTIONS

- A. Section 01 50 00 – Construction Facilities, Temporary Controls and Maintenance
- B. Section 31 00 00 – Earthwork
- C. Section 31 25 00 – Erosion and Sediment Control
- D. Section 32 92 00 – Turf and Grasses

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Quality Control Submittals
 - 1. Permits: Submit one copy of each permit required for the demolition work required to the Owner's Representative.
 - 2. Demolition Plan: For information only, submit one copy of the demolition plan to the Owner's Representative and the Project Designer as required under the "Quality Assurance" article below.

1.04 QUALITY ASSURANCE

- A. Permits: Prior to starting demolition work outlined as part of this section, obtain all permits required by Federal, State and/or local jurisdictions for all phases and operations of the work.
- B. Demolition Plan: Prior to starting demolition work outlined as part of this section, the contractor shall prepare a detailed demolition plan. The demolition plan shall include, but is not limited to, the detailed outline of intended demolition and disposal procedures. The demolition plan will not relieve the Contractor of complete responsibility for the successful performance of the work in accordance with all Federal, State and local codes and restrictions.

1.05 PROJECT CONDITIONS

- A. Recycling: The Contractor shall recycle demolition debris to the greatest extent possible.
- B. Burning: The Contractor is prohibited from burning demolition materials on the project site.
- C. Explosives: The Contractor is prohibited from using explosive materials on the project site.
- D. Utility Location: Verify the location and status of all utilities within the contract limit line prior to beginning demolition work.

- E. Utility Protection: Protect existing utilities scheduled to remain while work required as part of this section is being performed. Do not interrupt utility services to adjacent buildings or other site improvements.
- F. Utility Disconnection: Disconnect utilities as required. Coordinate and pay for all work with applicable utility companies.
- G. Site Maintenance: Keep streets, sidewalks and adjacent site areas clean and free from debris at all times.
- H. Storm Drainage: Maintain street and site drains open for free drainage. Install temporary measures as required to prevent silt and debris from entering storm runoff leaving the site.
- I. Objectionable Noises: Limit the use of air hammers, and other excessively noisy equipment as much as is practical. Conform to local governing requirements.

1.06 SEQUENCING AND SCHEDULING

- A. Proceed with and complete demolition operations as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Plugs, Caps, Flanges: Approved cast iron materials unless specifically noted otherwise on the Contract Documents.
- B. Grout: Material complying with ASTM C 476.
- C. On-Site Backfill Material: Acceptable on-site fill material approved by the Owner's Testing Agency or the Project Designer for use as backfill in locations where backfill material is not otherwise specified, free of stones larger than 6", roots, organic matter, construction debris, trash or other deleterious matter.
- D. Selects Type 1 Granular Material: Where indicated supply stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with New York State Department of Transportation gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
3 inch	76.2	100
2 inch	50.8	90-100
1/4 inch	6.35	30-65
No. 40	0.425	5-40
No. 200	0.075	0-10

PART 3 EXECUTION

3.01 EXAMINATION

- A. Demolition Contractor Verification of Conditions: Examine conditions under which site demolition work is to be accomplished with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the Demolition Contractor confirms conditions as being acceptable to ensure proper and timely completion of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Temporary Fencing: Install temporary chain link fencing, including access gates around the demolition area prior to starting work specified in this section. Remove temporary fence in its entirety, including all anchorage materials upon completion of backfill operations.
- B. Refer to specification section 31 25 00 – Erosion and Sediment Control, Geotechnical Evaluations of the Site, and Drawings for additional site preparation information.

3.03 DISPOSAL

- A. Remove demolition debris and any excess fill from the project site as soon as practical.
- B. Do not store, sell or burn materials on the project property.

3.04 BACKFILLING AND GRADING

- A. Place fill in excavations within the contract limit line. Broken concrete and masonry shall not be used as fill on the site unless specifically indicated as being acceptable on the Drawings.
- B. Rough grade backfill to the contour indicated on the drawings. If no contour information is provided, grade the area to provide positive drainage away from improved areas.
- C. Install a minimum of 6" of topsoil over backfilled areas. Finish grade the surface to be free of depressions that will trap water and seed the entire area.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes Cast-in-place (CIP) structural concrete, including;
 - 1. Concrete Formwork and Formwork Accessories
 - 2. Concrete Mixtures and Admixtures
 - 3. Steel Concrete Reinforcement and Accessories
 - 4. Crack repair and epoxy adhesives
 - 5. Handling, placing, and constructing
- B. Products Installed But Not Furnished Under This Section:
 - 1. Anchor rods, leveling plates, railing sleeves, brackets, and other embedded items of steel, vinyl, plastic, or other materials. Refer to specification sections where the embedded item is described.
 - 2. Sleeves for pipe, conduit and other items passing through or embedded in concrete. Refer to the specification section where the item is described.
- C. Related Sections.
 - 1. Special Inspections and Testing – Section 01 41 11

1.2 DEFINITIONS

- A. ACI 301, Section 1.2 - Definitions:
 - 1. Add the following definitions:
 - Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
 - Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
 - Water-to-Cementitious Ratio (w/c): A computational value representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.3 REFERENCES

- A. Work on this project shall conform to all requirements of ACI 301-05 published by the American Concrete Institute, Farmington Hills, Michigan, except as modified by these Contract Documents.
- B. Reference publications
 - 1. ACI 301-05: Specifications for Structural Concrete.
 - 3. ACI 304.2R-96: Placing Concrete by Pumping Methods.
 - 3. ACI 305R-99: Hot Weather Concreting.
 - 4. ACI 306R-88: Cold Weather Concreting (Re-approved 1997).
 - 5. ACI 308.1-98: Standard Specification for Curing Concrete.
 - 6. ACI 318-02 Building Code Requirements for Reinforced Concrete.
 - 7. ASTM C 94/C 94M - 04: Standard Specification for Ready-Mixed Concrete.

8. ASTM C 494/C 494M - 04: Standard Specification for Chemical Admixtures for Concrete.
9. ASTM C 311-77 Standard Methods of Sampling and Testing Fly Ash or Natural Pozzolans For
10. Manual of Standard Practice, MSP-1-01 of the Concrete Reinforcing Steel Institute.

1.4 STANDARDS PRODUCING ORGANIZATIONS

- A. Refer to ACI 301-05

1.5 SUBMITTALS

- A. Submittals Package: Submit product data for design mix(es) and materials for concrete specified below at the same time as a package.
- B. Product Data:
 1. Mix Design: Submit proposed concrete design mix(es) together with name and location of batching plant at least 28 days prior to the start of concrete work.
 - a. Include test results of proposed concrete proportions based on previous field experience or laboratory trial batches in accordance with ACI 301, Section 4.
 - b. Pumped Concrete: Include test results of proposed design mix(es) tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
 2. Portland Cement: Brand and manufacturer's name.
 3. Fly Ash: Name and location of source, and DOT test numbers.
 4. Air-entraining Admixture: Brand and manufacturer's name.
 5. Water-reducing Admixture: Brand and manufacturer's name.
 6. High Range Water-reducing Admixture (Superplasticizer): Brand and manufacturer's name.
 7. Accelerating Admixture: Brand and manufacturer's name.
 8. Aggregates: Name and location of source, and DOT test numbers.
- C. Reinforcing Steel
 1. Shop Drawings: Placing drawings for bar reinforcement.
 2. Reinforcing Steel Samples:
 - a. Bar Supports: Full size.
 - b. Fabric Reinforcement: 8 inches square, each wire size.
 - c. Fabric Reinforcement Supports: 3'-0" long pieces.
 3. Affidavit by the bar reinforcement manufacturer certifying that bar material meets the contract requirements.

1.6 QUALITY ASSURANCE

- A. Refer to Section 01 41 11-Special Inspections and Testing, for Concrete Construction inspection and testing to be performed by the Owner's Inspection and Testing Agency.
- B. Qualifications of Crew Pumping Concrete: Workers pumping concrete shall have had at least one year of experience pumping concrete.
- C. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.
- D. Truck mixers for concrete shall be currently approved by the New York State Department of Transportation.
- E. Pumping equipment for pumped concrete shall be subject to the approval of the Project Designer.

- F. Fly ash supplier shall be on the New York State Department of Transportation's current "Approved List of Suppliers of Fly Ash".
- G. Source Quality Control: The Owner reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:
1. Batching and mixing facilities and equipment.
 2. Sources of materials.
- H. Field Quality Control
1. ACI 301, Section 1.6.4.2 - Testing Services:
 - a. Add the following paragraph:
 - 1.6.4.2.e Strength Tests for Pumped Concrete: Prepare strength test specimens and make strength tests from concrete samples obtained at the truck discharge chute and at the end of the pump delivery line in accordance with paragraph 16.3.4.4.
 2. ACI 301, Section 1.6.3.3.
 - a. Add the following paragraph:
 - 1.6.3.3.c Make available to the Owner's Inspections and Testing Agency whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.
 3. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to the Owner and as accepted by the Project Designer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by the Project Designer's Representative before using in the work.
 4. Test results will be reported by the Owner's Testing Agency in writing to the Project Designer's Representative and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
 5. Nondestructive Testing: Impact hammer, Windsor probe, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
 6. Additional Tests: The Project Designer shall require additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Project Designer's Representative. The Owner's Testing Agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified, including all inspection and Engineering fees when non-conforming work is verified.

1.7 DELIVERY

- A. ASTM C 94/C 94M - 04, Article 13.1 - Batch Ticket Information: In addition to the information required by Paragraph 16.1, also include the following:
1. Type and brand, and amount of cement.
 2. Weights of fine and coarse aggregates.

3. Class and brand, and amount of fly ash (if any).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cement: ASTM C 150, Type I or II Portland cement.
- B. Water: Potable
- C. Air-entraining Admixture: ASTM C 260, and on the New York State Department of Transportation's current "Approved List".
- D. Water-reducing Admixture: ASTM C 494/C 494M - 04, Type A, and on the New York State Department of Transportation's current "Approved List".
- E. High Range Water-reducing Admixture (Superplasticizer): ASTM C 494/C 494M - 04, Type F, and on the New York State Department of Transportation's current "Approved List".
- F. Retarding Admixture: ASTM C 494, Type D, Water-reducing and retarding, for use in hot weather concreting, and on the New York State Department of Transportation's current "Approved List".
- G. Accelerating Admixture: Non-corrosive admixture, containing no chloride, complying with ASTM C 494, Type C or E, and on the New York State Department of Transportation's current "Approved List".
- H. Fly Ash: ASTM C 618, including Table 1 (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.
- I. ACI 301, Section 4.2.1.2 - Aggregates:
 1. Add the following paragraph:
 - Fine aggregate for pumped concrete shall meet the requirements of ASTM C 33, except 15 to 30 percent shall pass the No. 50 sieve and 5 to 10 percent shall pass the No. 100 sieve. The fineness modulus of the fine aggregate for pumped concrete shall not vary more than 0.20 from the average value used in proportioning.
 2. Add the following paragraph:
 - Aggregates shall be taken from storage silos or other approved locations that have been tested and approved by the New York State Department of Transportation, unless otherwise approved in writing by the Project Designer.
- J. Moisture-Retaining Cover: Waterproof paper, polyethylene film, or polyethylene-coated burlap complying with ASTM C 171.
- K. Reinforcing Steel
 1. Bar Reinforcement: ASTM A 615, Grade 60, deformed steel bars.
 2. Bar Supports; Either of the Following Types:
 - a. Galvanized steel or AISI Type 430 stainless steel, and without plastic tips.
 - b. Insoluble plastic, with minimum 1,500 psi tensile strength and capable of retaining fabricated shape at temperatures between 5 degrees F and 170 degrees F.
 - c. Solid concrete brick
 3. Tie Wire: Black annealed wire, 16-1/2 gage or heavier.

2.2 PROPORTIONING OF MIXES

- A. Normal weight concrete for concrete foundation piers and walls, and for all other concrete unless otherwise specified, shall have a minimum compressive strength of 4000 psi. Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
- B. Normal weight concrete for exterior slabs, ramps and stairs shall have a minimum compressive strength of 4500 psi. Slump: Maximum 3 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
- C. Fly ash shall be substituted for (Portland) cement in normal weight and lightweight concrete up to a maximum of 20 percent by weight of the required minimum (Portland) cement. Design mix shall be properly adjusted to compensate for the use of fly ash as a partial replacement for (Portland) cement.
 1. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
 2. Lower early strength of the concrete shall be considered in deciding when to remove formwork.
- D. Slump for Pumped Concrete: When a water-reducing admixture is not used, maximum slump shall be 4 inches. When a water-reducing admixture is used, maximum slump shall be 6 inches and when a high-range water-reducing admixture (superplasticizers) is used, maximum slump shall be 8 inches.
- E. Design Air Content: Design air content for concrete required to be air entrained (exterior concrete) shall be 6 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.
- F. Water-Cement Ratio: Cast-in-place concrete shall have a maximum water-cement ratio of 0.45.
- G. ACI 301, Section 4.2.2.3: Change article to read as follows:
 - 4.2.2.3 - Size of Coarse Aggregates:
 - 4.2.2.3.a Normal Weight Concrete: Coarse aggregates shall conform to graduation requirements for various sizes as tabulated in Table No. 2 of ASTM C 33. The sizes of coarse aggregates for various classes of Work shall be as follows with all percentages being determined by weight.
 - 4.2.2.3.c For concrete Work having a minimum cross-sectional dimension of not more than 6 inches, the coarse aggregate shall be a well graded mixture of No. 67 (3/4" to No. 4) and No. 57 (1" to No. 4), provided that not more than 50 percent nor less than 30 percent shall be Size No. 67 and not more than 70 percent nor less than 50 percent shall be Size No. 57.
 - 4.2.2.3.d For concrete Work having a minimum cross-sectional dimension greater than 6 inches and not more than 12 inches, including concrete floors, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 467 (1 1/2" to No. 4), providing that not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 467.
 - 4.2.2.3.e For concrete Work having a minimum cross-sectional dimension of more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 357 (2" to No. 4), providing not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 357.
- H. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Project Designer.
- I. ACI 301, Section 4.1.2.1 - Mixture Proportions:
 1. Add the following to paragraph 4.1.2.1:

- Proposed design mix(es) for pumped concrete and the pumping equipment shall have been tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.

2.3 JOINTS

- A. ACI 301, Section 5.3.2.6 - Construction joints and other bonded joints:
1. Delete the following subparagraphs:
 - Use an acceptable surface retarder in accordance with manufacturer's recommendations;
 - Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface; or

2.4 PRODUCTION OF CONCRETE

- A. Provide ready-mixed concrete, either central-mixed or truck-mixed, unless otherwise approved in writing by the Project Designer.
- B. ACI 301, Section 5.3.2.1 Weather considerations
1. Delete paragraph under 5.3.2.1.c - Hot Weather, and add the following:
 - 5.3.2.1.c Provide adequate controls to insure that the temperature of the concrete when placed does not exceed 90 degrees F., and make every effort to place it at a lower temperature. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set or cold joints. Ingredients may be cooled before mixing by shading the aggregates, fog spraying the coarse aggregate, chilling the mixing water or other approved means. Mixing water may be chilled with flake ice or well-crushed ice of a size that will melt completely during mixing, providing the water equivalent of the ice is calculated into the total amount of mixing water.
- C. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.
1. In cold weather, comply with ACI 306R.
 - a. When air temperature is below 40 degrees F (4 degrees C) heat the mixing water and, if necessary, the aggregates to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C) at point of placement. If the mixing water is heated, do not exceed a temperature of 140 degrees F at the time it is added to the cement and aggregates.
 2. In hot weather, comply with ACI 305R.
 - a. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Do not use items of aluminum for mixing, chuting, conveying, forming or finishing concrete, except magnesium alloy tools may be used for finishing.
- B. Check items of aluminum required to be embedded in the concrete and insure that they are coated, painted or otherwise isolated in an approved manner.

- C. Install waterstops in accordance with manufacturer's printed instructions.
- D. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.
- E. Do not deposit concrete in water. Keep excavations free of water by pumping or by other approved methods.
- F. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.

3.2 ADMIXTURE ADDITIONS AT THE SITE

- A. Site additions shall be limited to high-range water-reducers, non-chloride accelerators, and corrosion inhibitors. Comply with manufacturers' printed instructions for discharge of admixtures shall be furnished.
- B. High-Range Water-Reducers:
 - 1. Concrete shall arrive at a slump of 2 to 4 inches (50 to 100 mm). Water additions at the Site shall be limited to comply with water-to-cementitious ratio requirements.
 - 2. Following addition of high-range water-reduced concrete, a minimum of 70 revolutions or 5 minutes of mixing shall be completed to assure a consistent mixture.
- C. All concrete with other admixture additions shall mix a minimum of 70 revolutions or 5 minutes to assure a consistent mixture.

3.3 PLACING

- A. ACI 301, Section 5.3.2.3 Conveying equipment:
 - 1. Add the following paragraphs:
 - 5.3.2.3.d When pumping concrete, the lubricating mortar for the delivery line shall not be discharged into an area of concrete placement.
 - 5.3.2.3.e The inside diameter of the delivery lines for pumped concrete shall be the greater of either a minimum of 5 inches or 3 times the maximum size of coarse aggregate.
- B. ACI 301, Section 5.3.2.2 - Conveying:
 - 1. Add the following paragraph:
 - Operation of truck mixers and agitators and discharge limitations shall conform to the requirements of ASTM C 94.
- C. ACI 301, Section 5.3.2.4 - Depositing:
 - 1. Add the following paragraph:
 - Do not allow concrete to free fall more than 4 feet.

3.4 REPAIRING SURFACE DEFECTS

- A. ACI 301, Section 5.3.7 – Repair of surface defects:
 - 1. Add the following paragraph:
 - 5.3.7.1.a Finish patched areas to match the texture of the surrounding surface.
- B. ACI 301, Section 5.3.7.2 - Repair of tie holes:
 - 1. Delete last paragraph in 5.3.7.2 and replace with the following:

- The patch mixture shall consist of a mixture of dry-pack mortar, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for placing and handling. For surfaces exposed to view, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

3.5 FINISHING FORMED SURFACES AND SLABS

- A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
 - 1. Rough Form Finish for concrete surfaces not exposed to view.
 - 2. Smooth Form Finish for exterior concrete surfaces exposed to view.
 - 3. Tops of concrete walls which will be walking surfaces, stair treads, and all exterior slabs shall get a light broomed finish.
- B. ACI 301, Section 5.3.3.3 - As-cast Finishes:
 - 1. Add the following to paragraph 5.3.3.3:
 - Fins shall be completely removed on surfaces to receive waterproofing.

3.6 CURING AND PROTECTION

- A. Cure all exposed concrete using supervised wet cure or an approved curing compound.
- B. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.
- C. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

SECTION 05 12 00

STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Steel poles, column, and beams
- B. Steel railings
- C. Miscellaneous steel plates, bars, and shapes.
- D. Paint for Steel Members

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Anchor Bolts: Installed under Section 03 30 00.
- B. Loose Bearing Plates: Installed under Section 04 22 00

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Cast-In-Place Concrete: Section 03 30 00

1.4 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall meet the requirements of the following:
 - 1. Design, Fabrication, and Erection: "Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design", June 1, 1989, by the American Institute of Steel Construction (AISC Specification).
 - 2. Standard Practice: Fabrication and erection practices shall comply with the "Code of Standard Practice for Steel Buildings and Bridges", June 10, 1992, by the American Institute of Steel Construction (AISC Code).
 - 3. Welding: "Structural Welding Code - Steel, AWS D1.1", by the American Welding Society (AWS Code).
 - 4. High-Strength Bolting: "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts", November 13, 1985, by the Engineering Foundation's Research Council on Structural Connections (Specification for Structural Joints).
 - 5. Cleaning Steel: Comply with the appropriate specifications (SSPC SP-X) by the Steel Structures Painting Council

1.5 DEFINITIONS

- A. AISC Manual: Where reference is made to the AISC Manual, it shall mean the Manual of Steel Construction, Ninth Edition, of the American Institute of Steel Construction.

1.6 REQUIREMENTS FOR CONNECTIONS

- A. General:
 1. Size connections for the loads indicated on the Drawings. If the loads are not indicated, use a connection whose capacity is half the total uniform load capacity shown in the "Allowable uniform loads in kips for beams laterally supported" tables in the AISC Manual for the given shape, span, and steel specification of the beam in question, unless otherwise indicated.
 2. All bolted connections shall have a minimum of two bolts.
- B. Shop Connections: Welded or high strength bolted, unless otherwise indicated. Field connections required to be welded or fully-tensioned high-strength bolted shall meet the same requirements when fabricated in the shop.
- C. Field Connections:
 1. Field bolted connections shall be $\frac{3}{4}$ " diameter A325 High Strength bolted or welded. Field bolted connections shall be shear/bearing connections, unless otherwise noted in drawings or this specification. Shear/bearing connections shall be installed to the snug tight condition (reference AISC Specification for Structural Joints Using ASTM A325 or A490 Bolts, section 8.c).
 2. The following field connections shall be welded or fully-tensioned high strength bolted as indicated on the Drawings or, when not indicated, shall be either welded or fully-tensioned high strength bolted at the Contractor's option:
 - a. Column bracing.
- D. Standard Beam Connections:
 1. Unless otherwise shown on the Drawings or required in the Specifications, all beam connections shall be framed in accordance with Part 4 of the AISC Manual, with sizes and lengths of angles and welds and with fastener spacing as shown therein.
 2. Standard beam connections shown on the Drawings shall be fabricated as detailed. Substitutions will not be approved.
- E. High-Strength Bolted Connections: Amend the Specification for Structural Joints as follows:
 1. In Item 3(b) of the specification, change the second sentence to read "Burrs shall be removed."
 2. In Item 3(c) of the specification, delete the last two sentences, and add the following sentence: "Flame cut surfaces shall be ground smooth."
 3. In Item 7(b)(1) of the specification, add the following to the last sentence: ", except that oversize holes shall not be used in connections with galvanized faying surfaces."
 4. In Item 7(b)(2) of the specification, add the following to the last sentence: ", except that short slotted holes shall not be used in connections with galvanized faying surfaces when the force on the joint is in a direction other than normal to the axis of the slot."
 5. In Item 7(b)(3) of the specification, add the following to the last sentence: ", except that long slotted holes shall not be used in connections with galvanized faying surfaces when the force on the joint is in a direction other than normal to the axis of the slot."
 6. Change Item 7(c)(3) of the specification to read as follows: "All fully-tensioned high-strength bolts shall have a hardened washer under the element (nut or bolt head) turned in tightening, regardless of the method of tightening."
 7. In Item 8(b) of the specification, change the first sentence to read: "A tension measuring device shall be required at all work sites where high-strength bolts are being installed."
 8. In Item 8(c) of the specification, delete the second and third sentences and add the following sentence: "The snug-tight condition is defined as the tightness attained by either a few impacts of an impact wrench or the full effort of a worker with an ordinary spud wrench that brings the connected plies into firm contact."
 9. Change the last sentence in Item 8(c) to read "Unless otherwise required in the Specifications, bolts required to be fully-tensioned shall be identified on the Drawings. All other bolts need only be tightened to the snug tight condition."

10. In Item 9(b) of the specification, delete "Arbitration" from the heading. Also change the first paragraph to read: "When high-strength bolts have been installed by any of the tightening methods in Item 8(d), the following inspection procedure shall be used."
11. In Item 9(c) of the specification, delete "arbitration" from the last sentence.
12. In Item 9 of the specification, the inspection of bolt tightening shall be as specified under Item 9(b). Furnish the calibration device and the inspection torque wrench, and make them available, upon request, to representatives of the State or designated inspection laboratory during the entire period when steel is being fabricated and erected. The inspection torque wrench shall be capable of indicating that the job inspecting torque has been reached by a second method in addition to direct observation of the wrench dial. The inspection wrench calibration and the bolt tightening inspection shall be performed by the Contractor, and shall be witnessed by a representative of the Architect or the designated inspection laboratory.

F. Design, Fabrication and Erection (Amendments to the AISC Specification):

1. In Item A6. of the specification, change "American Welding Society" to "American Welding Society (Latest Adoption Date)". Delete the date from all referenced AWS Codes.
2. In Item J1.8. of the specification, change the last sentence to read: "Weld access holes and beam copes in other shapes shall be ground smooth, but need not be inspected by dye penetrant or magnetic particle methods."
3. In Item J1.8. of the specification, delete "or with A307 bolts" from the second paragraph.
4. In Item J2. of the specification, change the introductory sentence to read: "All provisions of the American Welding Society Structural Welding Code-Steel, AWS D1.1, except Sections 2.3.2.4, 2.5, 8.13.1 and 9, apply to work performed under this Specification."
5. In Item J3.2.c of the specification, change the first sentence to two sentences as follows: "Oversized holes are permitted in any or all plies of slip-critical connections, except those with galvanized faying surfaces. Oversized holes shall not be used in slip-critical connections with galvanized faying surfaces, or in bearing-type connections."
6. In Item J3.2.d. of the specification, change the second sentence to two sentences as follows: "Short-slotted holes are permitted without regard to direction of loading in slip-critical connections, except those with galvanized faying surfaces. The length of the slot shall be normal to the direction of the load in slip-critical connections with galvanized faying surfaces and in bearing-type connections."
7. In Item J3.2.e of the specification, change the second sentence to two sentences as follows: "Long-slotted holes are permitted without regard to direction of loading in slip-critical connections, except those with galvanized faying surfaces. The length of the slot shall be normal to the direction of the load in slip-critical connections with galvanized faying surfaces and in bearing-type connections."
8. In Item M2.2. of the specification, delete the first two paragraphs.
9. In Item M2.5. of the specification, change the second sentence of the fifth paragraph to read: "Burrs shall be removed."
10. Delete Item M4.5. of the specification in its entirety.
11. In Item M5.4. of the specification, delete "Slip-critical" from the heading and delete "slip-critical" from the first sentence.

G. Fabrication and Erection (Amendments to the AISC Code):

1. In Item 4.1. of the code, delete the last sentence of the first paragraph.
2. In Item 5.1. of the code, change the first paragraph to read: "Contract Drawings are not considered released for construction. Orders for materials may be placed only after approval of erection drawings or written approval of the Architect."

1.7 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for all structural steel. Machine duplicated copies of Contract Drawings will not be accepted as shop drawings. The fabricator's name, address, and telephone number shall be indicated in the title block on each drawing.
 - 1. Include anchor bolt and base plate plans, erection drawings, and detail drawings for all members.
 - 2. Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.
 - 3. When shop drawings are marked "Approved as Noted", promptly resubmit copies of corrected shop drawings for formal approval and record.
 - 4. Contract Drawings are not considered released for construction. Orders for materials may be placed only after approval of erection drawings or written approval of the Architect.
- B. Product Data:
 - 1. Paint: Manufacturer's name and printed product literature, including storage and application instructions.
- C. Quality Control Submittals:
 - 1. Certificates: Submit evidence, in triplicate, of steel material compliance with this Specification. Evidence shall consist of certification of source of material or mill test reports. For stock material, submit copies of latest mill or purchase orders for material replacement.
 - 2. Fabricator's and Erector's Qualifications Data: Name and experience of fabricator and erector.

1.8 QUALITY ASSURANCE

- A. Refer to Section 01 41 11, Special Inspections and Testing, for Structural Steel Inspection and Testing to be performed by the Owner's Inspection and Testing Agency. Quality assurance inspection made by the Owner shall not relieve the fabricator and erector of responsibility for their own quality control programs.
- B. Fabricator's and Erector's Qualifications: At least 5 years experience with projects of similar size and scope.
- C. Welding Procedures and Welder's certification. Current certification in compliance with AWS D1.1.
- D. Galvanizing: Stamp galvanized items with galvanizer's name, weight of coating, and applicable ASTM number.

1.9 WELDING PROCESS

- A. Use only shielded metal arc welding.
- B. Shielded metal arc welding procedures that comply with the provisions of the AWS Code shall be considered to be prequalified.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of anchor bolts and other anchorage devices to be built into other construction to avoid delay.
- B. Upon delivery to the site, promptly cover and protect steel items (which are not required to receive shop paint) from rusting.
- C. Store shop paint in accordance with paint manufacturer's printed instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Structural Steel wide flange sections: ASTM A572 or A992 ($F_y=50\text{ksi}$), except as specified or shown otherwise.
- B. Anchor Bolts, Miscellaneous Rods and Anchors, and Other Detail Material Not Proportioned for Calculated Stress: ASTM A 36; or ASTM A 675, Grade 70.
- C. High-Strength Bolts: ASTM A 325.
- D. Steel Pipe: ASTM A 53, Type E or S, Grade B.
- E. Steel Structural Tubing: ASTM A 500, Grade B; or ASTM A 501.
- F. Other structural shapes not otherwise specified: ASTM A 36.
- G. Weld Filler Metal: Weld filler metal for shielded metal arc welding complying with AWS Specifications A5.1 or A5.5.
- H. Cold Galvanizing Compound: Single component compound giving 93 percent pure zinc in the dried film, and meeting the requirements of DOD-P-21035A (NAVY).
- I. Paint (General): All structural steel, backstop poles, miscellaneous structural members, guardrails and handrails, unless otherwise noted, shall be blast cleaned to an SSPC-6 commercial blast clean and shall receive powder coating. Powder for coating shall be polyester based thermal setting resin. Color shall be black. The powder coat system shall meet or exceed the following test requirements:
 - 1. Direct Impact Resistance: ASTM D2794, up to 160 inch-pounds.
 - 2. Flexibility: ASTM D522, Method B, equal to or less than a $\frac{1}{4}$ " mandrel.
 - 3. Pencil Hardness: ASTM D3363, HB-2H.
 - 4. Crosshatch Adhesion: ASTM D3359, Method B, 5B
 - 5. Salt Spray Resistance: ASTM B117, plus 1000 hours.
 - 6. Humidity Resistance: ASTM D2247, plus 1000 hours.
- J. Bedding Mortar:
 - 1. Cement Grout: Portland cement complying with ASTM C 150, Type I or III, and clean uniformly graded natural sand complying with ASTM C 404, size No. 2; mixed at a ratio (by volume) of 1.0 part cement to 3.0 parts sand, with only the minimum amount of water required for placement and hydration.
 - 2. Shrink-Resistant Grout (Non-Staining): Factory-packaged, non-ferrous mortar grouting compound selected from the following:
 - a. Masterflow 713 by Master Builders, 23700 Chagrin Blvd., Cleveland, OH 44122 (800) 227-3350.
 - b. SonogROUT by Sonneborn, Chemrex, Inc., 57-46 Flushing Ave., Maspeth, NY 11378, (800) 433-9517.
 - c. Five Star Grout by Five Star Products, Inc., 425 Stillson Rd., Fairfield, CT 06430, (800) 243-2206.
 - d. Crystex by L&M Construction Chemicals, 14851 Calhoun Rd., Omaha, NB 68152, (800) 362-3331.
 - e. Non-Corrosive, Non-Shrink Grout by A.C. Horn, Inc., Tamm Industries, 7405 Production Dr., Mentor, OH 44060, (800) 862-2667.

2.2 FABRICATION

- A. Do not commence fabrication until the fabricator has been approved and the fabrication schedule has been coordinated with the designated Quality Assurance inspection agency (reference Specification Section 01 41 11).
- B. Progress shop fabrication from "Approved" or "Approved as Noted" detail drawings only.
 - 1. When detail drawings are "Approved as Noted", progress fabrication in strict accordance with notes thereon.
 - 2. Fabrication progressed from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings will be rejected. The contractor shall have no claim against the State for any costs or delays due to rejection of items fabricated from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings.
- C. Finish column ends at base plates and at load carrying cap plates to a true plane square to the column, with a maximum American National Standards Institute surface roughness value of 500 microinches.
- D. Pipe and Tube Columns: Shop weld a closure plate to top of columns to form a watertight closure.
- E. Pipe Railings and Handrails:
 - 1. Fabricate components with joints tightly fitted and secured.
 - 2. Continuously seal joined pieces by continuous welds.
 - 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
 - 4. Return ends of handrails to wall.
 - 4. Supply components required for anchorage of railings to CMU walls or concrete foundations.
 - 5. Clean surfaces of rust, scale, grease and foreign matter prior to finishing (see 2.1.I for Paint).
- F. Make provisions for connections of other Work, including all cutting and punching of structural members where required by the Drawings, or for which information is furnished prior to approval of the shop drawings.
- G. Prepare material in accordance with Section 3 of the AWS Code. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.
- H. Galvanizing: Unless otherwise specified or noted, items indicated to be galvanized shall receive a zinc coating by the hot-dip process, after fabrication, complying with the following:
 - 1. ASTM A 123 for plain and fabricated material.
 - 2. ASTM A 153 for iron and steel hardware.
- I. Cleaning Steel: Thoroughly clean all structural steel to an SSPC-6 Commercial Blast Clean for powder coating.
- J. Shop Painting:
 - 1. Paint (General): All structural steel, miscellaneous structural members, guardrails and handrails, unless otherwise noted, shall be blast cleaned to an SSPC-6 commercial blast clean and shall receive powder coating. Powder for coating shall be polyester based thermal setting resin. Color shall be black.
 - 2. Galvanized Items:
 - a. Welded and abraded galvanized surfaces shall be wire brushed and repaired with a coating of cold galvanizing compound.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions under which structural steel is to be installed and notify Architect in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 ERECTION

- A. Erect steel in accordance with the AISC Specification, the AISC Code, the AWS Code and the Specification for Structural Joints, except as otherwise specified.
- B. Prepare and place shrink-resistant grout in accordance with grout manufacturer's printed instructions.
 - 1. Comply with manufacturer's instructions for preparation of surfaces in contact with grout, and for curing and protection of grout.
- C. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.
- D. Do not make corrections or alterations to fabricated steel without prior written approval by the Architect's Representative.
- E. Do not commence field erection until the erector has been approved and the erection schedule has been coordinated with the designated Quality Assurance inspection agency (reference Specification Section 01411).

END OF SECTION

SECTION 10 14 53

TRAFFIC SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Installation of metal traffic signs

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 32 12 16 – Asphalt Paving
- C. Section 32 13 13 – Concrete Paving

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the requirements of this specification.
 - 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Design Requirements: Comply with the applicable requirements of New York State Department of Transportation Standard Specification, Section 645.
- B. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 SEQUENCING AND SCHEDULING

- A. Proceed with and complete traffic signage installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Signs
 - 1. Comply with applicable local and state requirements. Where local or state requirements are not applicable or available, comply with the latest edition of ASSHTO M268.

2. Provide size, shape, text, color and reflectivity as shown on the Contract Documents.

B. Posts

1. Heavy duty, 10' minimum 3 lb. per foot, green enamel U-channel posts.

C. Hardware

1. All nuts, bolts and washers to be stainless steel.
2. All brackets and supports to be galvanized steel.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which traffic signage is to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Erect traffic signs in locations designated on the Contract Documents and in accordance with the approved shop drawings and the applicable requirements of New York State Department of Transportation Standard Specification, Section 645.
- B. Protect surfaces and finishes from abrasion and other damage during handling and installation.
- C. Mount signs at the height shown on the drawings or as directed by the Project Designer. Align sign with the mounting post and angle properly for traffic flow. Tighten bolts and nuts properly and bend bolts where required to prevent vandalism.

3.03 ADJUSTING AND CLEANING

- A. Repairs and Protection of Traffic Signage
 1. Repair or replace broken or defective traffic signs as directed by the Project Designer.
 2. Protect traffic signage from damage until acceptance of the installation work.

END OF SECTION 10 14 53

SECTION 11 68 33

ATHLETIC FIELD EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Baseball accessories
- B. Protective netting
- C. Ball safety netting
- D. Foul poles
- E. Stadium padding
- F. Guardrail padding
- G. Folding Backstop Pads

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 32 18 14 – Synthetic Grass Surfaces

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the requirements of this specification.
 - 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with the applicable portions of this specification.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide products by a company specializing in the manufacture of athletic equipment with at least five years experience.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Packing and Shipping: Deliver all equipment in a manner to protect the material from dirt, water, chemical or mechanical injury.

- B. Acceptance at the Project Site: Deliver all athletic equipment to the site to designated representatives of the Prime Contractor responsible for athletic field equipment for storage and handling when required. The Owner or other contractors on the project site shall not store or handle any athletic equipment.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with and complete athletic field equipment installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. For convenience, details and specifications have been based on the following products by the following manufacturers:
 - 1. Sportsfield Specialties, Inc; Delhi, New York (Telephone# 1-888-975-3343):
 - a. Portable Pitching Mound
 - (1) “Porta-Pitch” Portable Pitching Mound, Model No. “LGPRTPTCH-RC”
 - b. Soccer Goals
 - (1) “Round Faced Soccer Goal with Mobility Wheel Kit and Safety System” – Model Nos. SG4950, SG4955, SG Mobile and SG 2S.
 - c. Foul Poles
 - (1) “30’ Foul Pole with Wing” – Model No. LG-FPW-630.
 - d. Backstop Wall Padding
 - (1) “EnviroZone Stadium Padding”.
 - e. Guardrail Padding
 - (1) “Guardrail Padding” – Model No. GRP.
 - f. Protective Netting
 - (1) “Black Nylon Netting” – Model No. TFBSS-NET. For use as backstop netting and dugout guardrail netting, as indicated on documents.
 - g. Protective Fence Caps
 - (1) Exterior use model no. “FENCEGS” protective fence guards.
 - h. Windscreen
 - (1) “Aer-Flo Standard Windscreen” – Model No. SSIVCP. 8’ high required at baseball outfield fence.

i. Synthetic Turf Comm Boxes

- (1) "3500 ComBox with Turf Filler Kit" – Junction Box Model No. 3600 with Cover Model No. 3700.

2. Aluminum Athletic Equipment Co., Royersford, Pennsylvania (Telephone #1-800-523-5471):

a. Ball-Stopper Safety Netting

- (1) "Ballstopper System with Ground Sleeves and turf cover plugs" – Model No. MBS-20

3. MASA (Mid-America Sports Advantage); Jasper, Indiana (Telephone #1-800-264-4519).

a. Baseball Accessories

- (1) "Hollywood Original Jack Corbett Base Set with Anchors" – Model No. 01326.
- (2) "Pro Hollywood Official Size 4-Way Pitching Rubber" – Model No. 01336. (5) required; (1) for installation in field and (4) for installation in bull pen areas.
- (3) "Bolco 300AS 3" In Ground Home Plate" – Model No. 01115.

4. PARTAC PEAT CORPORATION, Great Meadows, New Jersey (Telephone #1-800-247-2326.

- a. "Folding Backstop Padding" for temporary attachment to chain link fences.

2.02 MATERIALS

A. Portable Pitching Mound

1. Regulation sized Portable Pitching Mound fabricated of aluminum sheet, plate, and structural members with an overall diameter of 18' and a domed height of 10" from finished grade, having the following attributes complying with the following.
 - a. Seven (7) structural aluminum interlocking sections designed to sit atop the synthetic infill turf playing surface
 - b. Center section includes a clay filled pitching strip with polymer enhanced synthetic clay mix as specified in section 321825, regulation 6"W x 24"L professional 4-sided pitching rubber, retractable wheel mechanism, and detachable powder coated steel tow hitch.
 - c. Tapered surrounding sections include a factory installed ¼" recycled rubber shock pad and are to be factory wrapped with non-infilled synthetic turf containing a dense thatch layer.
 - d. Synthetic turf color to be Red Clay unless otherwise specified.
 - e. Model #LGPRTPITCH-CART aluminum Porta-Pitch Transport Cart for stacking and relocating perimeter mound sections. Overall dimensions: 5'W x 10'L x 16.5"T.
 - f. All dimensions and slopes to be compliant with NCAA rules and regulations.
 - g. Refer to section 32 18 25 Infield Skinned Area for clay mix requirements.

B. Soccer Goals and Accessories

1. Round Faced Soccer Goal with Mobility Wheel Kit and Safety System: Steel and aluminum framed soccer goals with nylon nets and related accessories complying with the following:

- a. Crossbar: White powder coated, 24' long, round face, 4.375" square X 4.688" 6061 T6 extruded aluminum tube with radius backside corners and 7 gauge steel crossbar attachment brackets.
 - b. End Frame: White powder coated, round face with radius back corners, 4.375" X 4.688" corner upright posts fabricated of 6061 T6 extruded aluminum tube with 2" X 3" X 0.125" rolled side frame welded to corner upright posts.
 - c. Bottom Ground Bar: White powder coated, 2" square X 0.250" thick 6061 T6 extruded aluminum tube.
 - d. Net Clips: Welded aluminum.
 - e. Net: Orange polypropylene.
 - f. Portable Wheel Mobility Kit: Wheel insert with welded 13 gauge stainless steel frame, UHMW plastic wheel, all stainless steel hardware and mobility handle.
 - g. Safety Clamp Kit: 0.25", white powder coated aluminum safety clamp with stainless steel hardware and access kit fabricated of 16 gauge, 0.125" aluminum stainless steel with 0.25" and 0.75" weather resistant plywood cover plug, stainless steel assembly hardware and galvanized steel anchoring hardware.
- C. Foul Poles: Heavy wall, right and left field style poles complying with the following:
1. 30' Baseball Foul Pole
 - a. Posts: 6.675"O.D. schedule 40 aluminum tubing.
 - b. Ground Sleeves: 7.0"O.D. (.109" wall thickness) x 5' long mill finished aluminum.
 - c. Wing Banner: 18" wide 22' long with .125"aluminum mesh consisting of 1.5"x1.5" punchouts with double reinforced bends, welded at corners.
 - d. Finish: Fully, electrostatically powder coated optical yellow finish.
 - e. Height: 35' overall, 30' above ground and 5' below ground.
 - f. Stainless steel assembly bolts and nuts.
- D. Backstop Wall Padding: "EnviroZone" Stadium Padding complying with the following:
1. 2" Expanded Bead Polyethylene Foam (EPE).
 2. 1/2" Water Resistant Composite Wood Panel
 3. 25 oz. High UV Laminated Vinyl
 4. G-max Rating of < 100 (ASTM F2440)
 5. 5 Year Limited Warranty
 6. Color selected by owner from full range of custom colors
- E. Guardrail Padding: Guardrail padding complying with the following:
1. 1" High Density Polyethylene Foam, 1.7-1.9 lbs/cf.
 2. (2)1 1/2" Vinyl flap with stainless steel grommets at 6"o.c.
 3. 18 oz. Laminated Vinyl Covering. 1000denier polyester basic fabric stitched using 6lb bonded polyester black thread.
 4. Attached to guardrail with 14"nylon ties with 50lbs break strength.
 5. 5 Year Limited Warranty
 6. Color selected by owner from full range of custom colors
- F. Protective Netting: Protective netting shall be manufactured in individual sizes that fully cover the entire extent of the backstop or guardrail system to which they are being attached from top to bottom and end to end without splicing and comply with the following:
1. Netting for the backstop shall be permanently secured to each support post with pipe clamps at 12"o.c. vertical. Clamps shall match the color of the posts. Attach the netting to the tension cables by interweaving the cables through the netting. Additional, the netting shall be bound to each cable by wrapping the cables and netting with the netting manufacturer's approved

black polypropylene rope. Each wrap shall engage each square of netting. The netting shall be stretched tightly both top to bottom and end to end prior to weaving the cables to minimize sagging and billowing. The netting shall be manufactured in heights and lengths sufficient to cover the applicable areas, without excess.

2. Netting for dugout guardrails shall be permanently secured to each guardrail post and rail with netting manufacturer's approved nylon zip ties at maximum 12" o.c. spacing in both the vertical and horizontal directions. The netting shall be stretched tightly both top to bottom and end to end prior zip tying. The netting shall be manufactured in heights and lengths sufficient to cover the applicable areas, without excess.
3. Black #36 Twisted Knotted Nylon Netting
4. 1-3/4" Square Mesh,
5. 352 lb. Break Strength
6. UV/Weather Treated
7. Rope Bound Edges

G. Protective Fence Caps: Exterior use protective fence guards complying with the following:

1. Smooth exterior, lightweight, 5 mm thick, polypropylene copolymer resin.
2. Tensile strength 4000 psi,
3. 10% elongation at yield
4. Temperature range 17 – 160 degree F.
5. Melting point 324 degree F
6. 2 5/8" w x 4" h x 96" l .07" wall thickness
7. Color: Selected by owner from manufacturer's full range of standard colors.
8. 5 year manufacturer's warranty

H. Windscreens: Install windscreens to the chain link fence per the manufacturer's recommended installation instructions. Install windscreens centered on the fence on the active playfield side of the fence. Attach screen by securing every grommet to the fence using tie wraps for the bottom half of the screen and lacing the top half with cord. Windscreens shall complying with the following:

1. 7oz. vinyl coated polyester fabric with lock stitch finish
2. 3ply reinforced hem with 18oz reinforcement
3. Tensile strength: 230lbs x 200lbs
4. Brass grommets at 18" o.c., includes midline grommet strip
5. 70% shading
6. 8' high. Install in longest sections as possible to limit the total amount of seams.
7. Color to be chosen by owner from full range of standard colors

I. Synthetic Turf Comm Boxes

1. 3000 ComBox with Turf Filler Kit: Junction box system for use in synthetic grass surfacing complying with the following:
 - a. Bolt together, 18" wide X 30" long X 14" high aluminum junction box units with removable divider plate, aluminum ledge bracket for installation of aluminum or wood cover and adjustable stainless steel corner bolts.
 - b. Aluminum and wood cover assembly dimensioned for the addition of synthetic turf and two wood hand holes.
 - c. Accessories: Pre-wrapped synthetic turf matching the field where the junction box is to be installed.

- J. Lacrosse Accessories: Ball-Stopper safety netting system complying with the following:
 1. Ground sleeve system with the following components:
 - a. 4" O.D. X 0.226" X 21'-10" black powder coated 6061-T6 aluminum uprights with black polyethylene cover caps.
 - b. 30" 6061-T6 aluminum sleeve, green polyethylene installation plug with tab and one manufacturer supplied "Removal Tool".
 - c. 4500 lb. concrete mix for footing installation.
 - d. Hardware including stainless steel bolts, eye bolts nuts and hog ties, solid brass spring loaded snaps, 1/4" galvanized cable clamp and 3/16" clear coat, galvanized cable.
 - e. Model #AAE M400, 20'-0" high, 1 3/4" square, black knotless HTPP, DBB, UV resistant nylon netting with a 1/4" cable hogtied to top of net.
- K. Baseball Accessories: Provide bases, pitchers mound, home plate and related accessories complying with the following:
 1. Bases: Base set with the following components:
 - a. White, 15" X 15" X 3" bases constructed of a natural rubber covering over a foam core with steel stanchion, base pan and tapered lip.
 - b. One set of three female anchors.
 - c. One set of three rubber plugs to be inserted into the female anchors when bases are removed from the field.
 2. Pitching Rubber: 6" X 24", four sided rubber with central aluminum tube.
 3. Home Plate: Regulation sized home plate with heavy duty vinyl cover and hardwood core.
- L. Folding Backstop Padding: 4' high x 6' long, 18oz. vinyl covered 2" thick polyfoam pads manufactured to fold into 2' wide panels with grommet holes every 1' along the top and bottom . One side of end panel shall have grommets every 1'. At least one side of non-end panels shall have Velcro for attachment to abutting pads. Color to be Royal Blue.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which athletic field equipment is to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure the requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Install all athletic equipment in accordance with the manufacturer's written instructions under the supervision of a manufacturer's representative.

3.03 ADJUSTING AND CLEANING

A. Repairs and Protection of Athletic Field Equipment

1. Repair or replace broken or defective components athletic field equipment components as directed by the Project Designer.
2. Protect athletic field equipment from damage until acceptance of the installation.

END OF SECTION

SECTION 11 68 43

EXTERIOR SCOREBOARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Wireless sports field scoring system consisting of baseball and softball scoreboards and lacrosse field shot clocks.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
 - 2. ASTM A6 – Steel Shapes
- B. National Electrical Code (NEC).
- C. Federal Communications Commission, Part 15 Rules & Regulations, EN60950-1, EN55022 & EN55024.
- D. UL and C-UL Standard for Electric Signs

1.03 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 31 23 17 – Site Trenching
- C. Section 03 30 00 – Cast in Place Concrete
- D. Section 05 12 00 – Structural Steel
- E. Division 26 – Electrical Specifications

1.04 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for the following components demonstrating compliance with the specified requirements:
 - 1. Wireless scoreboards.
 - 2. Control consoles.
 - 3. All wiring diagrams, mounting details and installation manuals.
 - 4. Maintenance data.
- C. Structural Design Submittals: Provide design loads, required support locations, and support detailing for coordination with scoreboard support foundation and structure. Verify the adequacy of the support structure provided in the contract documents. Coordinate required support location and spacing with the Project Designer and General Contractor. , which will be provided by the General Contractor.
- D. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable)

indicating compliance with the requirements specified below in the "Quality Assurance" section of this specification.

2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable requirements specified in the "Quality Assurance" section of this specification.

- E. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.05 QUALITY ASSURANCE

- A. All components including the scoreboard, control console and other accessories and installation hardware shall be the products of a single manufacturer.
- B. The company providing the scoreboard shall specialize in the manufacturing of exterior, electronic, athletic scoreboards with a minimum of ten years of experience.
- C. The scoreboard and other electrical components shall be certified for use in the United States and shall have an Underwriters Laboratories (UL) label securely attached. The scoreboard shall be listed standard UL 48.
- D. The scoreboard and electrical components shall be designed and manufactured in accordance with the National Electric Code.
- E. The scoreboard and other electrical components shall be electrically grounded in accordance with the National Electric Code, Article 600.
- F. The scoreboard shall be compliant with the Code of Federal Regulations 47CFR15 – Federal Communications Commission Regulation Part 15, "Radio Frequency Devices".

1.06 STRUCTURAL REQUIREMENTS

- A. Design Wind Speed: Comply with the applicable requirements of the building code of the State of New York including applicable portions of ASCE 7 for Wind Load Pressure.
 1. Minimum design wind speed shall be 110 MPH.
- B. Seismic Design: Comply with the applicable requirements of the building code of the State of New York and in accordance with the current edition of the AISC Seismic Design Manual.

1.07 DELIVERY, STORAGE AND HANDLING

- A. The scoreboard and associated equipment shall be housed in a clean, dry environment.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.
- B. Environmental Limitations: Do not install any scoreboard equipment until the mounting structure is secure and concrete foundations have had ample time to cure.
- C. Mounting Structure: Verify that the mounting structure is capable of supporting the scoreboard's weight and windload in addition to any auxiliary equipment and accessories.

- D. Weather Conditions: Installation of the scoreboard may proceed only within acceptable weather conditions.

1.09 SEQUENCING AND SCHEDULING

- A. Proceed with and complete scoreboard installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

1.10 MAINTENANCE

- A. Completely service the sportsfield scoring systems specified within this section for a minimum of one year after final acceptance.

1.11 WARRANTY/SERVICE PLAN

- A. Scoring equipment and all components shall be warranted free from defects in materials and workmanship as described below.
 - 2. 5 years parts and factory labor guarantee for scoreboards and accessories from invoice date.
 - 3. 2 years part and factory labor guarantee for wireless controls and receivers from invoice date.
- B. Provide an exchange program to supply replacement parts for components that fail during the coverage period. To minimize downtime, the exchange parts shall be shipped on the same day the order is received or on the following day.
- C. The manufacturer shall provide contact information and access to a local authorized service representative.
- D. The manufacturer shall provide a help desk staffed by experienced technicians and coordinators who are thoroughly familiar with the installed equipment and available for technical support. The staff shall be available at no additional cost to the customer and provide, if needed, an "on-call" service during weekends.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. For convenience, details and specifications have been based on scoreboard systems manufactured by Nevco, Inc., 301 East Harris Avenue, Greenville, Illinois 62246; 800-851-4040; www.nevco.com, or approved equal to establish quality and function.
 - 1. Baseball Scoreboard: Model#3685.
 - 2. Softball Scoreboards: Model #1608.
 - 3. Delay of Game Clock: Model#DGT-6.
- B. Refer to the Instructions to Bidders, General Conditions, Supplementary Conditions and Division 1 of the Project Manual for additional provisions and requirements relating to equivalent products or substitutions.

2.02 BASEBALL SCOREBOARD

- A. Product Overview: Exterior, large-numbered, electronic Intelligent Caption – Multi-sport scoreboard with integral horn and LED displays for time, scores, possession and four digit pairs for per team features listed below.
 4. Size: 24 feet long x 8 feet high x 8 inches deep
 5. Approximate weight: 640 pounds.
 6. All Electronic Caption Plates: Two(2) ea. 8"x48"; Four(4) ea. 8"x32", and Two(2) ea. 8"x16" – 16mm matrix red or amber LED displays.
 - a. Displaying per sport: "HOME", "GUESTS", "BALL ON" "DOWN" "YTG" "QTR" "SAVES", "SHOTS", "CK", "H/G", "PEN", "AT BAT", "BALL", "STRIKE", "OUT"
 4. High intensity red or amber LED displays:
 - a. 24 inches high digits: All digits except "tol"
 - b. 18 inches high digits: "tol"
 - c. Possession indicators in the form of a baseball.
 5. Power requirement: 120volts, 6.5amps with all options included.
 6. Provide the protective net optional accessory
- B. Scoring Console: Wireless, microprocessor based operator's control center designed to operate different models of scoreboard by interchange of keyboard overlay; Model MPC, as manufactured by Nevco Inc.
 1. Console: High impact, break-resistant black plastic with improved UV resistance. 11 x 9-1/2 x 4-1/8 inches
 2. Features:
 - b. Provide with LED displays, lithium cell battery backup to maintain scoreboard memory and time of day, self test mode, power on-off switch, alternate time control, and multiple scoreboard operation.
 - c. Split and raised 40 key soft touch keyboard.
 - c. Keyboard shall be spill resistant.
 - d. Internal beeper acknowledging each entry
 - e. System Profiles feature set all parameters of operation including choice of controlled accessories and scoreboards.
 - f. Colorful graphic rich keyboard overlays for scoreboard or accessory.
 - g. Remote hand-held main time switch with programmable integral horn button.
 - h. 25 feet control cable with connectors.
 - i. Timer features: Time of day display, multiple time out timers with warning, interval horn, up-count auto stop with horn, 1/10th second display during last minute, changeable horn tone on scoreboards with the feature.
 - j. Segment timing for practice and workout.
 - k. Dimmer control for scoreboard.
 - l. MPC features shall be accessed through yes/no abbreviated questions in a drop down menu format.
 - m. Multiple receiver management shall be accomplished through direct keyboard input.
 - n. Electronic Team Names and automatic Electronic Caption Plates shall be controlled from MPC control without need to change overlays.
 3. Power requirements: 120 volts, 12 watts, 60 Hz.
 4. Provide option of battery supply for control operation if utility power not available.
 5. Provide carrying case for control center, cable, and hand-held switch; Model CC-3 as manufactured by Nevco Inc.

- a. Size: 18-1/2 x 14-1/2 x 6 inches.
- b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
6. Receiver;
 - a. Sturdy impact resistant construction, 6 x 4 x 1.5 inches.
 - b. Integrated antenna, mounted flush in scoreboard face. Protruding antennas shall not be used.
7. Maximum range: 1,000 feet from control center to receiver.
8. Receiver shall require no additional source of power or separate control cable.

2.03 SOFTBALL SCOREBOARD

- A. Product Overview: Exterior, electronic baseball scoreboard with LED displays for number of player at bat, balls, strikes, outs, hit, error, scores by inning, and totals for runs, hits, and errors; Model #1608, as manufactured by Nevco Scoreboard Company.
 7. Size: 18 feet long x 6 feet high x 8 inches deep.
 8. Approximate weight: 375 pounds
 9. White on black captions:
 - a. 10 inches high: "HOME", "GUESTS", "AT BAT", "BALL", "STRIKE", "OUT".
 - b. 8 inches high: Inning numbers "1" through "9", "TOTAL".
 10. High Intensity Red or Amber LED displays:
 - a. 18 inches high digits and letters: Balls, strikes, outs.
 - b. 14 inches high digits: Scores by inning and totals for runs.
 11. Power requirement: 120 volts, 2.5 amps, 60. Including power factor correction. Requires earth ground accordance with NEC.
 6. Provide the protective net optional accessory
- B. Scoring Console: Handheld wireless, basic, AA battery operated, sport specific, control center with receiver unit mounted at scoreboard; Model MPCX as manufactured by Nevco. Control will have operability with earlier scoreboards from Nevco.
 12. Unit shall comply with Part 15 of FCC Rules and Regulations.
 13. Control unit: High impact, break-resistant black ABS plastic Size: 3-1/4" x 5-1/2" x 7/8"
 14. Features:
 - a. Wireless operation within 1000 feet
 - b. Operate multiple scoreboards simultaneously.
 - c. System allows multiple controllers to link to individual scoreboards.
 - d. High visibility LCD display with a sealed keyboard.
 - e. Long battery life with indicator; include two AA batteries.
 - f. Single hand operation with a no slip grip.
 - g. Built-in belt clip.
 - h. Wireless signal strength meter and internal antenna.
 15. Receiver: Injection molded case, 5-1/2 by 3-3/4 by 2 inches mounted at scoreboard in accordance with instructions.
 16. Maximum range: 1,000 feet from control center to receiver.
 17. Power adapters: Provide for each scoreboard receiver.
 - a. Input: 120 volts, 0.4 amps, 50/60 Hz.
 - b. Output: 9 volts, 1.67 amps, 15 watts.
 18. Provide carrying case for up to two control centers, Model CC-4 as manufactured by Nevco.
 - a. Size: 8-1/2 x 14-1/2 x 6 inches

- b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
- 8. Provide suitable, RF transparent, NEMA 4 enclosure for receiver, to be located upon scoreboard supporting structure per installation diagrams.

2.04 DELAY OF GAME CLOCK

- A. Delay of game timer set: Pair of electronic units displaying delay of game time with one unit installed at each end of field; Model DGT-6 as manufactured by Nevco, Inc.

- 19. Unit size: 4 feet x 4 feet x 8 inches.
- 20. Approximate hanging weight: 50 pounds.
- 21. LED displays: High intensity red 30 inches high digits capable of being set at 69 seconds or less and operated from hand-held switch connected to control center.
- 22. Power requirement: Each display, 120 volts, 0.6amps.

2.05 MOUNTING HARDWARE

- A. Prime Contractor shall furnish and install all necessary mounting hardware and accessories required for installation of the scoreboards as recommended by the scoreboard manufacturer and as indicated on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which scoreboards and associated accessories are to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. Verify that the mounting structure is ready to receive the scoreboard.
 - 2. Verify that placement of conduit and junction boxes are as specified and are as indicated on the Contract Documents and on the approved shop drawings.
 - 3. Prior to the placement of the footings and columns, verify that the planned spacing of supports aligns with the scoreboard attachment points.
 - 4. Verify that concrete has cured properly according to the specifications.
 - 5. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 SCOREBOARD INSTALLATION

- A. Verify that the mounting structure is ready to receive the scoreboard.
- B. Install the unit in strict accordance with the manufacturer's instructions.
- C. Mount the scoreboard to the columns at the location indicated. Verify that the columns and the scoreboard are installed plumb and level.

- D. Clean all exposed surfaces.
- E. Protect the scoreboard and finishes from other construction operations.
- F. Bond each structure to a copper clad steel ground rod not less than 5/8" diameter and not less than 10'-0" long. An 8'-0" long ground rod is permissible provided the rod extends vertically into the earth at least ten feet.

3.03 DEMONSTRATION AND TRAINING

- A. The scoreboard manufacturer shall provide a demonstration and training session with the Owner and the Owner's Representative covering the complete operation and maintenance of the specified sports field scoring component and all related accessories.
- B. Provide 30 spare LED units to the Owner and instructions for replacement.

3.04 ADJUSTING AND CLEANING

- A. Repairs and Protection of Scoreboards and Associated Accessories
 - 1. Repair or replace broken or defective equipment as directed by the Project Designer.
 - 2. Protect systems from damage until acceptance of scoreboard construction.

END OF SECTION

SECTION 13 34 17

ANGLE FRAME BLEACHERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Installation of aluminum, fully closed deck, angle frame bleacher system including engineering, freight, installation and supervision to provide a new bleacher structure.

1.02 RELATED SECTIONS

- A. Section 01 41 11 – Special Inspections and Procedures
- B. Section 13 34 24 – Pressbox
- C. Section 31 00 00 – Earthwork
- D. Section 32 13 13 – Concrete Paving
- E. Section 32 31 13 – Chain Link Fences and Gates

1.03 SYSTEM DESCRIPTION

- A. Design Requirements: Closed deck, angle frame bleachers.
 - 1. Comply with the applicable requirements of the International Building Code, ICC 300-2007 and the Building Code of the State of New York.
 - 2. Capacity: Provide bleacher systems with number of rows and overall dimensions as shown on drawings.
- B. Structural Requirements
 - 1. Dead Load: No less than 10 psf for seatboards, footboards, risers and aluminum framing.
 - 2. Uniformly Distributed Live Load: Not less than 100 psf to structural members, all stringers and girders shall be limited to $L/200$ for maximum vertical live load deflection and 120 psf for seat and foot boards.
 - 3. Design Wind Speed: Comply with applicable requirements of the building code within the State of New York including applicable portions of ASCE 7 for Wind Load Pressure.
 - 4. Sway: Not less than 24 plf parallel to the seat run and 10 plf perpendicular to the seat.
 - 5. Deflection: Structural elements shall be sized to limit the live load deflections to $1/200$ of the span.
- C. Guardrails
 - 1. Perpendicular Load: 50 lbs. plf., 200 lbs. at any point.
 - 2. Vertical Load: 100 lbs plf.
- F. Seismic: Comply with the applicable requirements of the Building Code of the State of New York. Calculations and design to be based on the local governing building code.
- G. Miscellaneous Requirements: Provide system with the following applicable requirements:
 - 1. Railings: NFPA-101
 - 2. Handicapped Access and Seating: Provide adequate spaces to comply with current ADA standards.

3. Steel Design and Fabrication: Design in accordance with the American Institute of Steel Construction (AISC), AA-94 and AISC Manual of Steel Construction, Load and Resistance Factor Design, 2nd Edition.
4. Welding: Perform work in accordance with American Welding Society (AWS) standards and AWS D1.2. All welders must be AWS certified.
5. Aluminum: Perform work in accordance with Aluminum Association of America.
6. Life Safety: NFPA-101 and NFPA-102.

1.04 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Shop Drawings: Submit shop drawings showing layouts of angle frame bleacher units coordinated with field measurements, sealed by a registered professional engineer and including the following minimum information:
 1. Seat heights.
 2. Row spacing and rise.
 3. Aisle widths and locations.
 4. Overall dimensions, connections and relationship to adjoining accessories and construction.
 5. Types of materials and finishes.
- D. Quality Control Submittals
 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the requirements specified below in the "Quality Assurance" section of this specification.
 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable requirements specified in the "Quality Assurance" section of this specification.
- E. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.05 QUALITY ASSURANCE

- A. Experience: A company specializing in angle frame bleacher construction with a minimum of ten years of experience in the fabrication of bleacher systems. The installer of the structure shall be the manufacturer of the bleachers or a certified manufacturer's subcontractor.
- B. Warranty: Upon substantial completion of the project, the angle frame bleacher system shall be guaranteed for the following minimum periods:
 1. Structure: Five years against structural defects including labor for repair.
 2. Finish: Three years against finish including labor for repair.
 3. Defects in materials and workmanship shall be repaired within the specified warranty period and shall be repaired or replaced including performing all necessary corrective work.
- C. Engineer Qualifications: The design of the angle frame bleacher system shall be reviewed and sealed by a licensed professional engineer in the state where the structure is to be installed.

- D. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with and complete angle frame bleacher construction as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. For convenience, details and specifications have been based on "Dant Edge" as manufactured by Dant Clayton Corporation, Louisville, Kentucky (1-800-626-2177) or approved equal to establish quality and function.
- B. Refer to the Instruction to Bidders, General Conditions, Supplementary Conditions and Division 1 of the Project Manual for additional provisions and requirements relating to equivalent products or substitutions.

2.02 MATERIALS

A. Product Design

1. Vertical Rise: 8" per row.
2. Horizontal Tread Depth: 24" per row.
3. Seat Height: 17" above respective tread.

B. Understructure

1. The understructure shall be fabricated from galvanized steel, hot dipped after fabrication to comply with ASTM A123 specifications.
2. Stringer shall be welded angle frames spaced at maximum intervals of 6'-0" on center and secured by cross bracing.
3. Vertical members shall be L 2" X 2" X 3/16" or as otherwise specified.
4. Horizontal members and footboard supports shall be 12" X 1½" X 3/16" with 2" X 11" aluminum mill plank.
5. Cross braces and diagonals shall be aluminum L 1½" X 1½" X 3/16" 6061-T6 mil finish channel.
6. Assembly of the understructure shall be an interlocking design utilizing 7/16" X 3½" hot dipped galvanized bolts.

C. Guardrail

1. Handrails shall be constructed of two 1.66 O.D., clear anodized 204R1 aluminum rail sections. One rail pipe to be installed at the top of the guardrail system, and one at the bottom of the system.

2. The guardrail system shall be installed a minimum of 42" above the seat along the sides and rear of the bleachers.
 3. Guardrails shall be 1.66" O.D., 6063-T6 alloy, extruded aluminum pipe.
 4. Chain link fencing shall be 2" mesh, 9 gauge black vinyl coated fabric.
- D. Extrusions
1. Seats shall be 6063-T6 extruded aluminum with a fluted surface and a wall thickness of 0.094" for impact and deformation resistance. Seat boards shall have an actual minimum width of 9½" and height of 1½". Seat boards shall be attached to the frame with bolt clips. Seat boards shall be cleaned, pre-treated standard clear anodized finish material.
 2. Footboards shall be 2" X 11" X 1½", mill finish, 6063-T6 extruded aluminum plank with a fluted surface and a wall thickness of 0.094"
 3. Riser boards shall be single, 6.25" extruded aluminum planks with an orange powder coated finish material covering 100% of the surface.
- E. Walking Surface Requirements
1. All aluminum footboards shall have an enhanced stain resistant and slip resistant finish at all locations intended for use as a walking surface. This surface shall prevent oxidation staining. Oxidation staining prior to substantial completion shall be grounds for product replacement at the Manufacturer's expense.
 2. The surface finish shall exhibit enhanced slip resistance beyond the mill extrusion process, resulting in an approved coefficient of friction under wet conditions in all directions of travel. Untreated mill finish aluminum with raised extruded flutes or ribs will not be considered adequate to meet this requirement.
- F. Aisles: Designed to be smooth and continuous to allow access to seating through a 24" space. Aisle nosing to be contrasting black color on each step. Aisle ways to have 36" height handrail in the center of the aisle fabricated from 1.66" O.D., Schedule 40 aluminum pipe.
- G. Handicapped Areas: Wheel chair areas and companion seating shall be installed as indicated on the drawings and in accordance with applicable codes and ADA requirements. Wheel chair spaces and companion seating shall be equally dispersed along the front walkway.
1. Double or grouped spaces shall be minimum 5'-6" (2'-9" each).
 2. Single spaces shall be minimum 3'-0" each.
- H. Hardware: Bolts used for field installation shall be hot dipped galvanized. Primary connections to bleacher system areas such as seats, cross braces, handrail (rail and posts), etc., shall be made with minimum 3/8" diameter hardware. All seat board, foot board and hand rail end caps shall be fabricated from extruded aluminum, riveted to the boards.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which the angle frame bleacher system is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.

1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Install bleacher unit in accordance with the Manufacturer's instructions and final shop drawings. Provide indicated accessories, anchors, inserts and other items required for installation of the unit and attachments to adjoining construction.

3.03 ADJUSTING AND CLEANING

- A. Repairs and Protection of Angle Frame Bleachers
 1. Clean installed angle frame bleacher unit on exposed and semi-exposed surfaces. Touch-up shop applied finishes, restoring damaged or soiled areas.
 2. Repair or replace broken or defective bleacher components as directed by the Project Designer.
 3. Protect system from damage until acceptance of angle frame bleacher construction.

END OF SECTION 13 34 17

SECTION 13 34 24

PRESSBOX

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Engineering, materials, freight, installation and supervision for new modular pressbox structure.

1.02 RELATED SECTIONS

- A. Section 13 34 17 – Angle Frame Bleachers
- B. Division 26 – Electrical
- C. Section 31 20 00 – Earth Moving
- D. Section 32 13 13 – Concrete Paving
- E. Section 32 31 13 – Chain Link Fences and Gates

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for the press box system specified including the following standard shop drawings:
 - 1. Press box plan view including relationship to adjacent bleachers.
 - 2. Press box sections and elevations.
 - 3. Press box electrical/mechanical plan.
- C. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the requirements specified below in the "Quality Assurance" section of this specification.
 - 2. Existing Installation Listing: Provide a list, including project name, owner's representative name and telephone number for a minimum of thirty press boxes installed in the United States during the past five years with the same manufacturer, product and company proposed for this project.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Experience: A company specializing in modular building construction with a minimum of five years of experience in the fabrication of pressbox structures. The installer of the structure shall be the manufacturer or a certified manufacturer subcontractor.
- B. Warranty: Upon substantial completion of the project, the pressbox shall be guaranteed for a minimum period of one year against defective materials and workmanship.

- C. Engineer Qualifications: The design of the pressbox system shall be reviewed and sealed by a licensed professional engineer in the State of New York prior to the Prime Contractor's submittal of the pressbox and bleacher package for the Project Designer's review.
- D. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 DESIGN CRITERIA

- A. All materials shall be new unless specifically noted otherwise.
- B. Code Compliance: All materials, design and workmanship shall be in accordance with the following:
 - 1. Building code of the State of New York.
 - 2. Current edition of the IBC.
 - 3. NFPA codes and standards.
 - 4. All electrical components shall be U.L listed.
- C. Design Loads
 - 1. Live Load
 - a. 100 psf for floor
 - b. 100 psf for roof with camera deck
 - 2. Wind: Comply with applicable requirements of the building codes within the State of New York including applicable portions of ASCE 7 for Wind Load Pressure.
 - 3. Seismic: Comply with the applicable requirements of the building code for the State of New York. Calculations and design shall be based on the following criteria:
 - a. Seismic Use Group 1
 - b. Seismic Importance factor 1.0
 - c. Seismic Design Category D
 - d. Design Spectral Response Acceleration At Short Period, $SDS = 0.492$

1.06 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with and complete press box installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. For convenience, details and specifications have been based on modular pressbox systems manufactured by Dant Clayton Corporation, Louisville, Kentucky (1-800-626-2177) or approved equal to establish quality and function.

- B. Alternate modular press box manufacturer's will be reviewed and accepted based on the requirements within this section and as shown on the drawings.
- C. Refer to the Instructions to Bidders, General Conditions and Division 1 of the Project Manual for additional provisions and requirements relating to equivalent products or substitutions.

2.02 MATERIALS

- A. Size: Overall size of the pressbox shall be 8'-1 1/4" deep by 24'-0" with access to a camera roof deck. The interior configuration shall have no interior partitions with access doors out of each end wall to the bleacher platform.
- B. Floor System: Floor construction to comply with the following:
 - 1. Bottom Board: CCX foundation grade, 1/2" thick treated plywood with industrial grade asphalt based paint and continuous aluminum vents on 8' centers.
 - 2. Insulation: 6", R19 fiberglass batts with vapor barrier.
 - 3. Joists: Longitudinal framing consisting of 2" X 6" #1 SYP installed 16" on center.
 - 4. Decking: 3/4" SturdiFloor, underlayment grade, tongue and groove fir plywood (Index 24" O.C.).
 - 5. Covering: 1/8" vinyl composition tile similar to Armstrong Excelon, cottage tan color.
 - 6. Molding: 4" thermoplastic rubber base molding similar to product manufactured by Roppe.
- C. Wall System: Wall construction to comply with the following:
 - 1. Studs: 2" X 4", #2 or better SPF in stalled 16" on center.
 - 2. Bottom Plate: 2" X 4", #2 or better SPF.
 - 3. Top Plate: 2" X 4", #2 or better SPF.
 - 4. Headers: As span and design load requires, see plans.
 - 5. Ceiling Height: 8'-0" to 7'-10", front to back.
 - 6. Covering: 5/8", vinyl faced gypsum finished interior wall panels, Class A, F.S.R.
 - 7. Insulation: 3 1/2", R13 fiberglass batts with vapor barrier.
 - 8. Sheathing: 1/2" CDX plywood with house wrap air infiltration barrier.
 - 9. Siding: MBCI "U-Panel" .026 gauge ribbed steel panels with Kynar 500 finish in Royal Blue.
- D. Roof System: Roof construction to comply with the following:
 - 1. Joists: 2" X 8", #1 SYP joists at 16' on center spacing.
 - 2. Overhang: 15 1/2" over the front wall, 6" over the rear wall with 0.019 aluminum fascia with perforated aluminum soffit panels.
 - 3. Ceiling: 5/8" Type X fired rated gypsum board, UL fastening, taped and bedded with spray textured finish, Class A, F.S.R.
 - 4. Insulation: 6", R19 fiberglass batts with vapor barrier.
 - 5. Decking: 3/4" tongue and groove oriented strand board (Index 24" O.C.).
 - 6. Covering: 0.060 single ply, fully adhered, EPDM rubber membrane.
- E. Window Systems: Window systems complying with the following:
 - 1. Exterior : Horizontal sliders with extruded vinyl frames, AAMA LC-25 structural rating with 3/4" clear insulated, Low-E tempered glass and removable insect screens similar to American Window "Earthwise Series".

2. Interior : ¼" tempered safety glass fixed pan with stained jambs and casing.
- F. Door System: Door systems complying with the following:
1. Exterior: 36" X 80", 18 gauge, insulated galvanized hollow metal doors with 16 gauge steel wrap around frames (painted white) including 16" insulated/tempered 10" lite, aluminum threshold, vinyl weather stops, hydraulic closer and illuminated exit signs. The units shall be equipped with commercial lever handled keyed locks, dull chromium plated, US 26D, SP series/Spirit Grade 2. Lever lock set #116 (classroom lockset function) as manufactured by PDQ or similar.
- G. Electrical System: Electrical construction to comply with the following:
1. General: All work shall comply with the National Electric Code and all components shall be U.L. listed.
 2. Service Entrance Panel: Square D QO112M100 with main disconnect rated at 120/240v single phase, 100 amp capacity. Mount flush in press box with 2" conduit stub out through the floor for service line to be connected by the Electrical Contractor.
 3. Receptacles: 125 volt/15 amp duplex spec grade heavy duty, spaced at maximum 8' O.C. at the rear wall and maximum 4' O.C. at the front wall, minimum five per room. Mount at 18" above the floor on the back wall. Install Wiremold 5400 Series two piece multi-channel non-metallic surface raceway along the front wall below the scorers counter.
 4. Wiring: Pre-wired utilizing Type MC cable.
 5. Lighting: Lithonia M232PC1S four foot, two tube, fluorescent strips with low glare parabolic diffusers, one installed every 8'.
 6. Circuits: All branch circuit wiring shall be minimum #12 THHN encased in EMT thin wall conduit.
- H. HVAC: Electric baseboard heaters with integral thermostats and sized to match the room size.
- I. Scorer's Counter: 18" deep constructed of ¾" luan grade plywood with 1½" X 2" edge surfaced with 0.060 plastic laminate similar to Nevamar Neutra Matrix.
- J. Camera Deck System: Camera deck construction to comply with the following:
1. Hatch: 2'-6" X 4'-6" aluminum roof hatch similar to Bilco Model #NB50 with Bil-Guard NB hatch rail system.
 2. Ladder: Aluminum, 70 degree ships ladder similar to Alaco Model 370.
 3. Roof Surface: 0.060 polyester reinforced skid and spike resistant fully adhered PVC membrane.
 4. Railings: Two line, 1 5/8" O.D., black vinyl guardrails fastened with ½" galvanized threaded bolts and nuts through roof fascia on 4'-0" centers along the perimeter edge of the roof. Through bolting or penetrating of the roof deck is prohibited. The railings shall be infilled with 6 gauge black vinyl coated chain link fence. Provide a 4' wide swing gate centered on exterior ladder as shown on drawings.
 5. Emergency Ladder: Emergency ladder with walk through rail extension and security panel similar to O'Keefe Model #504.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which the press box is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Install modular pressbox in accordance with the manufacturer's instructions and final shop drawings by factory certified installation personnel . Provide accessories indicated and other items required for installation and attachment to adjoining construction. All interior electrical fixtures shall be connected to the electrical junction panel by the pressbox manufacturer. Open conduit shall be stubbed at the bottom of the pressbox floor for electrical service tie in by the Contractor.

3.03 ADJUSTING AND CLEANING

- A. Repairs and Protection of Pressbox
 - 1. Clean installed pressbox unit on exposed and semi-exposed surfaces. Touch-up shop applied finishes to restore damaged or soiled areas.
 - 2. Repair or replace broken or defective pressbox components as directed by the Project Designer.
 - 3. Protect the structure from damage until Substantial Completion.

END OF SECTION 13 34 24

SECTION 13 34 27

PRECAST PRE-ENGINEERED DUGOUT STRUCTURE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Installation of fabricated, precast pre-engineered dugout structures of the dimensions and configurations described and depicted in the Contract Documents and in accordance with this specification section.

1.02 RELATED SECTIONS

- A. Section 03 30 00 - Cast-In-Place Concrete
- B. Section 31 20 00 – Earthwork
- C. Section 32 13 13 – Concrete Paving
- D. Section 33 40 00 – Storm Drainage Utilities

1.03 DESIGN REQUIREMENTS

- A. Standard Design Loads: Design per the International Building Code, latest edition.
- B. Wind Loading: Main Wind Force Resisting System and Components and Cladding to be designed in accordance with Sections 1609.6.2.1 and 1609.6.2.2. of the Building Code of New York State.
- C. Roof Snow Loading: Design for snow load per Section 1608 of the Building Code of New York State.
- D. Seismic Design: Category classification and design per the International Building Code, latest edition.
- E. Building Size: Not less than the size indicated on the Drawings.

1.04 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Shop Drawings – Drawings shall show specific application to the Project indicated on the Contract Documents. Provide all required drawings in one submission, except as noted. The Manufacturer's standard sheets showing loads or details for a multiple range of structure spans, heights and loadings will not be considered acceptable.
 - 1. Erection Drawings – Submit set of the Manufacturer's complete drawings indicating identification markings for components.
 - 2. Structural Drawings – Submit drawings indicating layout, dimensions, anchorages, connections and connection accessories.
 - 3. Product Data - Submit manufacturer's name, specifications and installation instructions for each item specified including exterior and interior material, finish and color of trim.
- C. Quality Control Submittals
 - 1. Engineer's Qualifications: The design of the precast, pre-engineered dugout structure is a Delegated Design project component and as a result shall be reviewed and sealed by a licensed professional engineer in the State of New York prior to the Prime Contractor's submittal of the system for the Project Designer's review.
 - 2. Design Calculations – The Manufacturer's design calculations, signed and sealed by a licensed Professional Engineer in the State of New York must be submitted for the structural framing and roofing panels. A cover letter shall be attached to the calculations stating that the Engineer has received a set of Drawings and Specifications and that the design calculations are based on the requirements of the Contract Documents.
 - 3. Certificates – The manufacturer must submit a written certification that the structure has been designed in conformance to the specified design loading and other design requirements.

D. Closeout Procedures: Comply with the requirements of Section 01 77 00 including the following:

1. Structure – The Manufacturer shall warrant the structure to be free from defects in material and workmanship for a period of five years from the date of acceptance by the Owner. The Manufacturer shall repair or replace the structure of like kind to match existing material and workmanship.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications – The Manufacturer of the structure shall be regularly engaged in the design and fabrication of precast pre-engineered structures and shall have furnished such structures for five similar projects that have been in use for not less than five years. The structure manufacturer shall be capable of furnishing compatible auxiliary components and accessories shown or specified. If requested, furnish the Project Designer the names and addresses of five similar projects where the manufacturer's structures have been in use for five years.

1. The Manufacturer shall be certified by the Pre-stressed Concrete Institute (PCI) Plant Certification Program at the time of bidding for product group and category A1 (Architectural Precast Concrete).

B. Installer's Qualifications – The person supervising the installation of the work of this specification shall be experienced in the fabrication of precast pre-engineered structure work and shall have been regularly employed by a company engaged in the erection and installation of such structures for a minimum of three years. If requested, furnish the Project Designer the names and addresses of three similar projects for which the supervisor has managed the erection of fabricated pre-engineered structures.

C. Warranty

1. Structure – The Manufacturer shall warrant the structure to be free from defects in material and workmanship for a period of five years from the date of acceptance by the Owner. The Manufacturer shall repair or replace the structure of like kind to match existing material and workmanship.

D. Regulatory Requirements – Comply with the following:

1. Code – Comply with applicable provisions of the New York State Uniform Fire Prevention and Building Code.
2. Loading – Comply with the ANSI Building Code Requirements applicable provisions for minimum design loads in buildings and other structures.
3. Building Grounding – Comply with the National Electric Code.

E. Inspection – Quality assurance inspection shall be performed by the Owner's Special Inspector.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver building components, bearing the Manufacturer's labels.
- B. Components shall have the Manufacturer's identification marking corresponding to the marking shown on the erection drawings.
- C. Handle materials by a method which will prevent damage to components, including finishes.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with and complete precast pre-engineered dugout structure installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. For convenience, details and specifications have been based on fabricated precast pre-engineered dugout structure systems as manufactured by Lakelands Concrete Products, Inc., Lima, NY (585-624-1990) or approved equal to establish quality and function.
- B. Refer to the Instructions to Bidders, General Conditions, Supplementary Conditions and Division 1 of the Project Manual for additional provisions and requirements relating to equivalent products or substitutions.

2.02 STRUCTURE DIMENSIONS

- A. The dimensions of the structure shall comply with the following:
 - 1. Overall Roof Dimensions – 8'-6" X 50'-6" (overhang to overhang).
 - 2. Interior Roof Height – 8'-0".
 - 3. Exterior Roof Height - Minimum of 8'-8" on the front side, playfield side of the structure and 8'-6" at the rear side.

2.03 MATERIALS

- A. Concrete – Building components shall comply with ACI 318 Building Requirements (or latest edition) for reinforced concrete with a minimum 28 day compressive strength of 6000 PSI.
- B. Air Entraining Admixture – Product conforming with ASTM C260 added to produce between 5 to 9% air by volume.
- C. Reinforcing Steel – Material complying with the Concrete Reinforcing Institute Manual of Standard Practice and in conformance with ASTM A615 Grade 60 and welded wire fabric meeting the standards set forth by ASTM A185.
- D. Precast Building Components
 - 1. Walls – Minimum 4¾" thick, natural concrete with uniform interior broom finish that is leak and corrosion proof creating a two hour fire rating when the structure is constructed.
 - 2. Roof – Smooth form finish of varying thickness, sloping away from the dugout opening. Minimum 6" thick at the rear and minimum 8" thick at the front. The roof shall have a minimum 3" overhang on all sides with a continuous built in drip edge.
 - 3. Connections – Panel to panel, panel to roof and panel to floor connections shall be accomplished with minimum 5" X 5" X ½", A36/A709-36 zinc plated steel. Washers shall be 3" X 3" X ¼" zinc plated A36 steel with a 9/16" hole. Bolts shall be ½" in diameter complying with ASTM A449 Grade 5 with associated locking washer.
 - 4. Gasketing – 1' wide X ½" thick closed cell neoprene for panel to roof and panel to floor gaskets complying with NYSDOT Section 705.08.
 - 5. Caulk – All joints inside and out shall be caulked with material similar to BASF Sonolastic NP-1. Color to be chosen from the Manufacturers full line of colors by the Project Designer.
- E. Finish: Complying with the following:
 - 1. Provide an acid wash on all exterior faces of wall and roof panels.
 - 2. Provide a room finish on all interior faces of wall and roof panels.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which the precast pre-engineered dugout structure is to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Protect components against damage during erection.
- B. Clean surfaces to receive work indicated in this specification section.

3.03 ERECTION AND INSTALLATION

- A. General – Erect and install the structure and appurtenances in accordance with the Manufacturer's printed instructions, except as otherwise specified or required by the Reference Standards. Install the work of this specification section so the structure is secure and watertight, and exposed materials are free of visible dents, scratches, tool marks, cuts, and other imperfections. Install structure systems free of rattles, wind whistles, and noise due to movement.
- B. Layout and Detail Plans – The Manufacturer shall supply complete layout and detail plans with installation instructions for the structure. The structure shall be erected in a workmanlike manner with framing, roofing and trim installed according to the Manufacturer's installation instructions. Care shall be taken to avoid damaging the structure during installation.
- C. Related Building Components – Install related components in their designed locations, fitted with required accessories. Securely fasten items to structural supports. Adjust and lubricate operative units for smooth and easy operation. Seal components watertight at junctions with wall and roof systems.

3.04 ADJUSTING AND CLEANING

- A. Repairs and Protection of Precast Pre-Engineered Dugout Structure
 - 1. Repair or replace broken or defective precast pre-engineered dugout structure components as directed by the Project Designer.
 - 2. Protect precast pre-engineered dugout structures from damage until acceptance of the work.
 - 3. Remove strippable protective coatings after completion of the work. Comply with the Manufacturer's recommendations for coating removal.
 - 4. Clean exposed exterior and interior surfaces of wall panels. Remove any residue from strippable coatings. Comply with the Manufacturer's recommendations for cleaning.

END OF SECTION 133427

SECTION 26 00 10**GENERAL REQUIREMENTS FOR ELECTRICAL CONTRACT****PART 1 GENERAL****1.1 CONTRACT DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Requirements of Division 1 Specification Sections, apply to this Contract.

1.2 SCOPE OF WORK

- A. The scope of this work includes, but is not limited to the following:
 - 1. NEMA 3R panel boards and supports for distribution at the new baseball field.
 - 2. Parking lot, walkway and field lighting.
 - 3. Wiring of scoreboard at baseball field and soccer field.
 - 4. Feeders to new baseball field panelboards.
 - 5. Wiring of pressbox.
 - 6. Lighting and receptacles at dugouts.
 - 7. Receptacles at bullpens.
 - 8. New underground pull boxes as indicated.

1.3 LICENSING

- A. Where required the contractor shall hold a license, issued or recognized by the authority having Jurisdiction, to perform electrical work.

1.4 INSPECTIONS

- A. Underwriters' Certificate: A New York Board of Fire Underwriters' inspection and Certificate is required. Contractor shall submit certificate prior to application for final payment.

1.5 CODES AND STANDARDS

- A. New York State Uniform Fire Prevention and Building Code: Provide all work in compliance with and meet the requirements of the latest issue.
- B. National Electrical Code: All work covered under these Contract Documents shall conform to the latest issue of the National Electrical Code.
- C. Standards: All equipment shall meet all the requirements of ANSI, NEMA, IES, and IEEE standards.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- D. Listing: All equipment and devices for which Underwriters' Laboratory has a listing service, shall be UL listed and bear the UL listing label.
- E. All materials and installation shall comply with:
 - 1. Building Code of New York State
 - 2. Energy Conservation Construction Code of New York State.
 - 3. Fire Code of New York State
 - 4. National Fire Protection Association (NFPA).
 - 5. New York State Department of Labor Rules and Regulations.
 - 6. New York Board of Fire Underwriters.
 - 7. The Americans with Disabilities Act.
 - 8. Local Utilities.
 - 9. New York State Department of Health
 - 10. Local Municipality/City Codes and Ordinances and the Authority Having Jurisdiction
 - 11. Local Fire Department.
 - 12. Insurance Carrier
 - 13. State University Construction Fund

1.6 INTENT OF DRAWINGS

- A. The drawings are diagrammatic, unless detailed dimensioned drawings are included. Drawings show approximate locations of equipment, fixtures, poles, panelboards, conduits, and wiring devices. Exact locations are subject to the approval of the Owner's Representative. The general run of electrical feeders, branch circuits, and conduits, indicated on the drawings, is not intended to be the exact routing. Circuit designations, in the form of "Home Runs" on branches, indicate the designation of the branch circuit, and the panelboard or interconnection box from which the branch circuit is served.
- B. Drawings show general design and arrangement. Verify exact location and elevations at the job location. Do not scale plans and diagrams.
- C. Drawings do not show all offsets, fittings, interferences, and elevation changes. Adjust installation of conduit, equipment location, etc. to accommodate work with the obstacles and interferences. Where a major and important rearrangement is necessary, report same to Architect for review. Obtain written approval for all major changes.
- D. Cooperate with all Contracts and Owners and determine the exact route of all raceway and location of all equipment.

1.7 BASIS OF DESIGN

- A. The contract documents are prepared on basis of one manufacturer as "design equipment," even though other manufacturers' names are listed as acceptable makes. If Contractor elects to use one of the listed makes other than "design equipment," submit detailed drawings, indicating proposed installation of equipment. Show maintenance clearances, service removal space required, and other pertinent revisions to the design arrangement. Make required changes in the work of other trades, at no increase in any contract. Provide larger electrical feeders, circuit breakers, equipment, additional control devices and other miscellaneous equipment required for proper operation, and assume responsibility for proper location of roughing and connections by other trades. Remove and replace door frames, access doors, walls ceilings or floors required to install other than design make equipment. If revised arrangement submittal is rejected, revise and resubmit specified "design equipment" item which conforms to contract documents.

1.8 QUALITY ASSURANCE

- A. Manufactures of equipment shall be firms regularly engaged in the production of factory fabricated systems and equipment whose products have been in satisfactory use in similar service for not less than three (3) years.
- B. Suppliers of equipment must have factory trained and authorized personnel for the service of all equipment provided

1.9 DEFINITIONS

As Called For	Materials, equipment including the execution specified/shown in the contract documents.
Code Requirements	Minimum requirements.
Concealed	Work installed in pipe and duct shafts, chases or recesses, inside walls, above ceilings, in slabs or below grade.
Design Equipment	Refer to the article, BASIS OF DESIGN.
Design Make	Refer to the article, BASIS OF DESIGN.
Exposed	Work not identified as concealed.
Acceptance	Owner acceptance of the project from Contractor upon certification by Owner's Representative.
Furnished by Others	Receive delivery at job site or where called for and install.
Inspection	Visual observations by Owner's site Representative.
Labeled	Refers to classification by a standards agency.
Provide	Furnish and install complete
Make	Refer to the article, BASIS OF DESIGN.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

Relocate	Disassemble, disconnect, and transport equipment to new locations, then clean, test, and install ready for use.
Replace	Remove and provide new item.
Review	A general contractual conformance check of specified products.
Roughing	Pipe, duct, conduit, equipment layout and installation.
Satisfactory	As specified in contract documents.
Site Representative	Construction Manager or Owner's Inspector at the work site.

Refer to General Conditions of the Contract for additional definitions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All materials, unless otherwise specified, shall be new and be the standard products of the manufacturer. Used equipment or damaged material will be rejected.
- B. The listing of a manufacturer as "acceptable" does not indicate acceptance of a standard or catalogued item of equipment. All equipment and systems conform to the Specifications.

2.2 SHOP DRAWINGS/PRODUCT DATA/SAMPLES

- A. Refer to Division 1 for general requirements. All products specified in a individual Division 26 section shall be submitted at the same time. Number each submittal. Indicate deviations from contract requirements on Letter of Transmittal. Corrections or comments made on the Shop Drawings during the review do not relieve Electrical Work Contractor from compliance with requirements of the drawings and specifications. The Electrical Work Contractor is responsible for confirming and correcting all quantities; checking electrical characteristics and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

2.3 U.L. LISTING

- A. Equipment shall bear the Underwriter's Laboratories (UL), or other approved agency listing label. This listing requirement applies to the entire assembly. Any modifications to equipment to suit the intent of the specifications shall be performed in accordance with the National Electric Code and listed by U.L.

2.4 FIRE STOPPING

- A. Fire-stopping for Openings Through Fire and Smoke Rated Walls and Floor Assemblies shall be listed or classified by an approved independent testing laboratory for "Through-Penetration Fire-Stop Systems." The system shall meet the requirements of "Fire Tests of Through-Penetration Fire-Stops" designated ASTM E814.

- B. Acceptable Manufacturers:
 - a. Dow Corning Fire-Stop System Foams and Sealants.
 - b. Nelson Electric Fire-Stop System Putty, CLK and WRP.
 - c. Thomas & Betts - S-100 FS500/600.
 - d. Carborundum Fyre Putty.
 - e. Hilti Firestop Systems

2.5 SUPPORTING DEVICES

- A. Supports, support hardware and fasteners shall be protected with zinc coating or treatment of equivalent corrosion resistance using approved alternative treatment, finish or inherent material characteristic. Products used for outdoor applications shall be hot dipped galvanized.
- B. Provide clevis hangers, riser clamps, conduit straps, threaded c clamps with retainers, ceiling trapeze hangers, wall brackets and spring steel clamps as applicable.
- C. 14 gauge U-Channel systems with 9/16 inch diameter holes at a minimum of 1 7/8 inches on center in the top surface. Provide fittings and accessories that match and mate channel.
- D. Provide carbon steel or wedge or sleeve type expansion anchors, steel spring head toggle bolts and heat treated steel power driven threaded stud fastening equipment as required by construction types.
- E. Provided field fabricated supporting devices such as angles, channels, pipe supports, etc. All fabricated supports shall be of metal construction as called for in 2.1.
- F. Acceptable Manufacturers:
 - 1. Allied Tube
 - 2. American Electric
 - 3. B-Line
 - 4. Unistrut Diversified Products
 - 5. Cooper Industries
 - 6. Killark Electric Mfg. Co.
 - 7. O/Z Gedney
 - 8. Spring City Electrical Mfg. Co.
 - 9. Thomas & Betts Corporation

PART 3 EXECUTION**3.1 ROUGHING**

- A. Obtain approved roughing diagrams and exact locations of equipment for items furnished under other Divisions of the specifications. Do not rough in without approved drawing.
- B. Due to small scale of Drawings, it is not possible to indicate all offsets, fittings, changes in elevation, etc. Verify final locations for rough-ins with field measurements and with the equipment being connected. Verify exact location and elevations at work site prior to any rough in work. **DO NOT SCALE PLANS.** If field conditions, details, changes in equipment or shop drawing information require a significant change to the original documents, contact the owners representative for approval before proceeding.
- C. All equipment locations shall be coordinated with other trades to eliminate interference with required clearances for equipment maintenance and inspections.
- D. Coordinate work with other trades and determine exact routing of all duct, pipe, conduit, etc., before fabrication and installation. Coordinate with Architectural Drawings.
- E. Before roughing for equipment furnished by Owner or in other contracts, obtain from Architect and other Contractors, approved roughing drawings giving exact location for each piece of equipment. Do not "rough in" services without final layout drawings approved for construction. Cooperate with other trades to insure proper location and size of connections to insure proper functioning of all systems and equipment. Obtain written authorization from the Owners representative or other contractor for any "rough ins" that, due to project schedule, are required before approved coordination drawings are available. Any work installed without written authorization or approved coordination drawings, causing a conflict will be relocated by the electrical contractor at no expense to the Owner.
- F. For equipment and connections provided in this contract, prepare roughing drawings as follows:
 - 1. Existing equipment being relocated: Measure the existing equipment and prepare drawings for installation in new location.
 - 2. New equipment: Obtain equipment roughing drawings and dimensions, then prepare rough-in drawings.
 - 3. Where more than one trade is involved in an area, space or chase, all shall cooperate and install their own work to utilize the space equally between them in proportion to their individual requirements. Any changes in the size or location of the material or equipment supplied, which may be necessary in order to meet field conditions or in order to avoid conflicts between trades, shall be brought to the immediate attention of the Owner's Representative and approval received before such alterations are made.

3.2 SEALING AND FIRESTOPPING

- A. Installation of Fire-stopping for Openings Through Fire and Smoke Rated Walls and Floor Assemblies shall be as follows:
 - 1. Provide fire-stop system seals at all locations where piping, tubing, conduit, electrical cables/wires and similar utilities pass through or penetrate fire rated wall or floor assembly. Provide fire-stop seal between sleeve and wall for dry wall construction.

2. The minimum required fire resistance ratings of the wall or floor assembly shall be maintained by the fire-stop system. The installation shall provide an air and watertight seal.
3. The methods used shall incorporate qualities that permit the easy removal or addition of electrical conduits or cables without drilling or use of special tools. The product shall adhere to itself to allow repairs to be made with the same material and permit the vibration, expansion and/or contraction of any items passing through the penetration without cracking, crumbling and resulting reduction in fire rating.
4. Provide rigid steel sleeves where non-armored cables pass through fire rated walls and barriers.

3.3 SUPPORTS

- A. Provide required supports for work of this Contract, including beams, angles, channel, hangers, rods, columns, plates, bases, braces, etc. to properly support all work.
- B. Provide steel angles, channels and other materials necessary for the proper support and erection of motor starters, distribution panelboards, disconnect switches, transformers, lighting controllers, etc.

3.4 EQUIPMENT INSTALLATION

- A. All installations shall comply with the following requirements:
 1. Coordinate electrical systems, equipment, and materials installation with other building components. Be responsible for any changes in openings and locations necessitated by the equipment installed.
 2. Verify all dimensions with field measurements.
 3. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
 4. Coordinate ordering and installation of all equipment with long lead times or having a major impact on work by other trades so as not to delay the job or impact the construction schedule. Pay close attention to equipment that must be installed prior to building enclosure.
 5. Where mounting heights are not detailed or dimensioned, install systems, materials and equipment to provide the maximum headroom possible.
 6. Install systems, materials and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer the conflict to the Architect.
 7. Store Materials on dry base, at least 6" above-ground or floor. Store so as not to interfere with other work or obstruct access to buildings or facilities. Provide waterproof/windproof covering. Remove and provide special storage for items subject to

moisture damage. Protect against theft or damage from any cause. Replace items stolen or damaged, at no cost to Owner.

8. Set all equipment to accurate line and grade, level all equipment and align all equipment components.
 9. All tolerances in alignment and leveling, and the quality of workmanship for each stage of work shall be as required by the manufacturer and subject to approval by the owners representative.
 10. All finished equipment surfaces damaged during construction shall be brought to "as new" condition by touch up or repainting. Any rust shall be removed and primed prior to repainting.
 11. Workmanship shall be as called for in the "Standard of Installation" published by the National Electrical Contractors Association (NECA).
 12. Provide all scaffolding, rigging, hoisting and services necessary for erection and delivery of equipment and apparatus furnished into the premises. These items shall be removed from premises when no longer required.
 13. No electrical equipment shall be hidden or covered up prior to inspection by the owners representative. All work that is determined to be unsatisfactory shall be corrected immediately.
 14. All electrical work shall be installed level and plumb, parallel and perpendicular to other building systems and components.
 15. Conceal all contract work above ceilings and in walls, below slabs, and elsewhere throughout building. If concealment is impossible or impractical, notify Owner's Representative before starting that part of the work and install only after his approval. In areas with no ceilings, install only after Owner's Representative reviews and comments on arrangement and appearance.
- B. Provide complete power connections to all electrical equipment. Provide control connections to equipment where indicated on the drawings. Provide disconnect ahead of each piece of equipment. Ground all equipment in accordance with the latest version of the National Electrical Code.
- C. Provide all power wiring, electric equipment, control wiring, switches, lights, receptacles, and connections as required for proper equipment operation of Owner-Furnished Equipment and Equipment furnished by other contracts,
- D. Refer to Manufacturer's drawings/specifications for requirements of special equipment. Verify connection requirements before bidding and confirm prior to roughing.

3.5 PAINTING

- A. This Contract Includes the following :
1. Painting required for touch-up of surfaces damaged due to the installation of electrical work.

2. Painting as required to repair finish of equipment furnished.

3.6 CLEANING

- A. After all tests are made and installations completed satisfactorily:
- B. Thoroughly clean entire installation, both exposed surfaces and interiors.
- C. Remove all debris caused by work.
- D. Remove tools, surplus, materials, when work is finally accepted.

3.7 CONTINUITY OF SERVICES

- A. Maintain existing site lighting throughout project. Provide temporary cables as required to accomplish this during the site entrance and parking work.

3.8 START UP AND OWNER INSTRUCTIONS

- A. Before acceptance of the work, furnish necessary skilled labor to operate all systems by seasons. Instruct the Owners designated personnel on the proper operation and maintenance of systems and equipment. Obtain written acknowledgment from person instructed prior to acceptance repeat the instructions if asked to do so. Contractor is fully responsible for systems until acceptance, even though operated by Owner's personnel, unless otherwise agreed in writing. Provide, operating, maintenance and starting precautions and procedures to be followed by the Owner for operating systems and equipment. Mount the instruction in clear plastic holder on or adjacent to the equipment.
- B. Where supervision by a manufacturer is called for, provide manufacturer's certified technician or engineer to supervise the startup, testing and adjustment of the equipment or system. Where two or more manufacturer's are involved both manufacturer's shall be present at start up. The manufacturer shall provide a written report detailing the testing and start-up including problems that occurred and their method of resolution.

3.9 OPERATION AND MAINTENANCE MANUALS

- A. Provide Operation and Maintenance Manuals. Include one copy each of approved Shop Drawings, wiring diagrams, piping diagrams, spare parts lists, as-built drawings and manufacturer's instructions. Include typewritten instructions, describing equipment, starting/operating procedures, emergency operating instructions, seasonal changeover, freeze protection, precautions and recommended maintenance procedures. Include name, address, and telephone number of supplier manufacturer Representative and service agency for all major equipment items. Bind above items in a three ring binder with name of project on the cover. Deliver to Owner's Representative before request for acceptance.

END OF SECTION 26 00 10

SECTION 26 01 11

CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal conduit.
- B. Non-metallic conduit.
- C. Fittings and conduit bodies.

1.2 REFERENCES

- A. ANSI-C80.2, 1983 Specification for Rigid Steel Conduit, Enameled
- B. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- C. NECA "Standard of Installation."
- D. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).
- E. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.
- F. NEMA, TC 8, 1983 Extra strength PVC Plastic Utilities Duct for Underground Installations
- G. NEMA, TC 9, 1983 Fittings for ABS and PVC Plastic Utilities Duct and Fittings for Underground Installation
- H. NEMA, TC 10, 1983 PVC and ABS Plastic Communications Duct and Fittings for Underground Installation.
- I. The following U.L. Standards:
 - 1. UL 1, 1985 Flexible Metal Electrical Conduit
 - 2. UL 3, 1984 Flexible Nonmetallic Tubing for Electric Wiring
 - 3. UL 6, 1981 Rigid Metal Electrical Conduit
 - 4. UL 360, 1986 Liquidtight Flexible Steel Conduit, Electrical
 - 5. UL 514B, 1982 Fittings for Conduit and Outlet Boxes.
 - 6. UL 651, 1981 Schedule 80 PVC Conduit
 - 7. UL 870, 1985 Electrical Wireways, Auxilliary Gutters and Associated Fittings

1.3 DESIGN REQUIREMENTS

- A. Conduit Size: ANSI/NFPA 70.

1.4 PROJECT RECORD DOCUMENTS

- A. Refer to Division 1.
- B. Accurately record actual routing of conduits larger than 1½”.

1.5 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Division 1.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- C. Protect PVC conduit from sunlight.

1.7 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

PART 2 PRODUCTS

2.1 CONDUIT REQUIREMENTS

- A. Minimum Size: ¾” unless otherwise specified.
- B. Underground Installations:
 - 1. Use extra-heavy wall non-metallic conduit (PVC-80).
 - 2. Minimum Size: 1”.
- C. Outdoor Locations, Above Grade: Use rigid steel conduit
- D. In Slabs Above Grade:
 - 1. Use rigid steel conduit

2.2 RIGID GALVANIZED STEEL CONDUIT

- A. Shall be hot-dipped galvanized steel, including threads.
- B. Acceptable manufacturers:
 - 1. LTV Steel
 - 2. Triangle
 - 3. Allied Tube
 - 4. Steel Duct
 - 5. Wheatland

2.3 RIGID NON-METALLIC PVC CONDUIT

- A. Extra-Heavy wall conduit: Schedule 80, constructed of polyvinyl chloride, rated for use with 90 degree C conductors, and UL listed for direct burial and normal above ground use.
- B. Acceptable manufacturers:
 - 1. Carlon
 - 2. Thomas & Betts
 - 3. Certainteed
 - 4. Condux

2.4 FITTINGS

- A. Rigid galvanized steel fittings shall be fully threaded and shall be of the same material as the respective raceway system.
- B. Fittings for rigid non-metallic conduit shall be solvent cemented in accordance with the manufacturer's instructions.
- C. Provide conduit bodies types, shapes and sizes as required to suit application and NEC requirements. Provide matching gasketed covers secured with corrosion-resistant screws.
- D. Acceptable manufacturers:
 - 1 O.Z. Gedney
 - 2. Steel City
 - 3. Thomas & Betts

4. Crouse-Hinds

5. Carlon

PART 3 EXECUTION

3.1 GENERAL

- A. Install conduit in accordance with NECA "Standard of Installation".
- B. All conduit penetrations through fire-rated construction must be sealed with UL listed fire stopping. Refer to architectural drawings for locations.
- C. Size raceways as indicated on the drawings. Where sizes are not indicated, raceways shall be sized as required by the National Electrical Code in accordance with the quantity, size, type and insulation of conductors to be installed.
- D. Minimum 1" trade size for v branch circuit "Home Runs" to panelboard.
- E. Support outlet, pull, and junction boxes independently. Do not support from raceways.
- F. Provide a code compliant ground path between all fixtures and the established electrical system ground.
- G. Cut raceways square, ream ends to remove burrs, and bush where necessary.
- H. Coordinate all raceway runs with other trades.
- I. In exterior or wet locations, provide minimum ¼" air space between raceway and wall. Secure raceway within 3 ft. of each outlet box, junction box, cabinet or fitting.
- J. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations.
- K. All exposed conduit mounted to a painted surface shall be painted to match that surface.
- L. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- M. Provide green ground wire in all non-metallic conduit.

3.2 INSTALLATION

- A. Install with a minimum of bends and offsets. Bends shall not kink or destroying the interior cross section of the raceway. Factory made bends shall be used for raceways 1" trade size and larger.
- B. Provide at least one junction or pull box for each 360 degrees of bends.
- C. Plug the ends of each roughed-in raceway with an approved cap or disc to prevent the entrance of foreign materials during construction.
- D. Provide U.L. approved rain-tight and concrete-tight couplings and connectors.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- E. Secure within three feet of each outlet box, junction box, cabinet or fitting.
- F. Provide a #14 AWG fish wire in all "Spare" or "Empty" conduit runs to facilitate future installation of conductors.
- G. Join non-metallic conduit using cement as recommended by manufacturer. Wipe non-metallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

END OF SECTION 26 01 11

SECTION 26 01 23

BUILDING WIRE AND CABLE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Building wire and cable.
- B. Wiring connectors and connections.

1.2 REFERENCES

- A. Refer to Division 1.
- B. NECA Standard of Installation (National Electrical Contractors Association).
- C. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association).
- D. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS FOR REVIEW

- A. Refer to Division 1.
- B. Product Data: Provide for each wire type.

1.4 SUBMITTALS AT PROJECT CLOSEOUT

- A. Refer to Division 1.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years experience.

1.6 REGULATORY REQUIREMENTS

- A. Conform to NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.7 PROJECT CONDITIONS

- A. Refer to Division 1.

1.8 COORDINATION

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- A. Refer to Division 1.
- B. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

PART 2 PRODUCTS

2.1 LOW VOLTAGE CONDUCTORS

- A. Feeder branch circuit and control wiring:
 - 1. Annealed Copper, 98% conductivity.
 - 2. Minimum wire size:
 - a) #12 AWG for branch circuits
 - b) #14 AWG for control and signal circuits
 - 3. Wire shall be stranded.
 - 4. 600 volt insulation for all wiring above 50 volts.
 - 5. 300 volt insulation permitted for all wiring below 50 volts.
 - 6. Thermal plastic with PVC insulation with nylon jacket, suitable for wet or dry locations, THHN/THWN 90 degree Celsius.
 - 7. 90 degree C maximum operating temperature rating.
 - 8. UL 83 Listed
- B. Lighting fixture wire
 - 1. FREP/CPE coated stranded copper,
 - 2. Flame retardant EPR Insulation and CPE jacket.
 - 3. UL 44 listed
- C. Flexible cords and cables shall be Type "SO" or "SJO".
- D. Color Coding
 - 1. All circuits shall be color coded according to the following schedule:

<u>Voltage</u>		<u>A PHASE</u>	<u>B PHASE</u>	<u>C PHASE</u>	<u>NEUTRAL</u>
208Y/120V, 3 Phase	Black	Red	Blue	White	
480Y/277V, 3 Phase	Brown	Orange	Yellow	Gray	
240/120V, 1 Phase	Black	Red		White	

*ALL GROUNDING CONDUCTORS SHALL BE GREEN

*ALL ISOLATED GROUNDING CONDUCTORS SHALL BE GREEN WITH
YELLOW STRIPE

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

2. #6 AWG and smaller shall have insulation continuously colored as called for above.
 3. #4 AWG and larger may be identified using a minimum 3" tape band.
 4. Color code all conductors at all pullboxes, enclosures, and terminations.
 5. Switched legs shall be identified with the same color insulation as the phase leg.
- E. Acceptable manufacturers:
1. Cablec
 2. Southwire
 3. Okonite
 4. Rome Cable
 5. Pirelli

2.2 LOW VOLTAGE CONNECTORS AND TERMINATIONS

- A. Straight Splices, #26 AWG To #10 AWG
1. Nylon Insulated compression butt-splices.
 2. 600 volt, 90 degree C rated.
 3. Make: Burndy "Insulink", T&B "Sta-Kon", or approved equal
- B. Straight Splices, #8 AWG and Larger
1. Two way, long barrel, compression type, copper
 2. Provide heat shrink tubing over splice.
 3. 600 volt rated.
 4. Make: Burndy "Hylink", T&N 54800 Series, or approved equal.
- C. Pigtail Splices, #26 AWG to #10 AWG
1. Twist type pressure connector.
 2. 600 volt rated, 105 degree C.
 3. Size as required for number and size of conductors used.
 4. Make: T&B Scotchlock, or approved equal
- D. Three Way Splices, #8 AWG and Larger
1. Three way, long barrel, compression type, copper.
 2. Provide tape or heat shrink tubing over splice.

3. 600 volt rated.
 4. Make: Burndy "Hylink", T&B 54700 Series, or approved equal.
- E. Lug Terminations for Control and Signal Wiring.
1. Nylon insulated fork with compression termination of #26 AWG to #10 AWG.
 2. Nylon insulated ring with compression termination for #8 AWG and larger.
 3. 300 volt rated.
 4. Make: Burndy "Insulug", T&B "Sta-Kon", or approved equal.
- F. Lug Terminations for Power Wiring
1. Long barrel, compression type, copper body, on hole for #8 AWG to #2/0 AWG.
 2. Long barrel, compression type, copper body, two hole, for #3/0 AWG and larger.
 3. 600 volt rated.
 4. Make:
 - a) One-hole lug: Burndy "Hylug", T&B 54900 Series, or approved equal.
 - b) Two-hole lug: Burndy "Hylug", T&B 54800 Series, or approved equal.

PART 3 EXECUTION

3.1 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.2 INSTALLATION

- A. Refer to Division 1.
- B. Route wire and cable as required to meet Project Conditions.
- C. Install cable in accordance with the NECA "Standard of Installation."
- D. Use stranded conductors for control circuits.
- E. Use conductor not smaller than 12 AWG for power and lighting circuits.
- F. Use conductor not smaller than 16 AWG for control circuits.
- G. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.
- H. Identify and color code wire and cable under provisions of Section 260195. Identify each conductor with its circuit number or other designation indicated.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- I. Install cables in raceway as called for after the entire raceway system has been completed.
- J. Install splices and connections in accessible outlet, pull, and junction boxes.
- K. Insulate all splices and connections with UL Labeled plastic tape, heat shrink tubing, or plastic molded caps.
- L. All wiring systems shall be properly grounded and continuously polarized throughout, following the color coding specified.
- M. Provide insulated green grounding conductor in each raceway, and white insulated neutral conductor for each multi-wire branch circuit.
- N. Install a maximum of three phase conductors, one neutral conductor, and one grounding conductor in each home run. (Obtain approval for additional conductor fill where field conditions require. Adhere to NEC de-rating requirements.).
- O. Provide stranded wire to motors, transformers, equipment, and vibrating machinery.
- P. Feeder conductors shall be continuous from point of origin to load termination without splice. If this is not practical, contact the Owner's Representative and receive written approval for splicing prior to installation of feeder(s). Where feeder conductors pass through junction and pull boxes, bind and lace conductors of each feeder together. For parallel sets of conductors, match lengths of conductors.
- Q. Use pulling means including fish tape, cable, rope and basket type grips which will not damage cables or raceways. Use approved mechanical pullers for feeders and branch circuits as required for #6 AWG cable and larger. Do not use mechanical means to pull conductors No. 8 or smaller.
- R. Branch circuit conductors installed in panelboards, and control conductors installed in control cabinets and panels shall be neatly bound together using "Ty-Raps" or equivalent.
- S. Reconnect branch circuit wiring at panelboards as required to obtain a balanced three phase load on the feeders.
- T. Where multiple conductors are installed in a common raceway they shall be pulled simultaneously. Use of pulling compound or lubricant shall be avoided unless absolutely necessary. Where pulling lubricant is required, use UL approved compounds approved for cable type. Lubricant shall meet all OSHA and Toxic Control Act standards.

APPLICATION CABLE TYPES DESIGN MAKE

General purpose Construction & Maintenance	Rubber, Neoprene, Nylon, Ideal - Yellow 77 PVC, High Density XLP, Hypalon
High Temperature Construction & Maintenance	Rubber, Neoprene, Nylon, Ideal - Yellow 190 PVC, High Density XLP, Hypalon, Low Density Polyethylene, Semiconducting Jacket

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Utility construction & Maintenance	Acquisition and Installation of a Synthetic Turf Field Facility
	Rubber, Neoprene, Nylon, Aqua-Gel II PVC, High Density XLP, Hypalon, Low Density Polyethylene, Semiconducting Jacket
Cold Weather Construction & Maintenance	Rubber, Neoprene, Nylon Aqua-Gel CW PVC, High Density XLP, Hypalon, Low Density Polyethylene, Semiconducting Jacket

3.3 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

3.4 CONNECTORS AND TERMINATIONS

- A. Cover un-insulated splices, joints, and free ends of conductor with rubber friction tape or PVC electrical tape. Plastic insulating caps may serve as insulation.

3.5 TESTS

- A. Low Voltage Feeders
 - 1. After low voltage feeders are pulled in, and before being connected, test feeders with a 1000 volt, 60 Hz insulation tester for one minute to determine that the conductor insulation to ground is greater than that recommended by the manufacturer.

END OF SECTION 26 01 23

SECTION 26 01 30**BOXES****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Pull and junction boxes.

1.2 REFERENCES

- A. NECA - Standard of Installation.
- B. NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.
- C. NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- D. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports.
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- F. NFPA 70 - National Electrical Code.

1.3 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Provide Products listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

1.4 SUBMITTALS FOR REVIEW

- A. Refer to Division 1.

PART 2 PRODUCTS**2.1 OUTLET BOXES**

- A. Outlet boxes exposed to moisture, exterior, wet or damp locations shall be cadmium cast alloy complete with threaded hubs and gasketed screw fastened covers. Minimum box size shall be as indicated in Article 314 of the National Electrical Code for the conductors and devices installed. Boxes shall be approved for the environmental condition of the location where they will be installed.
- B. Acceptable manufacturers:
 - 1. Steel City
 - 2. Raco

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

3. Appleton

4. Crouse Hinds

1.5 PULL AND JUNCTION BOXES

A. Boxes installed in damp or wet locations shall be of raintight construction with gasketed cover and threaded conduit hubs. In no case shall boxes be sized smaller than as indicated in Article 314 of the National Electrical Code for conduit and conductor sizes installed. Boxes shall be approved for the environmental condition of the location where they will be installed.

B. Acceptable manufacturers:

1. Hoffman

2. Keystone

3. Or equivalent

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify locations of boxes and outlets prior to rough-in.

3.2 INSTALLATION

A. Install boxes in accordance with NECA "Standard of Installation."

B. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements. Install junction and pull boxes in readily accessible locations. Access to boxes shall not be blocked by equipment, piping, ducts and the like. Provide all necessary junction or pull boxes required due to field conditions and size as required by the National Electrical Code.

C. Consider location of outlets shown on drawings as approximate only. Study architectural, process piping, mechanical, plumbing, structural, roughing-in, etc., drawings and note surrounding areas in which each outlet is to be located. Locate outlet so that when fixtures, motors, cabinets, equipment, etc., are placed in position, outlet will serve its desired purpose. Where conflicts are noted between drawings, contact Owner's Representative for decision prior to installation. Comply with Article 314 of National Electrical Code relative to position of outlet boxes in finished ceilings and walls. Adjust box location up to 10 feet if required to accommodate intended purpose.

D. Orient boxes to accommodate wiring devices oriented as specified in Section 260140.

E. Support boxes independently of conduit.

F. Outlet boxes shall be sized to accommodate the wiring device(s) to be installed.

G. Surface wall mounted outlet boxes shall be cast type boxes having threaded or compression type threadless hubs. Exterior boxes shall be cast type with threaded hubs and gasketed cover plates secured by non-ferrous screws.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

END OF SECTION 26 01 30

SECTION 26 01 70

GROUNDING AND BONDING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounding electrodes and conductors.
- B. Equipment grounding conductors.
- C. Bonding.

1.2 REFERENCES

- A. Refer to Division 1.
- B. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association).
- C. NFPA 70 - National Electrical Code.

1.3 GROUNDING SYSTEM DESCRIPTION

- A. Use the existing service entrance grounding system.

1.4 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: 5 ohms.
- B. All grounding systems shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Contract Documents shall be subject to the control and approval of the Owner's Representative. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based upon the acceptable manufacturers listed. Where "approved equal" is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval
- C. Materials specified herein shall comply with the applicable requirements of:
- D. The National Electrical Code, Article 250.

1.5 SUBMITTALS FOR REVIEW

- A. Refer to Division 1.
- B. Product Data: Provide for grounding electrodes and connections.

1.6 SUBMITTALS FOR INFORMATION

- A. Refer to Division 1.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York
Acquisition and Installation of a Synthetic Turf Field Facility

- B. Test Reports: Indicate overall resistance to ground.

1.7 SUBMITTALS FOR CLOSEOUT

- A. Refer to Division 1.
- B. Project Record Documents: Record actual locations of components and grounding electrodes.
- C. Certificate of Compliance: Indicate approval of installation by authority having jurisdiction.

1.8 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 ROD ELECTRODES

- A. Material: Copper.
- B. Diameter: 3/4 inch.
- C. Length: 10 feet.

2.2 MECHANICAL CONNECTORS

- A. Material: Bronze.

2.3 EXOTHERMIC CONNECTIONS

- A. Manufacturers:
 - 1. Cadweld.
 - 2. Erisco.
 - 3. Substitutions: Refer to Division 1.

2.4 WIRE

- A. Material: Stranded copper.
- B. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.

PART 3 EXECUTION**3.1 RACEWAY SYSTEMS:**

- A. All metal supports, cable trays, frames, sleeves, brackets, braces, etc. for the raceway system, panelboards, switchboards, switches, enclosures, transformers, controls, etc., which are not rigidly secured to and in contact with the raceway system, or which are subject to vibration and loosening, shall be bonded to the raceway system. Size the bonding conductor in accordance with NEC Article 250, Table 250-122.
- B. Terminate rigid conduit at all boxes, cabinets, and enclosures tightly with two locknuts and a bushing.
- C. Conduit which runs to or from all boxes, cabinets, or enclosures having concentric or eccentric knockouts which partially perforate the metal around the conduit and hence impair the continuity of system ground circuits shall be provided with bonding jumpers sized in accordance with NEC Article 250, Table 250-122. Connect the bonding jumper between a grounding type bushing on the conduit and a ground bus or stud inside the box, cabinet, or enclosure.
- D. Provide bonding jumpers sized in accordance with NEC Article 250, Table 250-122 for all conduit expansion joints.
- E. Provide a grounding conductor in all flexible metallic conduit and liquid-tight conduit, sized in accordance with NEC Article 250, Table 250-122.
- F. Provide a grounding conductor in all nonmetallic runs of conduit and raceway, sized in accordance with NEC Article 250, Table 250-122.

3.2 PRIMARY ELECTRICAL EQUIPMENT

- A. Transformers:
 - 1. Provide two bare #4/0 AWG conductors, one from each of two ground buses, to ground.
 - 2. Provide one size #4/0 AWG conductor from each air terminal chamber to ground bus.
 - 3. Provide a grounding conductor from the neutral bushing or bushings to system ground, sized as called for, or in accordance with NEC Table 250-122, whichever is of greater capacity.
 - 4. System ground conductors, usually run with phase conductors, shall be connected to the ground bus.

3.3 SECONDARY ELECTRICAL SYSTEMS

- A. Solidly ground all transformer neutral conductors and enclosures in accordance to the National Electrical Code.
- B. Provide an equipment grounding conductor from the point of termination back to the ground bus of the serving panelboard, switchboard, or transformer. Do not splice equipment grounding conductors.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York
Acquisition and Installation of a Synthetic Turf Field Facility

- C. Provide an equipment grounding conductors from the point of termination back to the ground bus of the serving panelboard, switchboard, transformer, or switchgear.
- D. The grounding conductors contained in the interstices of interlocked armor cable shall be connected to the ground bus at every equipment termination point and to each other and to system ground; ground at every splice location.

3.4 TESTS

- A. Grounds and grounding systems shall have a resistance to solid earth ground not exceeding following values:
 - 1. For grounding secondary service neutral: 25 Ohms
 - 2. For grounding non-current carrying metal parts associated with secondary distribution system: 25 Ohms
- B. Providing grounding tests to verify the above values. Where these values are not met, add additional ground rods or connections in order to meet these values.

END OF SECTION 26 01 70

SECTION 26 01 95

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Nameplates and labels.
- B. Wire and cable markers.
- C. Conduit markers.
- D. Emergency fixture markers.

1.2 REFERENCES

- A. Refer to Division 1.
- B. NFPA 70 - National Electrical Code.

1.3 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 NAMEPLATES AND LABELS

- A. Nameplates: Engraved three-layer laminated plastic, black letters on white background.
- B. Locations:
 - 1. Each electrical distribution and control equipment enclosure.
- C. Letter Size:
 - 1. 1/8 inch letters.
- D. Labels: Circuit designation shall be indicated with clear adhesive tape, 3/16 inch black letters on clear background. Use only for identification of individual wall switches and receptacles and control device stations. Tape label shall be adhered to the faceplate of each device.

2.2 WIRE MARKERS

- A. Description: Cloth tape type wire markers.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

B. Locations: Each conductor at panelboard gutters and each load connection.

C. Legend:

1. Power and Lighting Circuits: Branch circuit or feeder number indicated.

2.3 UNDERGROUND WARNING TAPE

A. Location:

1. Along length of each underground conduit buried 12" below finished grade.

2. Yellow with black lettering, 6" wide tape, "CAUTION – Underground Electric".

3. Orange with black lettering, 6" wide detectable tape made of durable plastic encased aluminum, "CAUTION – Fiber Optic Cable".

2.4 PANEL SCHEDULES

A. Provide complete type written directory for each panelboard listing room number, function, etc, for each circuit breaker. Provide type written updated panelboard directories for existing panelboards affected by this work.

2.5 DEVICES

A. Provide a tape label on all receptacle and switch coverplates, power poles, etc. listing panel designation and circuit number. Tape shall be attached to inside of receptacle or switch coverplates.

2.6 JUNCTION AND PULL BOXES

A. Identify junction and pullboxes for particular service such as power, lighting, etc. using stencil lettering on cover.

PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive nameplates and labels.

3.2 INSTALLATION

A. Refer to Division 1.

B. Install nameplate and label parallel to equipment lines.

C. Secure nameplate to equipment front using adhesive.

D. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.

END OF SECTION 26 01 95

SECTION 26 03 75

UNDER GROUND PULL BOXES (HANDHOLES)

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Provide labor, materials, equipment and services to perform operations required for the complete installation and related Work as required in Contract Documents.

1.2 SUBMITTALS

- A. Submit shop drawings on all items of equipment and accessories provided under this Section, including the following:
 - 1. Pullboxes, including drawings showing location if different from Contract Documents.

PART 2 PRODUCTS

2.1 PULLBOX FRAME AND COVER

- A. Frame And Cover:
 - 1. Refer to detail 3/E02
- B. Cover Designation: "Electric"
- C. Make: Quazite, or approved equal.

2.2 WATERPROOFING SEALS

- A. Provide expanding link type seal, for installation between conduit, and sleeve or core-drilled hole in concrete.
- B. Design Equipment/Make: Link Seal, manufactured by Thunderline Corp., or approved equal

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Coordinate installation of other equipment associated with the service and distribution system.
- B. Provide installation for equipment, in accordance with the equipment manufacturer's instructions, drawings, and recommendations, and as called for.

- C. In the event of conflict, discrepancy or difference between manufacturer's instructions and Contract Documents, the more stringent requirements shall apply.
- D. Repair or replace all existing utilities and facilities damaged due to installation, as part of contract.

3.2 PULLBOX (HANDHOLE) INSTALLATION

- A. Excavation and size as recommended by manufacturer.
- B. Install concrete bottom pullboxes on minimum of 6 in. of "pea gravel" placed on undisturbed earth in accordance with manufacturer's recommendations. Coat exterior with bitumastic.
- C. Set true and level
- D. Provide two courses of brick on top of pullboxes, to allow variation of final grade. Coordinate depth with Site Work. Parge 1/4 in. thick inside and out.
- E. It is intended that pullboxes will not be installed in vehicular traffic areas. Where pullboxes are required in drives or parking areas, locate at adjacent walk or lawn areas.
- F. Make grounding connections at pullboxes

END OF SECTION 26 03 75

SECTION 26 04 27

POWER DISTRIBUTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Distribution panelboards.
- B. Branch circuit panelboards.

1.2 REFERENCES

- A. NECA Standard of Installation (published by the National Electrical Contractors Association).
- B. NEMA AB1 - Molded Case Circuit Breakers.
- C. NEMA PB 1 - Panelboards.
- D. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
- E. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment (published by the International Electrical Testing Association).
- F. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS FOR REVIEW

- A. Submit under provisions of Division 1.
- B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker arrangement and sizes.

PART 2 PRODUCTS

2.1 480 VOLT BRANCH CIRCUIT PANELBOARDS

- A. 480 Volt rated, maximum 400 ampere main circuit breaker or 600 ampere main lugs.
- B. Copper bus bars with high dielectric thermoplastic insulators.
- C. Provide continuous current ratings, short circuit current ratings, branch circuit breakers, main circuit breaker or main lugs, and flush or surface trims as called for on the Panelboard schedule.
- D. Provide nameplate on each panelboard indicating voltage, current, phase, wire, and short circuit rating.
- E. Provide ground bus of the same material as the main bus.

- F. Interior trim shall be dead front construction, with pre-formed metal twist-outs covering unused mounting space.
- G. Enclosures shall be nominal 20" wide by 6" deep, NEMA 3R construction
- H. Provide gasketed door and lockable vault style handle
- I. Design Make: Square D "I-Line"
- J. Acceptable Manufacturers
 - 1. Square D
 - 2. General Electric
 - 3. Cutler Hammer
 - 4. Siemens ITE

2.2 208 VOLT BRANCH CIRCUIT PANELBOARDS

- A. 208 Volt rated maximum 225 ampere.
- B. Copper bus bars with high dielectric thermoplastic insulators.
- C. Provide continuous current ratings, short circuit current ratings, branch circuit breakers, main circuit breaker or main lugs, and flush or surface trims as called for on the Panelboard schedule.
- D. Provide nameplate on each panelboard indicating voltage, current, phase, wire, and short circuit rating.
- E. Provide ground bus of the same material as the main bus.
- F. Interior trim shall be dead front construction, with pre-formed metal twist-outs covering unused mounting space.
- G. Enclosures shall be nominal 20" wide by 6" deep, NEMA 3R construction
- H. Provide gasketed door and lockable vault style handle
- I. Design Make: Square D "NQOD"
- J. Acceptable Manufacturers
 - 1. Square D
 - 2. General Electric
 - 3. Cutler Hammer
 - 4. Siemens ITE

PART 3 EXECUTION**3.1 INSTALLATION**

- A. Install equipment to coordinate with installation details of other equipment associated with the power distribution system.
- B. Provide miscellaneous bolts, washers, nuts, clips, lockwashers, small hardware, etc., of durium or equal rust resistant material, to make a complete installation.
- C. Provide complete installation in strict accordance with the equipment manufacturer's instructions, drawings and recommendations and as called for.
- D. In the event of conflict, discrepancy or difference between manufacturer's instructions and Contract Documents, the more stringent requirements shall apply.
- E. Unload, move, handle, set in place, install, erect, assemble, connect, test, operate, etc. all items of electrical equipment as required.
- F. Provide rigging to unload, move, transport, set in place, erect, etc. the switchboards.
- G. Provide grounding as called for.
- H. Provide minimum working clearance as described in NEC Article 110-26 and 110-34 for all electric equipment.
- I. Provide additional working or aisle clearance as called for.
- J. Verify cable/lug sizes for terminations. Where a feeder is sized larger than the lug, provide in-line splice to reduce conductor size to match equipment or breaker terminations.

3.2 INSTALLATION OF PANELBOARDS

- A. Install panelboards in accordance with NEMA PB 1.1 and the NECA "Standard of Installation."
- B. Install panelboards plumb. Install recessed panelboards flush with wall finishes.
- C. Height: 6 feet to top of panelboard; install panelboards taller than 6 feet with bottom no more than 4" above floor.
- D. Provide filler plates for unused spaces in panelboards.
- E. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.
- F. Provide engraved plastic nameplates under the provisions of Section 260195.
- G. Ground and bond panelboard enclosure according to Section 260170.
- H. Securely support all panelboard enclosures to support racking. Install true and level.
- I. Provide channel support between the wall and backbox for panelboards installed on outside walls.

Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

- J. Tighten all bolt and lug connections using a torque wrench or screwdriver per the manufacturer's recommendations.
- K. Measure steady state load currents on each panelboard feeder. Rearrange branch circuits in the panelboard to balance the load within 20% of each other. Maintain proper phasing.

END OF SECTION 26 04 27

SECTION 26 05 03

POLES AND STANDARDS

PART I GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Requirements of the following Division 26 sections apply to this section:

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's data on electrical poles, standards and hardware; include certified dimension drawings for fabricated poles, standards and mast arms, N any.

1.3 QUALITY ASSURANCE

- A. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical pole and standard work similar to that required for this project.
- B. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 220 and 250, as applicable to installation, and construction of electrical poles and standards.
- C. UL Compliance: Comply with UL standards, including UL 486A, pertaining to electrical poles and standards. Provide lighting components and fittings which are UL-listed and labeled.
- D. ANSVASTM Compliance: Comply with applicable requirements of ANSI C 2, National Electrical Safety Code, pertaining to construction and installation of lighting poles and standards.
- E. AASHTO Compliance: Comply with applicable requirements of American Association of State Highway and Transportation Officials Standard LTS-1; Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- F. NEMA Compliance: Comply with NEMA Stds Publ. No's. LE 2 and TT I pertaining to electrical pole and standard units, materials, and installation.
- G. IES Compliance: Comply with applicable requirements of ES RP-8, "Roadway Lighting," and RP-20, "Parking Facilities Lighting.*"

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Deliver *electrical* pole and standard products, and fittings in factory-fabricated containers or wrappings, which property protect products from damage.
- B. Store electrical pole and standard products, and fittings in original cartons in well-ventilated space protected from moisture, construction traffic and debris.

- C. Handle pole and standard products carefully to prevent breakage, denting and scoring finish. Wrap finished laminated wood standards and nialt arms Individually, In heavy-duty moisture-resistant paper for protection in transit. Do not Install damaged units or components; replace with new.

1.5 SEQUENCING AND SCHEDULING:

- A. Coordinate with other electrical work including wires/cables, electrical boxes and fittings, and raceways, to properly interface installation of electrical pole and standard work with other work.
- B. Sequence electrical pole and standard installation work with other work to minimize possibility of damage and soiling during remainder of construction period.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

- A. Acceptable Manufacturers: Shall be as scheduled on Drawings, for each respective exterior fixture type.

2.2 ELECTRICAL POLES AND STANDARDS:

- A. Metal Lighting Standards: Provide metal, raceway-type, lighting poles and standards, of sizes and types indicated, comprised of shafts and tenon joints. Equip with grounding connections readily accessible from handhole base access doors; and construct of the following materials and additional construction features:
- B. Material: Galvanized steel.
 - 1. Configuration: Anchor bass type with hand hole and cover where indicated, as detailed on Drawings.
 - 2. Metal Lighting Standard Accessories: Provide accessories for metal lighting standards, including anchor bolts, as recommended by lighting standard manufacturer, of sizes and materials needed to meet erection and loading application requirements.
- C. Provide pole with adequately sized reinforced handhole complete with matching cover 18" above grade level. Weld 1/2" grounding nut on shaft with accessibility from handhole. Design poles to withstand loads developed by 100 MPH wind pressure, as adjusted for height above ground level, structural shapes and cable wire loading.

PART 3 EXECUTION

3.1 EXAMINATION:

- A. Examine areas and conditions under which pole and standard equipment and components are to be installed, and substrate which will support equipment. Notify Site Work Contractor in writing of conditions detrimental to proper completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF ROADWAY AND PARKING AREA LIGHTING:

- A. Install pole and standard units and products as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC, NESC and NEMA standards, and with recognized industry practices to ensure that roadway and parking area lighting equipment fulfill requirements.
- B. Utilize belt slings or rope (not chain or cable) to protect finishes when raising and setting finished poles and standards.
- C. Where poles and standards are indicated to be embedded in soil, set to depth required for adequate structural support, but not less than minimum 5'-6" below finish grade.
- D. Set poles and standards plumb. Support adequately during backfilling, or when -anchoring them to the foundations.
- E. Provide sufficient space encompassing hand access and cable entrance holes for Installation of underground cabling where indicated.
- F. Fasten electrical lighting fixtures and brackets securely to structural supports, including poles/standards; and ensure that installed fixtures are plum and level.
- G. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturers torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and the National Electrical Code.

3.3 GROUNDING:

- A. Provide equipment grounding connections for poles and standards. Tighten connections to comply with tightening torques specified in UL 486A to assure permanent and effective grounding.

END OF SECTION 26 05 03

SECTION 26 05 10

EXTERIOR LIGHTING

PART 1 GENERAL

1.1 SCOPE

- A. Extent of exterior lighting fixture work is indicated on Drawings and schedules.
- B. Types of exterior lighting fixtures in this section include the following:
 - 1. High-Intensity-discharge (HID).
 - a) Metal-halide.
 - b) High Pressure Sodium
- C. Applications of exterior lighting fixtures required for this project include the following:
 - 1. Outdoor area lighting.
- D. Poles and standards required for use in conjunction with exterior lighting fixtures are specified in Section 260503 - Poles and Standards.

1.2 SUBMITTALS

- A. Submit shop drawings as described in Section 260010. Lighting fixture shop drawings shall include:
 - 1. Manufacturer and Catalog Number.
 - 2. Dimensioned Construction Drawing(s).
 - 3. Standard Catalog "Cut" Sheet.
 - 4. Photometrics.
 - 5. Lens/Louver Type.
 - 6. Ballast Type and Rating.
 - 7. Socket Type.
 - 8. Lamp Type.
 - 9. Maintenance Data
- B. Wiring Diagrams - Submit wiring diagrams for exterior lighting fixtures showing connections to electrical power panels, switches, controllers, and feeders. Differentiate between portions of wiring which are manufacturer-installed and portions which are field-installed.

- C. Illumination Data: Provide isofootcandle (isolux) plot diagram of footcandles on horizontal pavement surface which shows composite values of illuminance projected from the arrangement of light sources from indicated fixture locations and heights. Show on the graphic plots the locations, spacings and heights of luminaires.

1.3 QUALITY ASSURANCE:

- A. The installer shall have at least 5 years of successful installation experience on projects with exterior lighting fixture work similar to that required for project.
- B. Codes and Standards:
 - 1. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 225, 250, 410, and 501 as applicable to installation, and construction of exterior building lighting fixtures.
 - 2. NEMA Compliance: Comply with applicable requirements of NEMA Std Publication No. LE 2 pertaining to lighting equipment.
 - 3. IES Compliance: Comply with IES RP-8,19, 20 and PB-15 pertaining to exterior, parking, and roadway lighting practices and fixtures.
 - 4. UL Compliance: Comply with requirements of UL standards, including Std 486, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures and components which are UL-listed and labeled.
 - 5. NFPA Compliance: Comply with applicable requirements of NFPA 78, "Lightning Protection Code," pertaining to installation of exterior lighting fixtures.
 - 6. CBM Labels: Provide fluorescent lamp ballasts which comply with Certified Ballast Manufacturers Association and carry the CBM label.

PART 2 PRODUCTS

2.1 FIXTURES:

- A. General:
 - 1. Provide lighting fixtures, of sizes, types and ratings indicated on Drawings; complete with, but not limited to, housings, lamps, lamp holders, reflectors, ballasts, starters and wiring. Ship fixtures factory-assembled, with those components required for a complete installation. Design fixtures with concealed hinges and catches, with metal parts grounded as common unit, and so constructed as to dampen ballast generated noise.
 - 2. Provide required dimensional thickness of metal so that all fixtures are rigid, stable and will resist deflection, twisting, warping under normal installation procedures, loading, relamping, etc.
 - 3. All cast parts, including die-cast members, shall be of uniform quality, free from blow holes, pores, hard spots, shrinkage defects, cracks or other imperfections that affect strength and appearance, or are indicative of inferior metals or alloys.

4. Reflectors, cones or baffles shall be absolutely free of spinning lines, ripples or any marks or indentations caused by riveting or other assembly techniques. No rivets or hardware shall be visible after installation.
 5. Prior to finishing, all metal surfaces shall be hot cleaned by chemical means and shall receive corrosion inhibiting (phosphating) treatment assuring positive paint adhesion.
 6. Where custom color is indicated on the schedule, a color other than the manufacturers standard will be required for all parts and components visible after installation. The finish material will be of the same type and process as applied to the standard catalogued item.
 7. All castings and extrusions shall be machined, sanded or similarly treated, and given minimum one coat of baked-on clear methacrylate lacquer, unless a painted finish is specified.
 8. Aluminum surfaces exposed to corrosive atmospheres shall receive a durariodic or polyester powder paint finish for corrosion resistance.
- B. Wiring: Provide electrical wiring within fixture suitable for connecting to branch circuit wiring as follows:
1. NEC Type SF-2 for 480 volt, minimum No. 18 AWG.
- C. Point Source Fares
1. All sockets shall be heavy duty heat-resistant porcelain.
 2. All recessed luminaires shall have housing that is removable from below to provide access to junction box and ballasts.
- D. Acceptable Manufacturers: Shall be as scheduled on Drawings, for each respective fixture type.

2.2 BALLASTS:

- A. All ballasts shall be:
1. Rated for voltage required by application.
 2. Rated for actual number of lamps served.
 3. High power factor type (90 percent or higher).
 4. CBM certified and ETL tested.
- B. High-intensity-Discharge Lamp Ballasts:
1. Capable of operation with an open or short circuit condition without single card loss of ballast. At any lamp voltage, lamp wattage regulation spread at that lamp voltage shall not exceed 5 percent for +/- 10 percent line voltage variation.

2. Entirely insulated including capacitor with noise rating equal or less than a Class A fluorescent ballast sound rating.
3. Cast aluminum finned housing, with integral over voltage protection.
4. Individually fused to isolate any single ballast failure and permit contrived operation of the circuit.
5. Operate associated lamp continuously during a voltage dip of 40 percent lasting up to four seconds.
6. Current input to the ballast during starting period shall be less than the operating current.
7. For interior and exterior use for all ambient temperatures above or below 60 degrees F.

C. Acceptable Manufacturers:

1. Advance
2. Valmont
3. Jefferson
4. Universal

2.3 LAMPS:

A. Metal Halide (MH)

1. As indicated on lighting fixture schedule.
2. Screw shell type.
 - a) Base, bulb and beam position as required by light fixture. 100 watt lamps shall be designed for use in open-bottom fixtures.
 - b) Wattage - as scheduled.
 - c) Phosphor coated.
 - d) Color temperature -
 - (1) 70 watt - 3200 K
 - (2) 175 watt - 3200 K
 - (3) 400 watt - 3200 K
 - (4) Minimum CRI
 - (a) 70 watt - 75
 - (b) 175 watt - 70

- (c) 400 watt - 70
 - e) Average rated life
 - (1) 70 watt - 10,000 hrs.
 - (2) 175 - 10,000 hrs. (7500 - horizontal burning position)
 - (3) 400 watt - 20,000 hrs.
 - f) minimum initial lumens
 - (1) 70 watt - 4800
 - (2) 175 watt - 13000
 - (3) 400 watt - 35000
 - g) Minimum lumens at 40 percent rated life
 - (1) 70 watt - 3400
 - (2) 175 watt - 9500
 - (3) 400 watt - 27700
- B. Acceptable Manufacturers:
 - 1. General Electric
 - 2. Osram
 - 3. Philips
 - 4. Sylvania
 - 5. Verdure

PART 3 EXECUTION

3.1 DELIVERY, STORAGE AND HANDLING:

- A. Deliver exterior lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from construction debris and physical damage.
- B. Store exterior lighting fixtures in original wrappings in a clean dry space. Protect from weather, dirt, fumes, water, construction debris, and damage.
- C. Handle exterior lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged fixtures or components; remove units from site and replace with new. detrimental to

proper completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 SEQUENCING AND SCHEDULING:

- A. Coordinate with other electrical work including wires/cables, electrical boxes and fittings, and raceways, to properly interface installation of exterior lighting fixtures with other work.
- B. Sequence exterior lighting installation with other work to reduce possibility of damage and soiling of fixtures during remainder of construction period.

3.3 INSTALLATION OF EXTERIOR LIGHTING FIXTURES:

- A. Install exterior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.
- B. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A and the National Electrical Code.
- C. Fasten electrical lighting fixtures and brackets securely to indicated structural supports, including poles standards; and ensure that installed fixtures are plum and level.
- D. Make installation such that the fixture is free of finger marks, flaws, scratches, dents or other imperfections.

3.4 GROUNDING:

- A. Provide equipment grounding connections for exterior lighting fixtures as indicated. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

3.5 FIELD QUALITY CONTROL:

- A. Ballasts
 - 1. Furnish and install ballasts for all light fixtures requiring ballasts.
 - 2. Identical fixtures shall be furnished with identical ballasts.
- B. Lamps
 - 1. Install lamps in all light fixtures.
 - 2. Replace any lamp whose color is determined to be unsatisfactory. Replace all HID lamps which are found to have failed during the 12 month warranty period.
 - 3. All lamps shall be new and unused. If permanent lighting system is used for temporary construction lighting, lamps shall be replaced upon turn over to Owner.

4. Furnish stock or replacement lamps amounting to 15%, but not less than 4 lamps in each case, of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owners storage space.

3.6 ADJUSTING AND CLEANING:

- A. Aim adjustable lighting fixtures and lamps in night test of system. Verify that measured illuminance values comply with isolux plot diagram values.
- B. Clean lighting fixtures of dirt and debris upon completion of installation.
- C. Protect installed fixtures from damage during construction period.

3.7 DEMONSTRATION

- A. Upon completion of installation of exterior lighting fixtures, and associated electrical supply circuitry, apply electrical energy to circuitry to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

END OF SECTION 26 05 10

SECTION 26 56 68

SPORTS FIELD LIGHTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Steel poles as shown on the Contract Documents including underground services and concrete pole base foundations.
- B. Electrical components enclosure.
- C. Pole mounted lighting fixtures including panels on poles and light fixtures, LED safety light fixtures, cages and distribution equipment.

1.02 DESCRIPTION

- A. Work covered by this section of the specifications shall conform to the Contract Documents, engineering plans and all state and local codes.
- B. This specification defines the performance and design standards for the project. The Prime Contractor shall provide lighting equipment that meets or exceeds the standards set forth by the criteria set forth in these specifications.
- C. The system provided shall meet the maintenance, operation and energy efficiency requirements called for.

1.03 LIGHTING PERFORMANCE

- A. Performance Requirements: All playing surfaces shall be lit to an average constant light level of 70 footcandles for the baseball infield, and 50 footcandles on all other portions of the athletic field, with the ability to switch the 70 footcandle area to 50 footcandles for consistent light levels when used for sports other than baseball. Lighting levels will be required to hold constant for a minimum for 5,000 hours. Lighting calculations shall be developed and field measurements taken on minimum grid spacing specified. Measured average illumination level shall be the predicted mean in accordance with IESNA RP-6-01, measured during the first 100 hours of operation.
 - 1. No manufacturer shall use constant, continuous or continual light levels without first providing independent testing and results of the technology being used stamped by a registered engineer. If that is not provided at least 10 days prior to bid opening, the manufacturer shall provide the initial & maintained solutions called for in spec. Any power adjustments shall be done automatically.
- B. Light Loss Factor: The light loss factor used to determine the constant light levels shall have a maintenance factor of 0.7 multiplied by the lamp tilt factor. Light loss must be calculated in accordance with I.E.S. standards. Lamp lumen output of 134,000 lumens shall be used for the constant light value scan.
- C. Uniformity Ratio: The footcandle level shall have a uniformity ratio or maximum to minimum ratio of not greater than 2.0:1 for the playing field specified.

1.04 ENVIRONMENTAL LIGHT CONTROL

- A. Spill Light Values: Maximum vertical and horizontal footcandles shall be measured at a distance of 250 feet from the field perimeter and shall not exceed 0.00 footcandles.
 - 1. Maximum vertical footcandles shall be taken with a meter pointed at the brightest light bank.
 - 2. Maximum horizontal footcandles shall be taken with a meter 36" above finished grade.
 - 3. Grid points to assess spill light values shall be taken at 30 foot intervals.
- B. Arc Tube Brightness (Luminance): No portion of the arc tube shall be visible at any horizontal angle greater than 35 degrees, measured from the geometric center of the lamp's arc tube, as viewed from any vertical angle above the photometric center. No portion of the arc tube shall be visible at any vertical angle greater than 12 degrees, measured from the geometric center of the lamp's arc tube, as viewed from any horizontal angle.

1.05 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Quality Control Submittals
 - 1. Experience Listing: Submit a list of completed projects using the products proposed for this project completed within the last three years, including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified in this specification.
- D. Closeout Procedures: Comply with the requirements of Division 1 of the Project Manual.
- E. Lighting Design Drawings: Provide drawings that include the following:
 - 1. Field name.
 - 2. Date.
 - 3. File number.
 - 4. Prepared by.
 - 5. Outline of field or fields being lighted with poles referenced to the center of the field.
 - 6. Illuminance levels at grid spacing specified.
 - 7. Pole height, number of fixtures per pole and luminaire information including wattage, lumens and optics.
 - 8. Height of meter above field surface.
 - 9. Summary table showing the number and spacing of grid points.
 - 10. Average, minimum and maximum illuminance levels in footcandles.
 - 11. Uniformity including maximum to minimum ratio.
 - 12. Coefficient of variance and uniformity gradient.
 - 13. Number of luminaires, total kilowatts and average tilt factor.
 - 14. Light loss factor: Manufacturers shall provide both initial and maintained light scans using a maximum 0.70 light loss factor to calculate maintained values.
- F. Photometric Report: Provide photometric report for a typical luminaire used showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by

laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over five years experience.

- G. Life Cycle Cost Calculations: Document life cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaries, maintenance cost for the system including spot lamp replacement and group relamping costs. All costs should be based on 5,000 hours of operation.
- H. Luminaire Aiming Angle: Document showing each luminaire aiming angle and the poles on which the luminaries are mounted. Each aiming point shall identify the type of luminaire.
- I. Structural Design: Pole structural calculations and foundation design showing foundation shape, depth, backfill requirements, rebar and anchor bolts. Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. The foundation design must be stamped and signed by a structural engineer in the State where the lighting system is to be installed.
- J. Automated Control System: The Manufacturer shall provide written definition and schematics for an automated control system including monitoring and including examples of system reporting and access for numbers for personal contact to operate the system.
- K. Additional Fixtures: If bidding a system that requires additional fixtures to those shown on the plans, the Manufacturer must include a revised electrical distribution plan including changes to service entrance, panels and wiring sizing, signed and sealed by a licensed electrical engineer in the State where the lighting system is to be installed.
- L. Footcandle Drawing: Provide point by point footcandle drawing showing the field and the bleacher systems and the surrounding up to 250 feet beyond the limits of the athletic field.

1.06 WARRANTIES

- A. The Manufacturer shall provide services including all materials and labor to maintain the operation of the playfield lighting equipment for 5,000 hours of operation according to the original design criteria, including alignment of luminaries on the pole top luminaire assembly.
- B. Lamps: Lamps shall be group replaced at such time that the lamps exceed their useful life. If the lamp is rated at 3000 hours, an additional group relamping shall be performed at 5000 hours.
- C. Individual Lamp Outages: Individual lamp outages shall be repaired when more than 10% of the lamps are out on any one field or when lamp outages materially affect the usage of the field.
- D. Regular Monitoring: The Manufacturer shall provide regular monitoring of the lighting equipment.
- E. Preventative and Spot Maintenance: The Manufacturer shall provide preventative and spot maintenance as needed to maintain operation of the playfield lighting equipment.
- F. Warranty Exclusions: The warranty shall exclude maintenance, repair or replacement necessitated by loss or damage resulting from any external causes such as vandalism, major storms or lightning, unauthorized repairs and failure of the Owner's electrical service.
- G. Service Contract: The Manufacturer shall provide a toll-free number to a full time service department which shall be staffed by qualified repair personnel.

- H. Assurance Guarantee: The Manufacturer shall be responsible for and provide a warranty for services in consideration of the contract sum of the work installed. To assure full compliance of the warranty, the Manufacturer shall provide the Owner with a letter of credit, a signed performance bond or a certificate of insurance that guarantees the provision for routine maintenance, and group replacements for the entire 5,000 hours of operation as described in this Project Manual section.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.09 SEQUENCING AND SCHEDULING

- A. Proceed with and complete sports field lighting installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. For convenience, specifications are based on "Light Structure Green" as manufactured by Musco Lighting, Oskaloosa, Iowa (Telephone #1-800-825-6030).
 - 1. Products by other manufacturers must meet or exceed all specified requirements; refer to the Instructions to Bidders, General Conditions, Supplementary Conditions and Division 1 for additional provisions regarding proposed equivalents and substitutions.
- B. Due to constraints at the project site, and limited area for pole locations and conduit and pull box installations, all athletic field lighting manufacturers shall provide a 6 pole lighting system with the poles located in the exact positions specifically indicated on the "L" Drawings. Athletic field lighting packages with pole locations that differ from those shown on the Drawings will not be accepted.
- C. Due to existing power supply constraints at the project site, the total demand for Panel FHVP-3, indicated on Drawing E03, shall not exceed 198kVA. The Contractor shall submit for review Panel FHVP-3 indicating the kVA loads for each item to be connected within the panel.
 - 1. An athletic field lighting package, in conjunction with the other required electrical equipment within Panel FHVP-3, that exceeds the maximum available 198kVA, will not be accepted.

2.02 LIGHTING SYSTEM CONSTRUCTION

- A. System Description: The lighting system must comply with the Sate Building Code. Luminaire, visor, and crossarm shall withstand 150 MPH winds and maintain luminaire aiming alignment. The foundation design shall be based on the information report provided in the Project Manual.
- B. Galvanized steel poles and crossarm assembly. Pole Heights of 80 and 100 feet.

- C. Pre-cast, pre-stressed concrete pier foundations with concrete backfill.
- D. All luminaires shall be constructed with a die cast aluminum housing to protect the luminaire reflector system.
- E. The Manufacturer shall remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately ten feet above finished grade. The enclosures shall include ballast, capacitor and fusing for each luminaire. A safety disconnect per circuit for each pole structure shall be located in the enclosure.
- F. A wire harness complete with an abrasion protection sleeve, strain relief and plug in connections for fast, trouble free installation.
- G. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harness, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
- H. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed steel shall be hot dipped galvanized per ASTM A123. All exposed hardware and fasteners shall be stainless steel of at least 18-8 grade, passivated and polymer coated to prevent possible galvanic corrosion to adjoining metals. All exposed aluminum shall be powder coated with high performance polyester. All exterior reflective inserts shall be anodized, coated with a clear, high gloss durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All wiring shall be enclosed within the crossarms, pole, or electrical components enclosure.
- I. Safety: All system components shall be U.L. Listed for the appropriate application.
- J. Single Photometric Unit: Each reflector shall be attached to the cross arm in such a way that its aiming position has been determined relative to all other fixtures on the pole so that in the factory all luminaires on the assembly are oriented to form a single photometric unit.
- K. Lens: A removable lens of impact and thermal resistant glass with gasket shall be centered in a stainless steel lens rim and attached to the reflector with a minimum of four hardened stainless steel clamps. The lens shall further be secured to the reflector with a hinged cable or chain to prevent it from falling after removal during re-lamping or servicing.
- L. Pole Cap: A removable pole cap shall be provided to prevent moisture or foreign debris from entering the top of the pole. The pole cap should be made from cast aluminum or iron. Aluminum pole caps shall have a supplemental coating of polyester or polyurethane powder coat paint, while cast iron pole caps shall be hot dipped galvanized. The pole cap should be secured to the pole top assembly with a single, 3/8" stainless steel bolt with a gasketed head to prevent moisture drainage on the inside of the pole top assembly. It shall further be secured by a stainless steel aircraft type cable to prevent it from being misplaced during installation and to ensure it does not fall during removal for repair or service work.
- M. Field Alignment: Luminaire assembly shall be provided from the factory to the job site as a unit, which may be universally oriented in a manner that the entire luminaire assembly can be field aimed as a single unit.
- N. Crossarm Welding: Crossarms for the luminaire assembly shall be welded to the pole section before galvanizing by American Welding Society certified welders. Any additional fasteners used for the attachment of accessories to the crossarm shall be stainless steel and cadmium plated or

coated with Empigard or equivalent. All welded joints utilized shall be pre-qualified per the American Welding Society or qualified by an AWS certified inspector or testing firm.

- O. Safety Lighting: Provide and install LED type light fixtures on two poles where indicated on plans at adequate heights to light the bleacher seating to an average of 1 footcandle.

2.03 WIRE HARNESS

- A. Strain Relief: The wiring harness shall be supported at the top of the pole by a stainless steel wire mesh grip matched to the size of the harness. There shall be not more than 13 conductors supported by a single wire mesh grip. If the pole height is 80 feet or greater, then an interim wire mesh grip support shall be located approximately half way down the pole.
- B. Strain Relief Slippage: The wire mesh grip shall be secured to the harness with a cable tie at the bottom of the grip to avoid slipping or loosening.
- C. Pole Attachment: The wire mesh grip shall be mechanically attached to the pole to an enclosed mounting loop so that it cannot accidentally be removed in any direction.
- D. Spiral Welding: The harness being supported by the wire mesh clip shall consist of multiple 14 gauge THHN conductors and shall be continuously spiral wound and bound with mylar wrap to prevent slippage of individual conductors within the wiring harness.
- E. Abrasion Protection Sleeving: The wire harness shall be completely encased in flexible abrasion resistant sleeving to alleviate wear on the insulation of the conductors caused by abrading the interior of the pole. The wire harness sleeving shall begin no more than 32" from the top of the wire harness and end no more than 5" from the bottom of the wire harness. If additional wire mesh grips are provided, the sleeving shall begin no more than 4" above and below the grip.
- F. Labeling: All wiring harness conductors shall be color coated and clearly labeled.
- G. Plug-ins: Each end of the wire harness shall be terminated into a plug-in with conductors sequenced consistent with the pattern of the wiring schematic provided by the manufacturer.

2.04 ELECTRICAL COMPONENT ENCLOSURE (ECE)

- A. NEMA 3R: The ECE shall be a NEMA 3R rated gasketed enclosure to house the ballasts, capacitors, fuses, circuit disconnect and distribution lugs.
- B. Compartments: The ECE shall be divided into two compartments. The upper compartment shall house ballasts, capacitors and fuses. The lower compartment shall provide for the circuit disconnect, distribution lugs, and connection of all circuits coming into and out of the ECE.
- C. Stainless Steel: All latches, hinges and non-current carrying fasteners, either outside or inside the enclosure, shall be stainless steel of at least an 18-8 standard. All stainless steel shall be passivated and plated with .0002" thick cadmium to prevent galvanic interaction and to maintain electrical contact for grounding purposes.
- D. Hinged Door Access: The access door to the ECE shall be attached by a full length stainless steel or powder coated aluminum hinge and shall be secured when closed by lockable stainless steel latches.
- E. Pole Attachment: The ECE shall attach to the pole by means of a device which is sufficient to align the ECE and support its weight. There shall be a sealed joint with a non-threaded connection

- to provide wiring access from the pole to the ECE for both the primary and secondary circuits. The connection shall be gasketed for water tight protection. All wire passages shall be protected to prevent wire abrasion or damage.
- F. Disconnecting Device: There shall be provided within the ECE a U.L. Listed circuit disconnect utilized as a local electrical disconnecting device such that electrical power to all equipment on the pole served by the feeder circuit shall be disengaged by the operation of one switch. The disconnect shall be located in a compartment separated from any capacitors or ballasts, and shall have a lock-out tag-out feature for added safety of personnel.
- G. Lugs: The disconnect shall provide landing lugs for the conductors which provide power to the pole.
- H. Distribution Terminal Blocks: There shall be provided by the Manufacturer a set of distribution terminal blocks which shall be factory wired from the disconnect to the blocks. These blocks shall provide for termination of all ballast connection wiring.
- I. Fusing: There shall be provided an individual fuse in a supported fuse block for each ballast conductor, except neutral conductors which shall not be fused or switched.
- J. Plug-in: All lamp supply circuits in the ECE shall be color coded and labeled and shall terminate in a U.L. recognized plug in device located in the lower compartment of the ECE in a manner suitable for plug in to the wiring harness.
- K. Wire Harness Connection: The wiring harness circuits from the lamps shall be attached to the ECE circuits by U.L. recognized plug in connectors.
- L. Grounding: There shall be provided in the ECE located in the lower compartment of the enclosure three feet of #6 wire rigidly fastened to the enclosure for attachment to the pole ground lug.
- M. Ballast Type: There shall be an individual ballast for each luminaire. The ballast shall be lead peak, auto-regulating and be available for use with any standard supply voltage. The ballast shall be located remote from the luminaire crossarm and shall be placed approximately ten feet above finish grade. The ballast box must be a NEMA 3R enclosure and must be manufactured by the luminaire assembly manufacturer and all mounting hardware shall be included with the ballast box assembly. The remote ballast system described above shall be located on the same pole as the luminaire assembly in the NEMA 3R enclosure with the capacitors. The assembly design shall be adaptable to various standard manufactured ballasts and must retain U.L. listing.
- N. Drawings: The Manufacturer shall provide an electrical schematic of the ECE circuits. The schematic shall be of a durable material and affixed to the inside of the ECE door for use by maintenance personnel.
- O. Location: The ECE shall be attached to the pole with the lower end approximately ten feet above finish grade at the pole foundation.
- P. U.L. Listing: The ECE shall be listed by the U.L. both for use by 90 degrees C rated supply conductors and as suitable for use in wet locations.
- Q. Electric Power Requirements for the Sports Lighting Equipment:
2. Electric Power: 480 volt, three phase power.
 3. Maximum Total Voltage Drop: Voltage drop to the disconnect switch relocated on the poles shall not exceed three percent of the rated voltage.

2.05 REMOTE MONITORING SYSTEM

- A. Cabinet: Controls and monitoring cabinet to provide on-off control and monitoring of the lighting system, constructed of NEMA Type 4 aluminum. Communication method shall be provided by the Manufacturer. The cabinet shall contain custom configured contactor modules for 30, 60 and 100 amps, labeled to match field diagrams and electrical design. Manual On-Off-Auto selector switches shall be provided.
- B. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The Manufacturer shall notify the Owner of outages within 24 hours, or the next business day. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
- C. Control Wire Terminations: To allow for fast, labor savings installation, the control wire terminations shall be ready to accept plug in connection from a remote equipment controller and additional contactor cabinets. The control wire terminations shall include U.L. Listed terminal blocks mounted on a DIN rail and 250 volt, 16 amp, touch safe type fuse holders. All control wiring internal to the cabinet shall be Type MTW rated for 105 degrees C.
- D. Contactor Modules: For power switching, the contactor modules shall be custom configured for 30, 60 and 100 amps.
- E. Contactors: Contactors shall be U.L. Listed for lighting applications. They shall be rated at full capacity, be electrically held, utilize a 120 volt coil and be rated for operation in an ambient temperature range of -40 degrees C. to +70 degrees C.
- F. Terminal Blocks: Terminal blocks shall be U.L Listed. 30 and 60 amp modules and be sized to handle 2/0-14 gauge wire. 100 amps shall be sized for 350 mcm-6 gauge wire. When required, neutral blocks shall be provided next to the terminal blocks.
- G. Manual Off-On-Auto Selector Switches (LCC Mounted Option): For on site manual control, three position selector switches (On-Off-Auto) shall be factory mounted through the lighting contactor cabinet door. The switches shall be keyed and maintain position, with make-before-break contacts. A legend plate shall clearly identify the zone and position of each switch. Switches shall be factory wired to the control terminal blocks.
- H. Off-On-Auto Switches: The Off-On-Auto switches shall operate as follows:
 1. Three Position Switch: The three position switch will control each lighting zone which controls the contactor(s) directly.
 2. Off Position: In the off position all contacts shall be open.
 3. On Position: In the on position, the on set of contacts shall close, closing the circuit to the control relay and closing the contactor.
 4. Auto Position: In the auto position the auto contacts shall be closed providing power to the common of the Remote Equipment Controller (REC) relay.
 5. REC Program: The REC program shall close contacts (COM and NO), closing the contactor. The on contacts are open in this position.
 6. Off-On-Auto Contacts: The contacts on the on-off-auto switch are make-before-break so that the switch may be moved between on and auto without de-energizing the circuit
- I. Remote Lighting Control System: The system shall include lighting contactors and shall allow the Owner and users with the security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. The Manufacturer shall provide and maintain a

two way TCP/IP communication link. Trained staff shall be available 24 hours a day seven days a week to provide scheduling support and assist with reporting needs.

- J. Scheduler Security Levels: The Owner may assign several security levels to schedulers by function and/or fields. The function must be flexible to allow a range of privileges such as full scheduling capabilities of all fields, to allow having permission to execute early off commands by phone.
- K. Manual Off-On-Auto Switches: On site equipment shall include manual off-on-auto switches to allow for maintenance, and shall accept seven day schedules. The controller shall be protected against power outages and memory loss and shall reboot once power is regained executing any commands that would have occurred during the outage.
- L. Management Tools: The Manufacturer shall provide a web based data base of actual field usage and provide reports by facility and user group.
- M. Communication Costs: The Manufacturer shall include communication costs for operating the controls and monitoring the system for 25 years.

2.06 STRUCTURAL PARAMETERS

- A. Support Structure Wind Load Strength: Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the 2009 edition of the International Building Code, wind speed of 110 MPH, exposure category C. Luminaire, visor and crossarm shall withstand 150 MPH winds and maintain luminaire aiming alignment.
- B. Structural Design: The stress analysis and safety factor of the poles shall conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- C. Soil Conditions: The design criteria for these specifications are based on soil design parameters as outlined in the geotechnical information provided in this Project Manual. The structural design of all exterior athletic lighting must comply with all applicable sections of the Building Code of the New York State.
 - 1. Refer to section 020500-Reports on Exploration for information on soil reports for this area.
- D. Foundation Drawings: Project specific foundation drawings stamped by a professional engineer in the State where the project is located are required. The foundation drawings must list the moment, shear force (horizontal), and axial force (vertical) at ground level for each pole.
- E. Foundation Design: The foundation design shall conform to 1997 UBC and all applicable sections of the Building Code of the New York State.
- F. Precast Prestressed Concrete Pier Footings: The pole shall be supplied with a centrifugally cast, pre-stressed concrete base constructed of 9,500 PSI concrete capable of carrying the structural loads from the steel pole shaft. The upper end of the base shall be tapered to allow a telescopic connection to the steel pole shaft. The upper end of the base shall be tapered to allow a telescopic connection to the steel pole shaft. Exposed ends pre-stressing steel shall be epoxy coated for corrosion protection.
 - 1. Direct buried steel foundation designs are not an acceptable substitute.

- G. Backfill: Backfill for the pole must be concrete. Gravel, crushed rock or other granular material will not be acceptable for installation.
- H. Concrete Curing: Any concrete which contains reinforcing steel shall be allowed to cure for a minimum of 28 days prior to erection of the pole on to the foundation.

2.07 LIGHTNING PROTECTION

- A. Standards: All structures shall be equipped with lightning protection meeting standards established by NFPA 780.
- B. Surge Protection will be utilized for the protection of the Controls and Monitoring Cabinet and the Electrical Component Enclosures.
 - 1. Grounding: Manufacturer shall supply and equip all structures with lightning protection meeting NFPA 780 standards. Manufacturer shall integrate the required grounding electrode into the structure.
 - 2. If grounding is NOT integrated into the structure, the Manufacturer shall supply an electrode of not less than 5/8" in diameter and 8' in length, with a minimum of 10' embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with 2/0 AWG for poles with more than 75 feet mounting. These will require an exothermic weld kit
- C. Ground Rods: Each structure shall have at least one copper clad steel ground rod of not less than 5/8" in diameter and not less than 10' in length. An 8' ground rod is permissible provided it extends vertically into the earth at least 10'.
- D. Conductor Connection: Ground rods shall be connected to the structure by a copper main down conductor, no less than #2 in size if the structure is 75' or less above grade. If the structure is greater than 75' above grade, the conductor shall be no less than a #2/0 in size.
- E. Steel Pole Conductor: For steel poles, the main down conductor shall extend from the base of the steel pole to the ground rods and shall be bonded to the steel pole and the equipment ground. All metal components on the pole shall be bonded to the pole.
- F. Main Down and Bonding Conductors: All main down conductors and all bonding conductors shall maintain a horizontal or downward coursing path, free from "U" or "V" (down and back) pocket. Such pockets, often formed by metal components mounted below the pole top bond location, shall be provided with a down conductor from the base of the component to ground or to an adjacent main down conductor.
- G. Conductor Bends: No bend of any conductor shall form an included angle of less than 90 degrees nor shall it have a radius of less than 8".

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which the sports field lighting system is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.

1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Pole Attachment of Electrical Components Enclosure: The electrical components enclosure attached to the pole by a device sufficient to align the enclosure and support the enclosure weight. Provide sealed joint with non-threaded connection to provide wiring access from pole to box for both primary and secondary circuits that is gasketed for watertight protection. Protect all wire passages to prevent wire abrasion or damage.
- B. Landing Lugs in Electrical Components Enclosure: The breaker provides landing lugs for conductors providing power to the pole.
- C. Maximum Length: Do not exceed 41 feet for any single component of the pole.
- D. Installation Instructions and Video: To assure correct, trouble free installation, provide installation instructions featuring photographs, graphics and written instructions by the Manufacturer of the lighting equipment. Include DVD or videotape depicting step-by-step installation of the lighting system.
- E. Pole Mounted Electrical Panels: Mount electrical panels securely to the pole.

3.03 MANUFACTURER'S REPRESENTATIVE VISIT

- A. The lighting system manufacturer shall provide a qualified, factory trained representative on site after the completion of the project installation. The manufacturer shall make any necessary adjustments to the aiming in order to ensure that the specified lighting performance is met. This service is to be provided free of charge provided the lighting equipment was installed in accordance with the Manufacturer's design and specifications.

3.04 TEST AND MEASUREMENT PROCEDURES

- A. Illumination Measurements: Illumination measurements shall be taken and verified upon substantial completion of the project and in the presence of the Prime Contractor, the Owner's Designated Representative and the Manufacturer's Representative. The illumination measurements shall be conducted in accordance with IESNA RP-6-01, Appendix B.
- B. Facility Testing: Testing of the system shall be done using a 30' X 30' grid layout and all testing shall be done with the entire facility illuminated.
- C. Spill Light Readings: In the event that the specified spill light readings are exceeded in the field, ambient light readings shall be subtracted from the respective light readings. The ambient readings must be taken at the same location and orientation as the previously recorded readings.
- D. Testing Equipment: Testing equipment for measurement of footcandle levels shall be performed utilizing a Gossen Panalux/Mavalux, Minolta T10 or approved equal, calibrated and certified within the previous 12 months.
- E. Final Report: For final approval of the playfield lighting installation, the Manufacturer shall provide a report indicating test results including the following minimum items:

1. Identification of number and location of the test stations.
 2. Actual horizontal footcandle readings taken at each test station
 3. Actual maximum footcandle readings taken at each spill/glare test station.
 4. Number of hours of operation and number of system starts.
- F. Conformance: If in the opinion of the Owner or his Designated Representative, the actual minimum performance levels including footcandles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be liable to any or all of the following:
1. The manufacturer at their expense shall provide and install any necessary additional fixtures to meet the minimum lighting standards. The Manufacturer shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a structural engineer licensed in the state of the project that the existing poles will withstand the additional wind load.
 2. The Manufacturer shall minimize the Owner's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the Owner the amount of \$1,000.00 for each additional fixture required.
 3. The Manufacturer shall remove the entire unacceptable lighting system to meet the specifications.
- 3.05 LIFE CYCLE COSTS
- A. Energy Consumption: Based on a 5000 hour operating cycle, the average kWh consumption for the playfield shall be 125.12KW or less.
- B. The Manufacturer shall submit a total life cycle cost calculation for the following items:
1. Luminaire energy consumption.
 2. Cost for spot relamping and maintenance for 5000 hour operation
 3. Cost to relamp during 5000 operating hours.
- 3.06 PERFORMANCE REQUIREMENTS
- A. The computer generated performance of the system shall be based on 134,000 lumens per lamp and calculations for both initial and maintained footcandle levels.
- B. The performance criterion requires lighting equipment which will provide, after adjustment, for an average lamp tilt factor, 70 footcandles for the baseball infield and 50 footcandles for the remaining portions of the athletic field area with the ability to switch the 70fc area to 50fc for consistent light levels when playing sports other than baseball, and 1 footcandle for the bleacher seating.
- C. The Manufacturer shall provide computer models guaranteeing light levels on the field for 5,000 hours. If a constant light level cannot be provided, a minimum Recoverable Light Loss Factor of 0.70 shall be applied to the initial light design to achieve the maintained light levels specified above.
- D. Light levels shall be derived from the equation of light loss factor (LLF) = ambient temperature factor (ATF) x voltage factor (VF) x ballast factor (BF) x lamp tilt factor (LTF) x lamp lumen depreciation (LLD) x luminaire dirt depreciation (LDD) per I.E.S. RP-6-88 and shall be calculated as follows:

1. Initial light levels = ambient temperature factor (ATF) x voltage factor (VF) x ballast factor (BF) x lamp tilt factor (LTF).
 2. Target light levels = initial light levels (ILL) x lamp lumen depreciation (LLD) x luminaire dirt depreciation (LLD).
- E. Uniformity Ratio: The footcandle level shall have a uniformity ratio or maximum to minimum ratio of no greater than 2.0:1 for the playfield.
- F. Kilowatt Consumption: The average kilowatt consumption for the playfield shall be 125.12 or less with all lights on. The maximum kilowatt consumption shall not exceed 136.0.
- G. The Manufacturer shall submit a total life cycle cost calculation for the following items:
1. Luminaire energy consumption.
 2. Demand charges.
 3. Cost for spot relamping and maintenance for 5000 hour operation.
- 3.07 ADJUSTING AND CLEANING
- A. Repairs and Protection of sports field lighting system.
1. Repair or replace broken or defective portions of the sports field athletic system as directed by the Project Designer.
 2. Protect the sports field lighting system from damage until acceptance of the playfield lighting construction.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Clearing and grubbing
- B. Removal of topsoil
- C. Underground utilities
- D. Excavation
- E. Dewatering
- F. Settlement detection
- G. Sheet piling, shoring and bracing
- H. Placing engineering fabric
- I. Placing fill and backfill
- J. Placing fill to support structures
- K. Compaction
- L. Rough grading
- M. Subgrade surface for walks and pavement
- N. Finish grading
- O. Subgrade and base preparation for synthetic grass surfacing
- P. Maintenance and restoration
- Q. Disposal of excess and unstable materials
- R. Field quality control
- S. Protection

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02 41 13 – Selective Site Demolition
- B. Section 13 34 17 – Angle Frame Bleacher Seating
- C. Section 31 10 00 – Site Preparation
- D. Section 31 23 17 – Site Trenching
- E. Section 31 25 00 – Erosion and Sediment Control
- F. Section 32 12 16 – Asphalt Paving
- G. Section 32 13 13 – Concrete Paving
- H. Section 32 16 13 – Concrete Curbs
- I. Section 32 18 14 – Synthetic Grass Surfaces
- J. Section 32 18 25 – Infield Skinned Area
- K. Section 32 92 00 – Turf & Grasses
- L. Section 32 93 00 – Exterior Plants
- M. Section 33 40 00 – Storm Drainage Utilities

1.03 DEFINITIONS

- A. The following terms shall have the meanings ascribed to them in this Article, wherever they appear in this Section.
 - 1. Earth Excavation: The removal of all surface and subsurface material not classified as rock (as defined below).

2. Rock: Limestone, sandstone, shale, granite, and similar material in solid beds or masses in its original or stratified position which can be removed only by blasting operations, drilling, wedging, or use of pneumatic tools, and boulders with a volume greater than 1.5 cubic yards.
3. Materials which can be loosened with a pick or backhoe, frozen materials, soft laminated shale or hardpan, pavements, curbs, and similar materials shall be classified as earth excavation.
4. Unclassified Earth Excavation: The excavation and disposal of all surface and subsurface materials of any description necessary to perform the work of this contract. This shall include:
 - a. All soil deposits of any description both above and below groundwater levels. These may be naturally deposited or placed by previous construction operations.
 - b. Ledge rock of all quality. (Limestone, sandstone, shale, granite and similar materials in solid beds or masses in its original or stratified position which can only be removed by drilling, wedging, use of pneumatic tools or heavy ripping equipment.) Blasting operations will not be permitted to loosen any ledge rock necessary to be removed in this contract without prior written permission from the Project Designer and the Owner's Representative.
 - c. Boulders of any size.
 - d. Any materials of man-made origin.
5. Subgrade Surface: Surface upon which gravel base or topsoil is placed.
6. Base: Select granular material or base course Type 1 or Type 2 which is placed immediately beneath pavement or concrete slabs.
7. Fill: Placement of specified fill materials, in layers, above ground surface to required elevations.
8. Backfill: Placement of specified backfill material, in layers, in excavations to required subgrade elevations.
9. Foundation Bearing Grade: Grade/elevation at which the bottom-of-footings are constructed.
10. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 698 (Standard Proctor), or ASTM D 1557 (Modified Proctor).
11. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
12. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.
13. Unauthorized Excavation: The removal of material below required elevations indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by the Owner's Representative.

1.04 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 - Submittal Procedures and as modified as below.
- B. Shop Drawings:
 1. Sheeting, Shoring, and Bracing (Not Shown on the Drawings): Submit shop drawings for sheeting, shoring, and bracing if required. Shop drawings shall be signed by a New York State licensed Professional Engineer.
- C. Product Data:
 1. Permanent Sheeting, Shoring, and Bracing: Specifications for materials and accessories.

- D. Samples: Submit samples as follows. At the owner's discretion, take the samples in the presence of the Owner's Representative, and submit to the Owner's Representative the laboratory test results for gradation, proctors and soundness tests, when required. These tests shall be performed in accordance with ASTM standards, shall be performed and signed by a certified soils laboratory, and shall be submitted as part of the original submittal. At a minimum, the samples taken shall be of the following quantities:
1. Select Type 1 Granular Material: 40 - 50 lbs.
 2. Type 2 Base Course: 40 - 50 lbs.
 3. Drainage Stone: 40- 50 lbs, mixed to specification.
 4. Synthetic Turf Dynamic Stone: 40 - 50 lbs.
 5. Engineering Fabric: 12" X 12" sample.
 6. Drainage Fabric: 12" X 12" sample.
- E. Quality Control Submittals:
1. Base Materials: Name and location of source and the DOT Source Number. If the material is not being taken from an approved DOT Source, the results of the gradation and soundness tests performed by an ASTM certified soils laboratory will be required.
 2. Other Aggregates: Name and location of source and soil laboratory test results.
 3. Excavation Procedure: Submit a lay out drawing or detailed outline of intended excavation procedure for the Owner's information. This submittal will not relieve the Contractor of responsibility for the successful performance of intended excavation methods.
 4. Sheeting, Shoring, and Bracing (Not shown on the Drawings): Submit a detailed plan of intended sheeting, shoring and bracing, signed by a New York State licensed Professional Engineer, for the Owner's information. This submittal will not relieve the Contractor of responsibility for the successful performance of the intended sheeting, shoring and bracing methods.
 5. Soil Erosion and Sediment Control: Submit plan complying with the requirements of Section 31 25 00.
- F. Closeout Procedures: Comply with the requirements of Section 01 77 00.

DELIVERY, STORAGE, AND HANDLING

- A. Protect filter fabric from sunlight during transportation and storage.

PROJECT CONDITIONS

- A. Protect existing trees and plants during performance of the Work unless otherwise indicated. Box trees and plants indicated to remain within the grading limit line with temporary fencing or solidly constructed wood barricades as required. Protect root systems from smothering. Do not store excavated material, or allow vehicular traffic or parking within the branch drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.
- B. Cold Weather Requirements:
1. Excavation: When freezing temperatures are anticipated, do not excavate to final required elevations for concrete work unless concrete can be placed immediately.
 2. Backfilling: If backfill is being placed during freezing temperatures, the backfilling operations shall be monitored by the Owner's Representative and the following procedures shall be followed:
 - a. Frozen ground shall be removed in its entirety from beneath and five (5) feet beyond the area of fill placement.

- b. The fill material placed shall consist of Selected Fill and shall be free of all frozen chunks that exceed four (4) inches in size. The material transported to the project site shall only consist of material excavated from below the frost depth.
 - c. At the end of the work day, the area of fill placement shall be covered with insulated blankets, or left unprotected. Other means of protection (hay, wood chips etc.) may also be used for protection provided it is approved by the Owner's Representative.
 - d. Following work day - Remove the insulated blankets and/or strip the area of all frozen material as specified previously.
 - e. Upon establishing the subgrade elevations, protect the grades with insulated blankets or place additional material that will adequately insulate the exposed earth surface from frost. This additional fill or protective material shall be stripped just prior to pouring concrete.
- C. Subsurface Information/Site Investigation Reports: Site investigation reports including soil boring logs and similar data included in the project documents are intended to represent only conditions found at locations indicated at time investigations were conducted. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or of continuity of such conditions. The Owner will not be responsible for interpretation or conclusions drawn by the contractor.
- 1. The contractor may perform additional test borings and other exploratory operations at no additional cost to the Owner upon approval of the project designer.
- D. Land Survey Information: Field verify provided existing boundary and topographic information prior to beginning site work. Immediately report any discrepancies in boundary locations or topographic elevations affecting site construction to the Owner's Representative. Provide profile information on existing site conditions and verification of existing topographic information to the Owner's Representative prior to beginning site construction. Beginning site work construction without this profile information and written notification indicates Contractor's acceptance of existing land survey data indicated on the drawings as accurate. Adjustments to the contract will not be made for discrepancies brought to the Owner's attention after site construction has begun.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Select Type 1 Granular Material: Where indicated supply stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with New York State Department of Transportation gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
3 inch	76.2	100
2 inch	50.8	90-100
1/4 inch	6.35	30-65
No. 40	0.425	5-40
No. 200	0.075	0-10

- B. Base Course Type 2 Crushed Stone: Where indicated supply stockpiled, crushed ledge rock or approved blast furnace slag. Comply with New York State Department of transportation gradation and material requirements modified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
2 inch	50.8	100
1/4 inch	6.35	25-60
No. 40	0.425	5-40
No. 200	0.075	0-7

- C. Rip Rap: Fine, Light, and Medium Stone Filling that complies with DOT Article 620-2.02 for stone filling and Figure 620-1 Stone Filling Gradation Requirements.

Fine Stone	
Size Designation	% Mixture by Weight
Smaller than 8"	90 – 100%
Larger than 3"	50 – 100%
Smaller than No. 8 Sieve	0 – 10%

Light Stone	
Size Designation	% Mixture by Weight
Lighter than 100 lbs.	90 – 100%
Larger than 6"	50 – 100%
Smaller than 1/2"	0 – 10%

Medium Stone	
Size Designation	% Mixture by Weight
Heavier than 100 lbs.	50 – 100%
Smaller than 6"	0 – 10%

- D. Pea Gravel: Comply with DOT Article 703-02 for screened gravel.

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
1/2 inch	12.7	100
1/4 inch	6.35	90-100
1/8 inch	3.17	0-15
No. 200 Sieve	0.075	0-1

- E. Dynamic Finish Stone for Synthetic Grass Surfacing: refer to Section 32 18 14 for additional information.

Sieve		
Sieve Size	Sieve Size (mm)	Percent Passing
½ inch	12.7	100
3/8 inch	9.53	85-100
¼ inch	6.35	75-100
No. 4 Sieve	4.76	60-90
No. 8 Sieve	2.38	35-75
No. 16 Sieve	1.191	10-55
No. 30 Sieve	0.594	0-40
No. 60 Sieve	0.249	0-15
No. 100 Sieve	0.150	0-8
No. 200 Sieve	0.075	0-2

1. Restrictions

- To Ensure structural Stability: $D_{60}/D_{10} > 5$ and $1 < D_{30}^2/D_{10} D_{60} < 3$. Fragmentation must be 100 percent.
- To Ensure Separation Of Finish and Drainage Stones: D_{85} of finishing stone / D_{15} of drainage stone > 2 and $3 < D_{50}$ of drainage stone / D_{50} of finishing stone < 6
- To Ensure Proper Drainage:
 - Permeability of finishing stone > 20 in/hr (1.4×10^{-2} cm/sec)
 - Porosity of both stones $> 25\%$ (When stone is saturated & compacted to 95% Proctor.
 - " D_x " in preceding subparagraphs = Size of sieve (in mm) that lets pass x percent of stone. For example, D_{60} = size of sieve that lets 60 percent of stone pass. For calculation purposes, sizes may be obtained by interpolation on semi-log graph of sieve analysis.
- Depending on type of rock present in crushed stone mix, other mechanical characteristics may be necessary for approval.
- Where field supports heavy vehicles, give consideration for load bearing requirements of base

- F. Drainage Stone: Washed, narrowly graded mixture of crushed stone; ASTM D488; coarse-aggregate grading Size 57, with 100% passing a 1 ½" sieve, and 0% to 5% passing the No. 8 sieve

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
1-1/2 inch	38.1	100
1 inch	25.4	95-100
1/2 inch	12.7	25-60
No. 4	4.76	0-10
No. 8	2.38	0-5

- G. Engineering Fabric: Fabric composed of high tenacity polypropylene yarns woven into a stable network. The fabric is to be inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids complying with the following mechanical and physical properties:

Mechanical Properties	Test Method	Unit	Minimum. Average Roll Value
Wide Width Tensile Strength	ASTM D 4595	kN/m m ²	MD 17.6 (100)/CD 21.0 (120)
Grab Tensile Strength	ASTM D 4632	kN (lbs)	MD 0.9 (200)/ CD 0.9 (200)
Grab Tensile Elongation	ASTM D 4632	%	MD 15/CD 10
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	MD 0.33 (75)/CD 0.33 (75)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2756 (400)
Puncture Strength	ASTM D 4833	kN (lbs)	0.4 (90)
Percent Open Area	COE-02215-86	%	1
Apparent Opening Size (AOS)	ASTM D 4751	mm (US Sieve)	0.300 (50)
Permittivity	ASTM D 4491	sec ⁻¹	0.05
Flow Rate	ASTM D 4491	l/min/m ² (gal/min/ft ²)	200 (5.0)
UV Resistance (at 500 Hours)	ASTM D 4355	% strength retained	70

Physical Properties	Test Method	Unit	Typical Value
Weight	ASTM D 5261	g/m ² (oz/ydm ²)	136 (4.0)
Thickness	ASTM D 5199	mm (mils)	0.51 (20)
Roll Dimensions (Width X Length)	-----	m (ft)	3.8 X 132 or 5.3 X 94.2 (12.5 X 432) or (17.5 X 309)
Roll Area	-----	m ² (yd ²)	502 (600)
Estimated Roll Weight	-----	kg (lb)	95 (210)

1. Manufacturer: For convenience, details have been based on Mirafi 500X as manufactured by Ten Cate/Mirafi, Pendergrast, GA (Tel. #706-693-2226).

- H. Drainage Fabric: Non-woven geotextile fabric composed of polypropylene fibers formed into a stable network such that the fibers retain their relative position. The fabric is to be inert to biological degradation, resisting naturally encountered chemicals, alkalis and acids complying with the following mechanical and physical properties:

Mechanical Properties	Test Method	Unit	Minimum. Average Roll Value
Grab Tensile Strength	ASTM D 4632-91	kN (lbs)	MD 0.53 (120)/ CD 0.53 (120)
Grab Tensile Elongation	ASTM D 4632-91	%	MD 50/CD 50
Trapezoid Tear Strength	ASTM D 4533-91	kN (lbs)	MD 0.22 (50)/CD 0.22 (50)
Mullen Burst Strength	ASTM D 3786-87	kPa (psi)	1550 (225)
Puncture Strength	ASTM D 4833-00	kN (lbs)	0.3 (65)
Apparent Opening Size (AOS)	ASTM D 4751-99A	mm (US Sieve)	0.212 (70)
Permittivity	ASTM D 4491-99A	sec ⁻¹	1.8
Permeability	ASTM D 4491-99A	cm/sec ⁻¹	0.21
Flow Rate	ASTM D 4491-99A	l/min/m ² (gal/min/ft ²)	5500 (135)
UV Resistance (at 500 Hours)	ASTM D 4355-02	% strength retained	70

Physical Properties	Test Method	Unit	Typical Value
Weight	ASTM D 5261	g/m ² (oz/ydm ²)	163 (4.8)
Thickness	ASTM D 5199	mm (mils)	1.4 (55)
Roll Dimensions (Width X Length)	-----	m (ft)	3.8 X 110 or 4.5 X 110 (12.5 X 360) or (15 X 360)
Roll Area	-----	m ² (yd ²)	502 (600)
Estimated Roll Weight	-----	kg (lb)	89 (197)

1. Manufacturer: For convenience, details have been based on Mirafi 140N as manufactured by Ten Cate/Mirafi, Pendergrast, GA (Tel. #706-693-2226).

2.02 SHEETING, SHORING, AND BRACING

- A. Steel Sheet piling: Continuous interlock type complete with all required accessories, complying with ASTM A 328 or ASTM A 572.
 1. Furnish steel sheet piling of design, configuration, and length to resist pressure of earth to be retained.
- B. Timber Sheeting, Shoring, and Bracing: Structural grade timber or lumber uprights, wales, and cross braces of sufficient dimension to resist pressure of earth to be retained.
 1. Timber and lumber used for permanent sheeting shall be pressure creosoted.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Examine conditions under which earthwork is to be accomplished in coordination with the installer of materials and components specified in this Section and notify affected Prime Contractors, Owner's Representative and the Project Designer in writing of any conditions detrimental to proper and timely accomplishment. Do not proceed with earthwork until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
 1. When the installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to the Project Designer written confirmation from the applicable installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Protection
 1. Use of explosives: Do not bring explosives onto the site or use in the project without prior written permission from the Project Designer and the Owner's Representative. The Contractor remains solely responsible for the handling, storage and use of explosive materials when permitted. Use explosives in strict compliance with State, Local and OSHA regulations.

2. Protection of Persons and Property

- a. Barricade open excavations and post with warning lights for safety of persons. Operate warning lights during hours from dusk to dawn each day.
- b. Protect structures, utilities, sidewalks, pavements and other facilities immediately adjacent to excavations from damage caused by settlement, lateral movement, undermining, washout and other hazards.
- c. Take precautions and provide necessary bracing and shoring to guard against movement and settlement of existing improvements or new construction. Contractor remains entirely responsible for strength and adequacy of bracing and shoring, and for safety and support of construction from damage or injury caused by lack of adequate protection or by movement or settlement.

3.03 CLEARING AND GRUBBING

- A. Clear and grub the site within the grading limit lines of trees, shrubs, brush, other prominent vegetation, debris, and obstructions except for those items indicated to remain. Completely remove stumps and roots protruding through the ground surface.
 1. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing.
 2. Where roots and branches of trees indicated to be saved interfere with new construction, carefully and cleanly cut them back to point of branching.
- B. Fill depressions caused by the clearing and grubbing operations in accordance with the requirements for filling and backfilling, unless further excavation is indicated.

3.04 REMOVAL OF TOPSOIL

- A. Remove existing topsoil from areas within the grading limit lines where excavation or fill is required.
- B. Stockpile approved topsoil where directed until required for use. Place, grade, and shape stockpiles for proper drainage.
 1. Topsoil shall be tested prior to stockpiling. Stockpile only quantities of topsoil approved in writing for re-use.

3.05 UNDERGROUND UTILITIES

- A. Locate existing underground utilities prior to commencing excavation work. Determine exact utility locations by hand excavated test pits. Support and protect utilities to remain in place.
- B. Do not interrupt existing utilities that are in service until temporary or new utilities are installed and operational.
- C. Utilities to remain in service shall be re-routed as shown on the Contract Drawings.
- D. Utilities abandoned beneath and five (5) feet laterally beyond a structure's proposed footprint shall be removed in their entirety. Excavations required for their removal shall be backfilled and compacted as specified herein.

- E. Unless otherwise noted in the Contract Documents, utilities extending outside the limit specified above (5 feet) may be abandoned in place provided their ends are adequately plugged as described below.
 - 1. Permanently close open ends of abandoned underground utilities exposed by excavations, which extend outside the limits of the area to be excavated.
 - 2. Close open ends of metallic conduit and pipe with threaded galvanized metal caps or plastic plugs or other approved method for the type of material and size of pipe. Do not use wood plugs.
 - 3. Close open ends of concrete and masonry utilities with concrete or flow-able fill.
- F. Coordinate with other Prime Contractors or with local utility companies, as applicable, for shutoff service if lines are active.
- G. Coordinate scheduling of removal to accommodate relocation of lines when necessary.
- H. Demolish and remove or relocate additional uncharted underground utilities conflicting with construction operations as directed by the Project Designer. Measure additional removal and relocations as directed by the Project Designer and paid for by the Owner as a Change Order.

3.06 EXCAVATION

- A. Excavate earth as required for the work. Remove and dispose of all materials encountered to obtain required subgrade elevations. Remove from property and legally dispose of all excess fill material.
- B. Install and maintain all erosion and sedimentation controls during all earthwork operations as specified in Section 31 25 00, on the Contract Drawings, or as directed by local officials.
- C. Maintain sides and slopes of excavations in a safe condition until completion of backfilling. Comply with Code of Federal Regulations Title 29 - Labor, Part 1926 (OSHA).
 - 1. Trenches: Deposit excavated material on one side of trench only. Trim banks of excavated material to prevent cave-ins and prevent material from falling or sliding into trench. Keep a clear footway between excavated material and trench edge. Maintain areas to allow free drainage of surface water.
- D. Stockpile excavated materials classified as suitable material where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage as approved by the Owner's Representative.
- E. Excavation for Structures: Conform to elevations, lines, and limits indicated. Excavate to a vertical tolerance of plus or minus 1 inch. Extend excavation a sufficient lateral distance to provide clearance to execute the work.
- F. Footings and Foundations: The foundation bearing grade shall be established just prior to constructing the concrete foundations when concrete is to bear on undisturbed soil.
 - 1. Stepping Footings: Cut sloping surfaces under footings, foundations, steps, and where required for other work as indicated.
 - 2. Pile Foundations: Stop excavations 6 to 12 inches above the bottom of pile cap elevation before the piles are placed. After pile installation, remove loose and displaced material and excavate to final grade, leaving a solid base to receive concrete pile caps.

3. Where footings and other work requiring similar soil support will rest entirely on rock, remove loose soil and loose rock and place concrete to the required elevations. Where footings and other work requiring similar soil support will rest partially on rock and partially on soil, immediately notify the Owner's Representative before any backfilling or concrete placement occurs; the Owner's Representative will determine the correct foundation treatment for the work.
 - G. Pipe Trenches: Refer to Section 31 23 17.
 - H. Open Ditches: Cut ditches to cross sections and grades indicated.
 - I. Pavement: Excavate to subgrade surface elevation.
 - J. Unauthorized Excavations: Unless otherwise directed, backfill unauthorized excavation under footings, foundation bases, and retaining walls with compacted select granular Type 1 material without altering the required footing elevation. Elsewhere, backfill and compact unauthorized excavation as specified for authorized excavation of the same classification, unless otherwise directed by the Owner's Representative.
 1. Unauthorized excavations under structural work such as footings, foundation bases, and retaining walls shall be reported immediately to the Owner's Representative before any concrete or backfilling work commences.
 - K. Notify the Owner's Representative upon completion of excavation operations. Do not proceed with the work until the excavation is inspected and approved.
 - L. Removal of Unsuitable Material Beneath Structures and Other Improvements: Excavate encountered unsuitable materials, which extend below required elevations, to additional depth as directed by the Owner's Representative. Have cross sections taken, under the supervision of an independent Land Surveyor, to determine the quantity of such excavation. Do not backfill this excavation prior to quantity measurement.
 1. Such additional excavation and backfilling, not due to error, fault or neglect of the Contractor and exceeding the numeric quantities indicated on the Drawings, will be paid for at a pre-negotiated or pre-established unit price by Change Order.
- 3.07 DEWATERING
- A. Refer to subsurface logs included in the Contract Documents for information regarding subsurface conditions. The Owner shall not be liable for Change Orders resulting from the Contractor's inability to properly dewater the site.
 - B. Prior to the performance of any excavations provide dewatering methods such that the groundwater table is maintained at an elevation that is beneath the excavated depth.
 - C. Prevent surface and subsurface water from flowing into excavations and trenches and from flooding the site and surrounding area.
 - D. Do not allow water to accumulate in excavations or trenches. Remove water from all excavations immediately to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Furnish and maintain pumps, sumps, suction and discharge piping systems, and other system components necessary to convey the water away from the Site.

- E. Convey water removed from excavations, and rain water, to collecting or run-off area. Cut and maintain temporary drainage ditches and provide other necessary diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.
- F. Provide temporary controls to restrict the velocity of discharged water as necessary to prevent erosion and siltation of receiving areas.

3.08 SETTLEMENT DETECTION

- A. Excavating beneath the bearing grades of an existing structure: Establish a settlement detection method approved by the Owner's Representative for structures subject to settlement from excavation, sheeting or sheet piling operations. Maintain surveillance to detect any settlement.
- B. Surcharging: Establish a settlement monitoring plan to accurately determine the settlements that have occurred and the rate that they occurred to adequately determine when settlement caused by surcharge is complete.

3.09 SHEETING, SHORING, AND BRACING

- A. Temporary Sheeting: Install temporary sheeting (or sheet piling) with shoring and bracing as required to create a safe working environment and prevent settlement or other damage to adjacent grounds and structures resulting from excavation operations. Shore and brace sheeting in a manner which will not interfere with progress of other work or related contracts (if any) on this project. Check shoring and bracing for settlement, and adjust for settlement. Promptly remove temporary sheeting, shoring, and bracing when no longer required.
- B. Permanent Sheeting: Install permanent steel sheet piling or timber sheeting where shown. Cut off top of permanent sheeting 12 inches below finish grade.

3.10 PLACING ENGINEERING FABRIC

- A. Place and overlap engineering fabric in accordance with the manufacturer's installation instructions, unless otherwise shown.
- B. Cover tears and other damaged areas with additional engineering fabric layer extending 3 feet beyond the damage.
- C. Do not permit traffic or construction equipment directly on engineering fabric.
- D. Backfill immediately over engineering fabric. Backfill in accordance with the fabric manufacturer's instructions and in a manner to prevent damage to the fabric.

3.11 PLACING FILL AND BACKFILL

- A. Surface Preparation of Fill Areas: Strip topsoil, remaining vegetation, and other deleterious materials prior to placement of fill. Refer to Section 31 10 00 – Site Preparation for additional information.
 - 1. Remove all asphalt pavement in its entirety from areas requiring the placement of fill.
 - 2. After topsoil is stripped and other improvements specifically indicated to be removed on the Contract Documents are removed, proof roll the site with a ten ton vibratory compactor (minimum six overlapping passes required) or similar equipment. Excavate soft or loose soils identified during rolling and replace with properly compacted select Type 1 granular material as directed by the Owner's Representative or the Project Designer. Measure additional

excavation and backfill as directed by the Owner's Representative or the Project Designer and paid for by the Owner as a Change Order.

3. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill materials bond with the existing surface.
- B. Excavations: Backfill as promptly as work permits, but not until completion of the following:
1. Acceptance by the Owner's Representative of construction below finish grade including, where applicable, dampproofing, waterproofing, perimeter insulation, and bearing capacity of supporting soil.
 2. Inspection, testing, approval, and recording locations of underground utilities.
 3. Removal of concrete formwork.
 4. Removal of temporary sheeting (or sheet piling) and backfilling of voids caused by removals.
 5. Cutting off top of permanent sheeting (or sheet piling).
 6. Removal of trash and debris.
 7. Installation of permanent or temporary bracing on horizontally supported walls.
- C. Place backfill and fill materials in layers not more than 8 inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice.
1. Place fill and backfill against foundation walls and in confined areas (such as trenches) not easily accessible by larger compaction equipment, in maximum 6 inch thick (loose depth) layers.
 2. For large fill areas, the layer thickness may be modified by the Owner's Representative, at the Contractor's written request, if in the Owner's Representative's judgment, the equipment used is capable of compacting the fill material in a greater layer thickness. This request shall include the type and specifications of compaction equipment intended for use.
- D. Prevent wedging action of backfill against structures by placing backfill uniformly around structure to approximately same elevation in each layer. Place backfill against walls of structures containing basements or crawl spaces only after the first floor structural members are in place.
- E. Under exterior concrete slabs, utilize the following fill materials:
1. Type 1 granular material to proposed subgrade elevation.
 2. Select Type 2 crushed stone for reaming subbase.
- F. Under Pavements and Walks:
1. Utilize select Type 2 crushed stone as indicated on the construction drawings and in the applicable specification sections in the Project Manual.
- G. Landscaped Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over 4 inches in diameter within the top 12 inches of suitable material.

3.12 ADDITIONAL REQUIREMENTS FOR PLACING FILL TO SUPPORT STRUCTURES

- A. Place fill at the perimeter of the structure to be constructed as follows:
1. Strip the area in accordance with the requirements for Surface Preparation of Fill Areas.
 2. Compact the stripped surface to 95 percent of maximum density.

3. Place fill in horizontal layers not exceeding 8 inches loose depth and compact layers as specified.
- B. Place fill within the perimeter of the structure to be constructed as follows:
 1. Strip the area in accordance with the requirements for Surface Preparation of Fill Areas.
 2. Proof roll the stripped surface with at least 5 passes of a vibratory drum compactor having a minimum unsprung drum weight of 7 tons unless specifically indicated otherwise in the Contract Documents. Notify the Owner's Representative of the proposed date for beginning proof rolling at least 2 working days prior to commencing proof rolling.
 3. Excavate unsuitable materials (soft and unstable earth) disclosed by the proof rolling operation and replace with compacted selected Type 1 granular material.
 4. Place fill in horizontal layers not exceeding 8 inches loose depth and compact layers as specified.
- C. Obtain written approval of fill area compaction before excavating for footing.
- D. Excavate for footing width plus 1 foot on each side.
- E. Excavate 1 foot below footing elevations where bottom of footings are 2 feet or less above or 4 feet or less below original ground surface.
 1. Compact footing bottom and place a 1 foot bed of select granular material. Compact select granular material in 6 inch layers.
 2. Omit excavation and select granular material below bottom of footings where footing elevations are more than 2 feet above or more than 4 feet below original ground surface.

3.13 COMPACTION

- A. Compact each layer of fill and backfill for the following area classifications to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than 3 percent drier or more than 2 percent wetter than the optimum content as determined by ASTM D 698 (Standard Proctor) or ASTM D 1557 (Modified Proctor).
 1. Structures (entire area within 10 feet outside perimeter): Compact subgrade and each layer of backfill or fill material to 95 percent.
 2. Concrete Slabs: Compact subgrade and each layer of backfill or fill material to 95 percent.
 3. Landscaped Areas: Compact the top 2'-0" to a maximum of 85% and compact all subgrade areas beneath the upper 2'-0" to 95%.
 4. Synthetic Turf Playfields: Compact subgrade and each layer of backfill or fill material to 95 percent.
 5. Pavements and Walks: Compact subgrade and each layer of backfill or fill material to 95 percent.
 6. Pipes and Tunnels: Compact subgrade and each layer of backfill or fill material to 95 percent.
 7. Pipe Bedding: Compact subgrade and each layer of backfill or fill material to 95 percent.
- B. Compaction Equipment:
 1. Provide compaction equipment of suitable size and number and in satisfactory working condition to complete construction on schedule.
 2. Use sheepfoot rollers, pneumatic tired rollers, vibrating tampers, or other compaction equipment capable of obtaining required density throughout the entire layer being compacted.

- C. When the existing ground surface to be compacted has a density less than that specified for the particular area classification, break up and pulverize, and moisture condition to facilitate compaction to the required percentage of maximum density.
- D. Moisture Control:
 - 1. Where fill or backfill must be moisture conditioned before compaction, uniformly apply water to the surface and to each layer of fill or backfill. Prevent ponding or other free water on surface subsequent to, and during compaction operations.
 - 2. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.
- E. If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be recompacted and retested. If compaction cannot be achieved the material/layer shall be removed and replaced. No additional material may be placed over a compacted layer until the specified density is achieved.

3.14 ROUGH GRADING

- A. Interior Grading: Trim unexcavated spaces within the building to levels indicated.
 - 1. Subgrade for Slabs: Compact as specified to receive fill material. Finish subgrade surface within 1 inch above or below level specified for fill required.
- B. Exterior Grading: Trim and grade area within the grading limits of the Contract Documents and excavations outside the limits, required by this Contract, to a level of 6 inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide a smooth uniform transition to adjacent areas.
 - 1. Grade areas outside building lines for each structure to drain away from structures and to prevent ponding of water. Finish surfaces free from irregular surface changes, large stones.
 - 2. Landscaped Areas: Provide uniform subgrade surface within 1 inch of required level to receive topsoil thickness specified. Compact fill as specified to within 2 inches of subgrade surface. Remove objectionable material detrimental to proper compaction or to placing full depth of topsoil. If the top 4 inches of subgrade has become compacted before placement of topsoil, harrow or otherwise loosen rough graded surface to receive topsoil to a depth of 4 inches immediately prior to placing topsoil.

3.15 SUBGRADE SURFACE FOR WALKS AND PAVEMENT

- A. Shape and grade subgrade surface as follows:
 - 1. Walks: Shape the surface of areas under walks to required line, grade and cross section, with the finish surface not more than ½ inch above or below the required subgrade surface elevation.
 - 2. Pavements: Shape the surface of areas under pavement to required line, grade and cross section, with the finish surface not more than ½ inch above or below the required subgrade surface elevation.
- B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

- C. Thoroughly compact subgrade surface for walks and pavement by mechanical rolling, tamping, or with vibratory equipment as approved to the density specified.
- D. Shoulders: Place shoulders along edges of filled subgrades to prevent lateral movement. Construct shoulders of specified fill material, placed in such quantity to compact to thickness of each subgrade course layer. Compact and roll at least a 1'-0" wide additional layer of each subgrade course.

3.16 FINISH GRADING

- A. Uniformly grade rough graded areas within the grading limits to finish grade elevations indicated.
- B. Grade and compact to smooth finished surface within tolerances specified, and to uniform levels or slopes between points where finish elevations are indicated or between such points and existing finished grade.
- C. Grade areas adjacent to building lines so as to drain away from structures and to prevent ponding.
- D. Finish surfaces free from irregular surface changes, and as follows:
 - 1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.
 - 2. Walks: Place and compact base material as specified. Shape surface of areas under walks to required line, grade and cross section, with the finish surface not more than ½ inch above or below the required subbase elevation.
 - 3. Pavements: Place and compact base material as specified. Shape surface of areas under pavement to required line, grade and cross section, with the finish surface not more than ½ inch above or below the required subbase elevation.
 - 4. Slabs: Grade base material smooth and even, free of voids, compacted as specified, and to required subbase elevation. Finish final grades within a tolerance of ¼ inch when tested with a 10 foot straightedge.
- E. Spread topsoil directly upon prepared subgrade surface to a depth measuring a minimum of 6 inches after natural settlement of the topsoil has occurred in areas to be seeded or to receive sod unless specifically indicated otherwise within the Contract Documents. Place to greater depth when necessary to adjust grades to required elevations.
 - 1. Only approved existing topsoil within the grading limits may be used. Provide additional topsoil from outside sources as required.
- F. Finish topsoil surface free of depressions which will trap water, free of stones over ½ inch in any dimension, and free of debris.

3.17 SUBGRADE & BASE PREPARATION FOR SYNTHETIC GRASS SURFACING

- A. Subgrade Preparation
 - 1. Establish a single benchmark prior to excavation and maintain by a licensed surveyor of record during the entire subgrade preparation and dynamic base installation construction process.
 - 2. Remove all topsoil, organic, deleterious or non-compactable materials. Excavate playfield area to the depth indicated on the Contract Documents.
 - 3. Grade playfield area to a 1.0% slope as shown on the plans.
 - 4. Compact the soil bed in a minimum of two directions to attain minimum 95% standard proctor compaction rate unless specifically noted otherwise within the Contract Documents.

5. Laser grade subgrade to tolerances of not more than 1/4" in 10' from required elevation to allow for even drainage flow.
6. Excavate perimeter drainage collector trenches to the elevation and profile as indicated on the Contract Documents. All loose debris shall be removed from the trenches prior to pipe installation. Trenches shall be backfilled with specified drainage fill material compacted by hand tamping or similar mechanical means to a minimum 95% of standard proctor maximum density.
7. Install engineering fabric to cover subgrade as detailed on the drawings. Place fabric in accordance with the "Placing Engineering Fabric" paragraph above.

B. Composite Drain Installation

1. Prior to composite drain installation, ensure subgrade surface is uniform, free of rocks, depression, voids and irregularities.
2. Refer to Section 32 18 14 for composite drain specifications.

C. Drainage Stone Base Installation

1. Provide and install a minimum four inch layer of specified uniformly mixed drainage stone base without damaging the composite drain system and engineering fabric or forming depressions in the subgrade below.
2. If required compacted stone base exceeds 6" in depth, construct base in two or more layers or lifts of approximate equal thickness. Each layer shall be compacted in minimum two directions to attain required compaction rate.
3. Laser grade stone base at 1.0% as specified on the Contract Documents. Ensure elevations of the stone base do not vary from the specified grade by more than 1/4" in ten feet in any direction.
4. Place specified finishing stone layer no more than 2" thick and laser grade at 1.0% as specified on the Contract Documents. Compact finishing stone in minimum two directions to attain required compaction rate. Ensure that elevations of the stone base do not vary from the specified grade by more than 1/4" in ten feet in any direction over the entire playfield area.
5. Mark areas that deviate from the required elevations with spray paint. Correct grade with additional finishing stone rolled tight to comply with required compaction densities.
6. Surface of synthetic turf stone base shall be maintained so as to be well drained at all times, standing water is not permitted.

D. Testing and Survey Verification of Stone Base

1. Provide gradation testing for all stone base layers prior to installation. Submit test results to the Project Designer and the Synthetic Turf Installer for joint approval of the product.
2. Independently confirm compliance with specified tolerances, planarity and elevation of the playfield subgrade and base elevations to be verified by a licensed surveyor and compaction, gradation and permeability verified by a geotechnical engineer.
3. Permeability: The contractor shall verify permeability of aggregate using DIN 8035 Part 7 (preferred method), ASTM 2434 (constant head), or ASTM D3385 (double ring) testing methods. Take a minimum of one sample per 5000 square feet unless otherwise directed by the Project Designer.
4. Topographical Survey: A professional land surveyor shall prepare a topographical survey with shots on a ten foot square grid, a minimum of 72 hours prior to the start of the synthetic turf surfacing installation. The survey shall be submitted to the Owner's Representative and the Project Designer for evaluation for acceptable planarity and tolerance.
 - a. In the event that the synthetic turf base as constructed does not meet the specified requirements, make all necessary repairs within 24 hours to avoid delay in installation of the synthetic grass surfacing.

- b. Coordinate with synthetic grass surfacing installer to ensure synthetic grass installers equipment can run smoothly upon installed granular base without sinking or in any other way disturbing the sub base and base layers.
- c. When directed by the Owner's Representative or the Project Designer, upon the request of the synthetic grass surfacing installer, the contractor shall provide a porosity report prior to the installation of the synthetic grass surfacing.

3.18 MAINTENANCE AND RESTORATION

- A. Restore grades to indicated levels where settlement or damage due to performance of the work has occurred. Correct conditions contributing to settlement. Remove and replace improperly placed or poorly compacted fill materials.
- B. Restore pavements, walks, curbs, lawns, and other exterior surfaces damaged during performance of the work to match the appearance and performance of existing corresponding surfaces as closely as practicable.
- C. Topsoil and seed damaged lawn areas inside and outside the indicated grading limits. Water as required until lawn areas are accepted by the Owner's Representative.

3.19 DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS

- A. Remove from the work site and dispose of excess materials, including materials resulting from clearing and grubbing and removal of existing improvements.

3.20 FIELD QUALITY CONTROL

- A. Tests: The Owner may provide soil testing and inspection services during earthwork operations. The Owner reserves the right to test and approve all subgrades and fill layers before construction proceeds.
 - 1. Compaction Testing: Provide the Owner's Representative adequate notice for all phases of filling and backfilling operations. Compaction testing will be performed by the Owner's Testing Agency to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on certain layers of the fill and backfill as determined by the Owner's Representative and the Testing Agency. If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be recompacted and retested. No additional material may be placed over a compacted layer until the specified density is achieved.
 - 2. Tests of subgrades and fill layers may, at the Owner's option, include:
 - a. Observation of proof rolling procedures.
 - b. Observation and or inspection of unsuitable soil material.
 - c. Footing subgrades, for each strata of soil for which footings will be placed, at least one plate bearing test and field density test may be conducted if the subgrade is non-cohesive, or unconfined compression test may be conducted if the subgrade is cohesive, to verify design bearing capacities shown on the drawings. Subsequent verification and approval of each footing subgrade may be based on visual comparison of each subgrade with tested strata when acceptable to the Project Designer.
 - d. Paved areas and subgrade areas, at least one field density test of subgrade for every 2000 square feet of paved area or other subgrade, but not less than three tests may be made. In addition, in each compacted fill layer, at least one field density test of subgrade for every 2000 square feet of paved area or building slab, but not less than three tests may be made.
 - e. Foundation wall backfill, field density tests at locations and elevations as directed may be made, with at least one test made for every 50 feet of wall.

- f. Fill under footings, in each compacted fill layer; one compaction test for every 30 LF of wall may be taken. One compaction test may be made under each individual footing.
 - g. Fill under playfield, at least one field density test of subgrade for every 2000 square feet of playfield area, but not less than three tests may be made. In addition, in each compacted fill layer, at least one field density test of subgrade for every 2000 square feet of overlaying playfield, but not less than three tests may be made.
- 3. If in the opinion of the Project Designer and based on reports of the testing service, completed subgrades or fills are below the specified density, provide additional compaction and testing at no additional expense to the Owner.

3.22 PROTECTION

- A. Protect graded areas from traffic and erosion, and keep them free of trash and debris.
- B. Repair and re-establish grades and seeding in settled and rutted areas to specified tolerances.

END OF SECTION 31 00 00

SECTION 31 10 00

SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Protection of trees, shrubs and other vegetation
2. Clearing and grubbing of site
3. Implementation of soil erosion and sediment control procedures
4. Demolition and removal of existing site features
5. Disposal of waste materials

1.02 DESCRIPTION

A. Design Requirements

1. The contractor shall clear and grub the site as required to perform the construction shown on the contract documents. Clearing and grubbing of the site shall be confined closely to the limits shown on the contract documents.
2. Site preparation operations required, but not limited to in the work, include:
 - a. Protection of existing trees, shrubs and vegetation.
 - b. Removal of existing trees, shrubs and vegetation as indicated on the contract documents.
 - c. Clearing and grubbing.
 - d. Temporary fencing.
 - e. Topsoil stripping.
 - f. Removal of above grade improvements and subsurface infrastructure.
 - g. Disconnecting and removing all existing utilities except those designated to remain.
 - h. Removal of debris.
 - i. Dust control.

1.03 SEQUENCING AND SCHEDULING

A. Coordinate site preparation operations with the following:

1. Work with other prime contractors.
2. Shut down and relocation of site utilities in field of operations.
3. Various stages of completion in the project schedule.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- ###### A. Verification of Conditions: Examine conditions under which site preparation work is to be accomplished in coordination with the installer components specified in this Section. Notify

affected Prime Contractors, the Owner's Representative and the Project Designer in writing of any conditions detrimental to proper and timely accomplishment of the required work. Do not proceed with site preparation work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

1. When the installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to the Project Designer written confirmation from the applicable installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.
- B. Perform the following prior to starting site preparation work:
1. Inspect the entire project site including all objects that are designated to remain or to be removed.
 2. Locate all underground infrastructure and utilities and determine requirement for their protection.
 3. Preserve in operating condition all active utilities traversing the site and designated to remain.
 4. Schedule site preparation work in consideration of adjacent public and private property owners.
 5. Avoid interference with use of and passage to and from adjacent buildings and facilities.

3.02 PREPARATION

- A. Protect existing objects designated to remain, both on and off the project site. In the event of damage, immediately make all repairs and replacements necessary for approval of the Owner's Representative and the Project Designer.
- B. Prevent spread of dust during performance of the work throughout the life of the project. Thoroughly moisten all site areas as required to prevent dust from being a nuisance to the Owner, public, neighbors and performance of other work on the site.
- C. Use all means necessary to minimize interference with roads, streets, walks, and other traveled areas. Do not close, obstruct, or cause to make impassable any traveled areas without first obtaining permission from the appropriate agencies.
- D. Remove, relocate, store and protect from damage items designated to be salvaged.

3.03 PROTECTION OF EXISTING TREES, SHRUBS AND VEGETATION

- A. Install temporary fencing as required to protect existing trees, shrubs and other vegetation which are scheduled to remain from above ground damage including smothering of root systems. Do not store construction materials, debris or excavated materials within the drip line of trees. Restrict vehicular traffic, parking and pedestrian traffic from tree drip line areas to prevent excessive compaction of soil over root systems.
- B. Trees, shrubs or vegetation scheduled to be saved that are damaged during construction work due to contractor negligence shall be placed under the care of a certified nurseryman or arborist. The Prime Contractor responsible for the damage to the plant material shall be liable for the cost of all required work. Trees, shrubs or vegetation that die as a result of contractor negligence shall be evaluated by a qualified nursery industry professional selected by the Owner's Representative. The removal and replacement of the affected trees, shrubs or vegetation and the associated evaluation expenses shall be the responsibility of the contractor.

3.04 CLEARING AND GRUBBING

- A. Remove trees, shrubs and other vegetation that interfere with the installation of new construction or grading work, except for those indicated to remain. Use only hand methods for grubbing inside the drip line of trees indicated to remain. Removal of plant material includes the excavation and off-site disposal of new and old stumps of trees, shrubs and other vegetation and their entire root mass.
- B. Depressions caused by clearing operations shall be filled with satisfactory soil material unless further excavation or earthwork is required.

3.05 IMPLEMENTATION OF SOIL EROSION AND SEDIMENT CONTROL PROCEDURES

- A. Install temporary and permanent measures to mitigate soil erosion and sediment control issues as directed by the Project Designer or interested State Agencies. Work may include the installation of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, sloped drains and other erosion control devices.
- B. The temporary soil erosion and sediment control measures indicated on the Contract Documents shall be coordinated with the specified permanent erosion control features to the extent practical to assure economical, effective and continuous erosion control.

3.06 DEMOLITION AND REMOVAL OF EXISTING SITE FEATURES

- A. Remove foundations, pavement, sidewalks, curbs, retaining walls and other site features noted for removal that are encountered as part of the work.
 - 1. Remove asphalt concrete paving material to full depth and remove from site.
 - 2. Gravel and stone fill under removed sidewalks may be reused if suitable for the particular new use and approved by the Project Designer.
 - 3. Remove below grade structures such as retaining walls to a minimum depth of 2'-0" below new finished grade unless specifically noted otherwise within the Contract Documents.
 - 4. Break up and completely remove miscellaneous concrete such as small foundations.
- B. Leave cut edge neat and square where existing material is cut to adjoin new work.

3.07 DISPOSAL OF WASTE MATERIALS

- A. Burning on the Owner's property of combustible cleared and grubbed material is not permitted.
- B. Remove all combustible cleared and grubbed material, excess excavated subgrade material, broken stone, broken concrete, masonry materials, and debris from the Owner's property and legally dispose of it. Obtain all permits for off-site disposal and submit a copy of each permit to the Owner's Representative.

END OF SECTION 31 10 00

SECTION 31 23 17

SITE TRENCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Trench excavation, backfill and compaction of underground piping and underdrainage.

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 33 40 00 – Storm Drainage Utilities

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Backfill Product Data: Submit test reports for each type of gravel and/or stone specified for backfill naming the source of each material. Submit evidence that each backfill material complies with Department of Transportation standard specifications for the materials specified.
- C. Quality Control Submittals
 - 1. Experience Listing: Submit a list of completed projects similar to this project, including owner's contact information and telephone number for each project.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.06 SEQUENCING AND SCHEDULING

- A. Proceed with and complete trenching operations as rapidly as portions of the site become available, working within seasonal limitations for the work required.
- B. Coordinate work with other Prime Contractors.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Excavated Material: Where specifically indicated on the Drawings, utilize on-site excavated materials consisting of loam, clay, sand, gravel or other material suitable for backfilling as approved by the Project Designer..
- B. Sand: Where indicated on the Drawings, utilize natural bank sand complying with the following gradation requirements:
 - 1. 100% passing the ¾" sieve
 - 2. Less than 5% passing the Number 200 sieve.
- C. Select Type 1 Granular Material: Where indicated on the Drawings, supply stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with New York State Department of Transportation gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
3 inch	76.2	100
2 inch	50.8	90-100
1/4 inch	6.35	30-65
No. 40	0.425	5-40
No. 200	0.075	0-10

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which trenching operations are to occur with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 EXCAVATION

- A. Excavate trenches to line and depth as indicated on the Contract Documents. Provide consistent, uniform support for the bottom quadrant of each section of piping, fittings and associated materials.
 - 1. Excavate no more than length of trench that can receive infrastructure installation and backfill.

2. Brace and drain trenches as required. Accumulations of groundwater or storm runoff shall be immediately discharged by dewatering pumps to siltation basins or protected channels, drains or storms sewers.
3. Provide adequate trench width to permit successful laying and joining of pipe, proper placement of backfill and clearance of at least 8" on either side of the pipe barrel.
4. Prepare the finish grade of the trench bottom with hand tools. Where elevations are not shown on the Contract Documents, excavate the trench to place a minimum of 18" of fill above the top of the pipe. Provide "bell holes" at each pipe joint for proper joining to eliminate point bearing. Stones of 2" or greater in any dimension or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.
5. Where trench excavation is carried below the specified elevation as a result of Contractor error or negligence, backfill the trench with Select Type 1 Granular Material and compact to required densities at no cost to the Owner.
6. When trenching is required within the dripline of trees, tunnel under or around roots by hand digging. Do not cut tap roots or main lateral roots.

B. Excavated Materials

1. Materials satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench sufficient to avoid overloading and to prevent slides and cave-ins.
2. Adequate drainage shall be provided for the stockpiles and surrounding areas by means of ditches, dikes and other approved methods.
3. Stockpiles shall be protected from contamination with unsatisfactory excavated material or other material that destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles and any material becomes unsatisfactory as a result, such material shall be removed and replaced with satisfactory on site or imported materials from approved sources at no additional cost to the Owner.
4. Excavated material not required or not satisfactory for backfill shall be removed from the site.

3.03 BACKFILLING

A. Trench Backfill: Trenches shall be backfilled to grade upon completion of required testing work.

B. Bedding and Initial Backfill: Bedding shall be of the type and thickness as indicated on the Contract Documents or as recommended by the pipe manufacturer.

1. Initial backfill material shall be placed in layers of a maximum of 6" loose thickness and compacted with approved tampers to the density of the adjacent in-situ soil, and to a height of at least one foot above the utility pipe, conduit or other infrastructure item. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe.
2. Care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe.

C. Final Backfill: The remainder of the trench shall be backfilled with the type and thickness of material as indicated on the Contract Documents, or as recommended by the pipe manufacturer . Backfill material shall be deposited and compacted as follows:

1. Under slabs, roads, walks, parking lots and other structural areas, backfill shall be deposited in maximum 8" loose thickness layers and compacted to 95% maximum dry density at +/-2% of optimum moisture content.
2. Under synthetic turf playfield areas, backfill shall be deposited in maximum 8" loose thickness layers and compacted to 95% maximum dry density at +/-2% of optimum moisture content.

3. Under general landscape and natural turf playfield areas, backfill shall be deposited in maximum 12" loose thickness layers and compacted to 95% maximum dry density at +/-2% of optimum moisture content.

3.04 FIELD QUALITY CONTROL

A. Testing

1. The Contractor shall employ the services of an independent testing agent to observe and test backfill operations performed by other Prime Contractors that may affect their work. An independent testing laboratory shall certify that the backfill is suitable for finish construction to be installed over trenches.
2. Contractors shall submit copies of testing laboratory reports to the Owner's Representative and the Project Designer for information only.
3. The Site Work Prime Contractors shall accept in writing any trench backfill and compaction by other prime contractors before installing the remaining finish construction over trench work.

END OF SECTION 31 23 17

SECTION 312500

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 Applicable provisions of the Contract Documents govern work under this section.

1.02 WORK INCLUDED

A. Provide all labor, equipment and materials necessary to install and maintain erosion control blankets, silt fence, hay bale dikes, sediment traps, inlet protection, and to implement erosion control measures as shown on the plans, as required by regulatory permits, and as job conditions dictate. The Contractor shall retain the services of a qualified professional to inspect and report on erosion control activities. All contractors performing grading, trenching, or other earthwork shall provide certification that it will comply with the plans prepared by the Architect and document their erosion control efforts during all construction activity.

B. Related Work Specified Elsewhere:

1. Section 31 0000 – Earthwork
2. Section 31 1000 – Site Preparation
3. Section 32 9200 – Turf and Grasses
4. Section 33 4000 – Storm Drainage Utilities

1.03 SUBMITTALS: Designate erosion control and maintenance activities on submitted Project Schedule.

1.04 QUALITY ASSURANCE: All Erosion/Sediment Control activities and water quality objectives performed by the Contractor shall be in compliance with the following standards of practice:

- A. NYSDEC's "New York Standards and Specifications for Erosion and Sediment Control" as published by the Empire State Chapter of the Soil and Water Conservation Society.
- B. NYSDEC's "New York State Stormwater Management Design Manual" as prepared by the Center for Watershed Protection.
- C. USDA Soil Conservation Service's "Guidelines for Urban Erosion and Sediment Control", latest revision.
- D. NYSDEC's "Erosion and Sediment Control Guidelines for New Development T.O.G.S. 5-1.10".
- E. Local Guidelines for Erosion and Sediment Control.
- F. NYSDEC's "Reducing the Impacts of Stormwater Runoff for New Developments", latest revision.
- G. Directives of the Owner, Project Designer, and/or regulatory personnel of authority having jurisdiction requiring further control measures as warranted.

1.05 SEQUENCING AND SCHEDULING

- A. Place erosion control measures wherever shown on the Contract Drawings before beginning any other Work of this Contract.
- B. Place other erosion control measures shown on the Contract Drawings as soon as possible, relative to other Work of this Contract including, but not limited to, the following:

1. At grading limits, before beginning rough grading.
2. In drainage channels, as soon as subgrade is established.
3. In drainage channels, as soon as topsoil and seed are applied.
4. At drainage structures, as soon as backfill is compacted and frame and grate are installed.
5. At flared end sections, as soon as installation is complete.
6. At all disturbed ground and subgrade as specified.

1.06 FINES FOR VIOLATIONS: Permits and their conditions are part of the Contract Documents and failure to implement these conditions and the requirements of this Contract may result in the issuing agency levying a fine for violating the terms of the permit. The Owner is the permittee on these permits and, therefore, would be fined for such violations. Recognizing that it is the responsibility of each pertinent contractor to abide by permit and contractual requirements, each pertinent contractor shall reimburse the Owner the full amount of all fines levied on account of the pertinent contractor's failure to abide by those requirements.

PART 2 - PRODUCTS

2.01 MULCHES: Mulches shall be suitable material acceptable to the Project Designer and reasonably clean and free of noxious weeds and deleterious materials. The following materials are acceptable:

<u>Mulch Material</u>	<u>Quality Standards</u>	<u>Application Rates</u>		
		<u>Per 1000 SF</u>	<u>Per Acre</u>	<u>Depth</u>
Wood chips/shavings	Green or air-dried, free of objectionable coarse material.	500-900 lbs.	10-20 tons	2 - 7"
Straw	Air-dried; free of undesirable seeds and coarse materials	90-100 lbs. 2-3 bales	2 tons 100-120	90% of surface

2.02 GRASS

A. Grass shall be quick growing species suitable to the area and as a temporary cover which will not compete with the grasses sown later for permanent cover.

B. Seed Mixtures

1. Temporary Seeding

<u>Type</u>	<u>Lbs./Acre</u>	<u>Lbs./1000SF</u>
a. Ryegrass (Annual or Perennial)	80	1.9
b. Certified Aroostook Winter Rye	100	2.5
Use winter rye if seeding in October/November.		

2.03 SOIL AMENDMENTS

A. Fertilizer and soil conditioners shall be a standard commercial grade acceptable to the Project Designer.

1. Lime: pH of 6.
2. Fertilizer: Meeting New York State Department of Transportation Specification 713-03 Type 1 or as approved. 1-2-1 N.P.P. ratio.

2.04 JUTE MESH: Jute mesh and appurtenances shall comply with NYSDOT Specification Section 612, latest revision.

2.05 SILT FENCE

A. Field Assembled Units

1. Fabric shall meet the following minimum criteria:

<u>Property</u>	<u>Min. Acceptable Value</u>	<u>Test Method</u>
Grab Tensile Strength (lbs.)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (psi)	190	ASTM D3786
Puncture Strength (lbs.)	40	ASTM D751 (Modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultra-Violet Radiation Stability (%)	90	ASTM G-26

2. Posts

- a. Wood: Oak or similar quality hardwood, 2.0 inches square minimum.
- b. Steel: Standard T or U section weighting 1.00 pound per linear feet minimum.

3. Mesh

- a. 14-1/2 Ga. Min. with 6" max. mesh opening, plastic safety fence, orange or black, or as approved.

B. Prefabricated Units

1. Preassembled units meeting the material requirements of 2.05A may be used in lieu of field assembled units.

2.06 CHEMICAL BINDER: Non-toxic conforming to Item 713-12 of NYSDOT Specifications.

2.07 RIP-RAP: Per NYSDOT Specifications.

2.08 STONE: Sound durable stone per NYSDOT Specification Section 703, size(s) per plans.

2.09 ADDITIONAL PRODUCTS: As specified and illustrated on the project plans, as required by regulatory permits, and as job conditions dictate.

PART 3 - EXECUTION

3.01 Contractor shall implement erosion control measures as shown on the plans, as job conditions dictate. Intent is to minimize erosion and pollutants at the source, capture sediment at regular intervals and prevent sediment intrusion into storm sewer pipes, structures, and waterways. Work includes, but is not limited to hay bales, mulching, temporary silt fences, filter fabric, expeditious grading, stormwater diversion, prompt turf establishment, sediment dikes, and maintenance of same.

3.02 The Contractor shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. If disturbed soils surfaces are to be left exposed for a period of greater than 14 days, stabilize the soil with temporary seeding and/or mulch to limit erosion. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practical. The onset of seasonally adverse weather is not intended as an excuse for not implementing the necessary erosion controls. The Contractor shall

use foresight in his activities to only disturb areas that he can stabilize before adverse weather conditions prevail. The Contractor is encouraged to schedule his work such that final land surface restoration closely follows initial disturbance to the maximum extent possible in order to limit bare soil exposure and dependence on the temporary systems discussed above.

- 3.03 Sediment shall be removed from sediment traps, sediment ponds, or other devices whenever their capacity has been reduced by fifty (50) percent from the design capacity and/or as required to ensure intent. Prior to fine grading and restoration, the Contractor shall remove and dispose of accumulated sediments and silts as required.

3.04 AUTHORITY OF WORK

- A. The Owner and Project Designer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing the surface area of erodible earth material exposed by excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses and water bodies.

3.05 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations. Promptly repair equipment leaks. Provide equipment and personnel to perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
- B. Notify Owner, Project Designer and regulatory authorities having jurisdiction if contaminated soil, groundwater or other forms of pollution are encountered. Excavate and dispose of any contaminated earth immediately in accordance with Federal, State and local regulations off-site, and replace with suitable compacted fill.
- C. 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 or trucks shall not be allowed to enter live streams.

3.06 DEWATERING AND WASHWATERS

- A. Water from aggregate washing, equipment 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.

3.07 DIVERSION BERMS/SWALES

- A. Slopes of significantly barren slopes exceeding 15 percent require special treatment such as water diversion berms, swales, straw bale sediment barriers, sodding, approved mulch tacking agent over straw mulch applied over seeded areas, or a combination thereof.

3.08 SILT FENCE INSTALLATION

- A. A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence are:

<u>Slope Steepness</u>	<u>Maximum Slope Length (Ft)</u>
2:1	50
3:1	75
4:1	100

5:1
Flatter than 5:1

150
150 or as shown on the plans

2. Maximum drainage area for overland flow to a silt fence shall not exceed 2 acres per 100 feet of fence.
3. Erosion would occur in the form of sheet erosion.
4. There is no concentration of water flowing to the barrier.

- B. Woven wire fence to be fastened securely to fence posts with wire ties or staples.
- C. Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
- D. Embed silt fence material a minimum of 6 inches below finished grade.
- E. When two sections of filter cloth adjoin each other, they shall be overlapped by six inches and folded.
- F. Maintenance shall be performed as needed and material removed when bulges develop in the silt fence, or when 6 inches of sediment has accumulated against it, whichever occurs first. All sediment barriers shall be repaired or replaced when they no longer function as a barrier.

3.09 CONSTRUCTION OPERATIONS

- 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, so that erosion will be minimized and sediment will not enter streams or other bodies of water. Waste or disposal areas and construction roads shall be located and constructed in a manner that will minimize sediment-entering streams. Install sediment containment devices around stockpiles and waste areas. Stabilize the surface of temporary haul roads to minimize sediment creation.
- B. Install stabilized construction entrances at all ingress/egress points to local and state roads as required and as detailed on the plans.

3.10 CONSTRUCTION PHOTOGRAPHS

- A. The Contractor shall take good quality photographs of streams, ditches, channels, ponds or other water bodies immediately adjacent to project work area that will receive runoff from construction activity. Document existing conditions such as existing sediment deposition, water turbidity, eroded streambeds/streambanks and condition of vegetation.

3.11 CONSTRUCTION SCHEDULE

- A. Prior to beginning construction, the Contractor shall submit for review and acceptance, a detailed project schedule which outlines his program for controlling erosion, limiting conveyance of silt and sediment, pollution prevention, maintenance of devices and controls, and restoration of graded surfaces for the duration of the project and the one-year warranty period.
- B. The Project Designer may limit the area of clearing and grubbing, excavation, trenching and embankment operations in progress, commensurate with the Contractor's capability, responsiveness, and progress in keeping the finish grading, mulching, seeding and other such permanent control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

3.12 FINAL STABILIZATION

- A. Final stabilization is defined as all soil disturbing activities at the site having been completed, and that a uniform perennial vegetative cover with a density of at least 80% has been established or equivalent

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College
State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

3.13 REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

- A. Remove erosion control devices when final stabilization has occurred for the respective areas of the site and are no longer needed.

3.14 CONTRACTOR'S RESPONSIBILITY

- A. The actual scheduling and implementation of maintenance of required water quality is the responsibility of the Contractor. The erosion and sediment control plan and devices shown are considered to comprise the majority of efforts needed, but not necessarily all that will be required. Weather, the Contractor's schedule, extent of disturbance, site and unforeseen conditions can dictate that greater efforts will be necessary.

END OF SECTION 312500

SECTION 32 12 16

ASPHALT PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base for asphalt paving
- B. Asphalt paving installation over aggregate base
- C. Joining new asphalt pavement to adjacent construction
- D. Traffic marking of asphalt pavement
- E. Field quality control

1.02 RELATED SECTIONS

- A. Section 31 00 00 - Earthwork
- B. Section 32 13 13 – Concrete Paving
- C. Section 32 16 13 – Concrete Curbs
- D. Section 33 40 00 – Storm Drainage Utilities

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Job Mix Formulas: Submit job mix formulas for asphalt paving indicating compliance with the requirements of each asphalt type specified including the name and location of the supplier.
- D. Quality Control Submittals
 - 1. Certificates: Submit one copy of all permits obtained from local regulatory agencies and the New York State Department of Transportation.
 - 2. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the requirements specified below in the "Quality Assurance" section of this specification.
 - 3. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable requirements specified in the "Quality Assurance" section of this specification.

- E. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Asphalt Producer Qualifications: Use only materials furnished by bulk asphalt producer regularly engaged in the production of hot-mix, hot laid asphalt.
- B. Regulatory Requirements
 - 1. Conform to the requirements of local regulatory agencies, or if applicable, the New York State Department of Transportation, which ever is more stringent for methods and materials

in work areas subject to applicable agency's review and approval. Provide materials complying with referenced New York State Department of Transportation Standard Specifications where indicated.

2. Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 PROJECT CONDITIONS

A. Environmental Requirements:

1. Do not apply tack coats when ambient temperature is below 50 degrees F., and when the temperature has not been above 35 degrees for 12 hours immediately prior to the application. Do not apply a tack coat when an asphalt base is wet or contains an excess of moisture.
2. Do not construct asphalt surface courses when the atmospheric temperature is below 40 degrees F., and when base material is not dry. Asphalt may only be placed when air temperatures are a minimum of 40 degrees F. and rising.

B. Field Measurements: Establish and maintain required lines and elevations for grade control.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate Base: Comply with the New York State Department of Transportation Standard Specification, Section 304, Paragraph 304-2, as modified in Section 31 00 00 – Earthwork.

- a. Foundation Course (Course of fill below the specified stone base course): Select Type 1 granular fill. On site material may be acceptable as fill under the gravel base portion of the asphalt pavement profile should the on site material be deemed acceptable by the Owner's Testing Agency or the Project Designer.
- b. Base Course: Type 2 crushed stone as modified in Section 31 00 00 – Earthwork unless specifically noted otherwise on the Contract Documents.

B. Asphalt Pavement: Paving materials shall comply with the New York State Department of Transportation Standard Specification. Section 400 for the materials indicated.

1. Binder Course: Hot plant mixed asphalt, complying with the New York State Department of Transportation Standard Specification, Section 401 and 403 for Asphalt – Type 3 Binder.

Sieve		Percent Passing	
Sieve Size	Sieve Size (mm)	General Limits	Job Limit Tol. %
1 1/2"	37.5	100	-
1"	25.0	95 – 100	-
1/2"	12.5	70 – 90	+/-6
1/4"	6.3	48 – 74	+/-7
No. 6 Sieve	3.2	32 – 62	+/-7
No. 20 Sieve	.850	15 – 39	+/-7
No. 40 Sieve	.425	8 – 27	+/-7
No. 80 Sieve	.180	4 – 16	+/-4
No. 200 Sieve	.075	2 – 8	+/-2

- a. The PGB content shall be 4.5 – 6.5%, +/-0.4%.
- b. The mixing and placement temperature range shall be 120 – 165 degrees C.

2. Topcourse: Hot plant mixed asphalt, complying with the New York State Department of Transportation Standard Specification, Section 401 and 403 for Asphalt – Type 7 Topcourse.

Sieve		Percent Passing	
Sieve Size	Sieve Size (mm)	General Limits	Job Limit Tol. %
1/2"	12.5	100	-
1/4"	6.3	90 – 100	-
No. 6 Sieve	3.2	45 – 70	+/-6
No. 20 Sieve	.850	15 – 40	+/-7
No. 40 Sieve	.425	8 – 27	+/-7
No. 80 Sieve	.180	4 – 16	+/-4
No. 200 Sieve	.075	2 – 6	+/-2

- a. The PGB content shall be 5.7 – 8.0%.
 - b. The mixing and placement temperature range shall be 120 – 165 degrees C.
- C. Coatings: Comply with the New York State Department of Transportation Standard Specification, Section 702 for material designations indicated.
1. Tack Coat: Emulsified asphalt, slow setting type, New York State Department of Transportation designation 702-3601 (SS-1h) or 702-4501 (CSS-1h).
 2. Asphalt Cement Filler: New York State Department of Transportation Designation 702-05.
- D. Parking Lot Marking Paint: Utilize pavement marking paint complying with the New York State Department of Transportation Standard Specification, paragraph 727-01, White Marking Paint – Type 1 or paragraph 727-01, Yellow Marking Paint – Type 1.
1. Manufacturer: For convenience, specifications have been based on "Setfast Acrylic Latex Traffic Paint" by Sherwin Williams, Co., Cleveland, OH (Tel. #216-566-2902).

2.02 EQUIPMENT

- A. Paving Equipment: Spreading, self propelled asphalt paving machines capable of maintaining the line, grade and minimum surface thickness specified. Spreader boxes may be used in areas where specifically approved by the Project Designer.
- B. Compacting Equipment: Self-propelled tandem roller with a minimum 10 ton weight. Hand held vibrator compactor may be used in areas not accessible to rollers when specifically approved by the Project Designer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which pavement is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - a. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written

confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Final Preparation of Subgrades: Upon completion of preparation of subgrades as specified in Section 31 00 00, thoroughly scarify the entire area to be paved and compact by rolling to smooth, hard, even surface. Finish to required grades with allowance for pavement courses above.

3.03 INSTALLATION

- A. Aggregate Base: Comply with the requirements of the New York State Department of Transportation Standard Specification, Section 304-3, for aggregate gradations specified, unless otherwise indicated.
 - 1. Base Course: Completely fill voids with grits and roll with a 10 ton roller, eliminating movement of the material ahead of the roller. After rolling, verify grading with a minimum ten foot long straight edge. Satisfactorily eliminate any depression over 1/4" deep. Obtain approval of base prior to installing asphalt courses above
 - a. Asphalt Sidewalk Thickness: Minimum 12" thickness unless otherwise noted.
- B. Asphalt Paving: Pave finished surface free from depressions that may collect water. The Contractor shall remove any depressions at their own expense over 1/8" deep when tested with a six foot straight edge without evidence of patching.
 - 1. Pave over aggregate base in two courses, 1" compacted depth topcourse over 2" compacted depth binder course. Comply with the New York State Department of Transportation Standard Specification, paragraph 401-3 and paragraph 403-3 for asphalt types specified.
- C. Joining New Asphalt Pavement to Adjacent Construction
 - 1. Carefully construct joints between old and new pavements, or between successive days work to ensure continuous bond between adjoining paving. Construct joints with the same texture, density and smoothness as adjacent sections of asphalt courses. Clean sand, dirt and other deleterious material from contact surfaces and apply tack coat.
 - 2. Offset traverse joints a minimum of 24" between succeeding courses. Cut back pavement to the edge of previously placed courses to expose an even, vertical surface for the full course thickness.
 - 3. Offset longitudinal joints a minimum of 6" between succeeding courses. When edges of longitudinal joints are irregular, honeycombed or inadequately compacted, cut back all unsatisfactory sections to expose an even, vertical surface for the full course thickness.
 - 4. In horizontal joints between the binder and the topcourse, clean all contact surfaces and spray a tack coat prior to the installation of the topcourse if the binder has been in place for longer than seven days or if the pavement is determined to be excessively dirty by the Project Designer.
 - 5. Seal joints with the application of asphalt cement filler, a minimum of 2" to each side of the joint.
- D. Traffic Marking: Apply parking lot marking paint in accordance with the manufacturer's recommended procedures and in accordance with the New York State Department of Transportation Standard Specification, paragraph 640-3.

3.04 FIELD QUALITY CONTROL

- A. Flood Tests: Perform a flood test in the presence of the Owner's Representative or the Project Designer utilizing a water tank truck. If a depression ponding water more than 1/8" in depth is found, provide corrective measures to provide proper drainage.

END OF SECTION 32 12 16

SECTION 32 13 13

CONCRETE PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preparation for concrete paving
- B. Placement of fabric reinforcement
- C. Placement of concrete
- D. Placement of joints and sealants
- E. Placement of detectable warning surface
- F. Finishing and curing

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earth Moving
- B. Section 32 12 16 – Asphalt Paving
- C. Section 32 16 13 – Concrete Curbs
- D. Section 33 40 00 – Storm Drainage Utilities

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data
 - 1. Concrete Mix Design: Submit proposed concrete design mix together with the name and location of the batching plant.
 - 2. Portland Cement: Brand and manufacturer's name.
 - 3. Air Entraining Admixture: Brand and manufacturer's name.
 - 4. Water Reducing or High Range Water Reducing Admixture: Brand and manufacturer's name.
 - 5. Curing and Anti-Spalling Compound: Manufacturer's specifications and application instructions.
 - 6. Welded Wire Mesh and Reinforcing Bars and Dowels: Manufacturer's name.
 - 7. Joint Fillers and Sealants: Catalog sheets, specifications and installation instructions for each product specified.
- C. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. At location directed by the Project Designer, construct concrete flatwork sample panel approximately 5' wide by 15' long.
- B. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.
- C. Regulatory Requirements
 - 1. Conform to the requirements of local regulatory agencies, or if applicable, the New York State Department of Transportation, which ever is more stringent for methods and materials

in work areas subject to applicable agency's review and approval. Provide materials complying with referenced New York State Department of Transportation Standard Specifications where indicated.

2. Obtain written permission from applicable agencies prior to the start of construction.

1.05 PROJECT CONDITIONS

- A. Maintain access for vehicular and pedestrian traffic as required for other construction activity. Provide barricades, warning signals, warning lights, and similar items as required.
- B. Environmental Conditions
 1. Humidity and Moisture: Do not install the work under this specification section under conditions that are detrimental to the installation, curing and performance of the specified materials.
 2. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants below 40 degrees F. or above 85 degrees F.
- C. Protection: Protect all newly poured concrete surfaces from damage. Protect all surfaces adjacent to sealants with non-staining, removable tape or other approved covering to prevent soiling or staining.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cast-In-Place Concrete: Normal weight, air entrained concrete with a minimum compressive strength of 4,500 psi at the end of 28 days.
 1. Design Air Content: ASTM C 260, and on the New York State Department of Transportation's current "Approved List"; 6% by volume +/- 1.5%.
 2. Cement: ASTM C 150 Type I or II portland cement. Minimum 6.5 bags or 611 pounds per cubic yard.
 3. Water: Potable.
 4. Slump: Between 2 and 4 inches except when a water reducing admixture is used, the maximum slump shall be 6 inches. When a high range water reducing admixture is used, the maximum slump shall be 8 inches.
 5. Water Reducing Admixture: ASTM C 494, Type A and on the current New York State Department of Transportation's current "Approved List".
 6. High Range Water Reducing Admixture: ASTM C 494, Type F and on the current New York State Department of Transportation's current "Approved List".
- B. Chemical Curing and Anti-Spalling Compound: ASTM C-309, Type 1D, Class B, clear, styrene acrylate type liquid compound with fugitive dye, minimum 18% total solids (by weight of compound), ready to use by spray apparatus.
 1. For convenience, details and specifications have been based on the following manufacturers and their products:
 - a. Sure Cure Emulsion, Kaufman Products, Inc., Baltimore, MD.
 - b. Cure and Seal by Symons Corp., DesPlaines, IL.
 - c. Kure-N-Seal 0800, Sonneborn Building Products/Chemrex, Inc., Shakopee, MN.
 - d. Day-Chem Cure and Seal 26% (J-22), Dayton Superior Corp., Miamisburg, OH.

- e. Acrylseal HS, Master Builders, Inc., Cleveland, OH.

C. Reinforcement

1. Welded Wire Mesh: Flat sheets of welded, plain, cold drawn steel wire fabric complying with ASTM A 185. Rolled wire will not be acceptable for installation as part of the project.
2. Reinforcing Bars and Dowels: Deformed steel bars, ASTM A 615, Grade 60.

D. Joint Sealants

1. For horizontal joints, two part self leveling polyurethane sealant for traffic bearing construction.
 - a. For convenience, details and specifications have been based on the following manufacturers and their products:
 - (1) Vulkem 255 by Mameco International, Inc., Beachwood, OH.
 - (2) Urexpan NR-200 by Pecora Corp, Harleysville, PA.
 - (3) Chem-Calk 550 by Bostik Inc., Middleton MA.
 - (4) Sealtight Porthane Sealant by W.R. Meadows, Elgin, IL.
 - (5) Sonolastic SL-2 Joint Sealant Slope Grade by Sonneborn Building Products Inc., Minneapolis, MN.
2. For vertical joints, two part non-sag polyurethane sealant.
 - a. For convenience, details and specifications have been based on the following manufacturers and their products:
 - (1) Vulkem 227 by Mameco International, Inc., Beachwood, OH.
 - (2) Dynatrol II by Pecora Corp, Harleysville, PA.
 - (3) Chem-Calk 500 by Bostik Inc., Middleton MA.

E. Joint Fillers

1. Closed Cell Polyurethane Joint Filler: Resilient, compressible, semi-rigid, closed cell isometric polymer foam material, minimum ½" thick similar to Ceramar Joint Filler as manufactured by W.R. Meadows, Inc., Elgin IL.
 - a. Fiber board or cork joint filler material is not acceptable for use in concrete expansion joint work.

2.02 EQUIPMENT

- A. Forms: Steel of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Coat forms with non-staining, clear, paraffin based form oil that will not discolor or otherwise stain concrete surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which pavement is to be constructed with the materials and components specified in this section. Affected Prime

Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.

1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Surface Preparation: Remove all loose material from the compacted sub-base surface prior to placing concrete.
- B. Forms: Set forms for 5" thick sidewalks unless specifically noted otherwise true to line and grade and anchor rigidly into position.
- C. Space expansion joints equally at not more than 30'-0" on center.
- D. Place joint filler at expansion joints and where new concrete abuts existing concrete paving and fixed structures and appurtenances. Protect the top edge of the joint filler during concrete placement with a temporary cap and remove after concrete has been placed. Fill expansion joint with joint sealant after the concrete has been cured complying with the sealant manufacturers installation instructions.

3.03 PLACEMENT OF FABRIC REINFORCEMENT

- A. Prior to placement of woven wire mesh, clean thoroughly of mill and rust scale and of coatings that could destroy or reduce bond.
- B. Install fabric reinforcement midway between the top and bottom of the concrete slab. Prior to placing concrete, place fabric reinforcement midway between the top and bottom of the slab and secure against displacement with the use of chair carriers or other approved materials.
- A. Lap edges and ends of adjoining sheets of fabric reinforcement at least half the mesh width. Offset end laps in adjacent sheets to prevent continuous joints at ends. Interrupt reinforcement at expansion joints, stopping 2" from edges.

3.04 PLACING CONCRETE

- A. Moisten the concrete subgrade as required to provide a uniform dampened condition at the time that concrete is placed.
- B. Do not place concrete around manholes or other structures until these items are brought to the required grade and alignment.
- C. Consolidate concrete by spading, rodding, forking or using an approved vibrator eliminating all air pockets, stone pockets and honeycombing. Work and float concrete surface so as to produce a uniform texture.
- D. Locate construction joints (if any) at expansion joint locations.
- E. Deposit and spread concrete in a continuous operation between control joints.

3.05 FINISHING AND CURING

- A. After striking off and consolidating poured concrete, smooth the surface by screeding and floating. Adjust floating to compact the surface and produce a uniform texture.
- B. After floating, test the surface for trueness utilizing a 10' steel straight edge. Distribute concrete as required to remove surface irregularities and refloat repaired areas to provide a continuous smooth finish.
- C. Provide broom finish for walk surfaces.
- D. Finish edges of walk and expansion joints with a 1/2" radius edging tool. Space tool joints equally between expansion joints at approximately 5'-0" on center, unless specifically detailed otherwise on the construction documents.
- E. Apply curing and anti-spalling compound in accordance with the manufacturer's printed instructions.

3.06 FIELD QUALITY CONTROL

- A. Testing by Owner of Concrete Sidewalks
 - 1. Contractor Requirements
 - a. Provide access to concrete construction and concrete supplier's facilities for representatives of the testing agency employed by the Owner to perform concrete testing and facility inspections as described below.
 - b. Notify the Owner's Representative at least 48 hours in advance of each concrete placement to allow notification of the Owner's Testing Agency.
 - 2. Concrete Testing During Construction by the Owner's Testing Agency
 - a. Sampling Method: ASTM C 172 modified for slump to comply with ASTM C94.
 - b. Slump Testing (ASTM C143): One test for each concrete load at the point of discharge. One test for each set of compressive strength test specimens, and one test from the middle of each load.
 - c. Air Content Testing (ASTM C231, Pressure Method): One of each set of compressive strength test specimens; air content checked on every fourth load of "ready-mix" concrete delivered.
 - d. Compressive Strength Testing
 - (1) Specimen Preparation: In compliance with ASTM C31 requirements to prepare one set of standard cylinders (minimum six each) for each compressive strength test.
 - (2) Specimen Testing: In compliance with ASTM C39 requirements for testing of one set of specimens for each 100 cubic yards (or fraction thereof) of each type of concrete placed in each day as follows
 - (a) Two specimens at seven days after concrete completion.
 - (b) Three specimens at 28 days after concrete placement.
 - (c) One specimen retained for later testing, if required.

- e. Reporting: Reports containing the following information shall be provided in writing by the Owner's Testing Agency to the Project Designer and the Prime Contractor the same day the tests are accomplished.
 - (1) Project identification name and number.
 - (2) Name of prime contractor, concrete supplier and testing agency.
 - (3) Number (or other designation) of truck delivering the concrete.
 - (4) Concrete type and class, date of placement, and location of concrete batch within the project.
 - (5) Design compressive strength at 28 days.
 - (6) Concrete mix proportions and materials.
 - (7) Compressive breaking strength and type of break for both 7 day test and 28 day test.
- f. Concrete Temperature: Test hourly when air temperature is 40 degrees F. or lower, or when the air temperature is 80 degrees F. or above, and each time compression testing specimens are prepared.
- g. Inspection of Supplier Facilities: The Owner's Testing Agency may inspect the concrete supplier's batch plant and review batching procedures as deemed necessary by the Owner, including inspecting the aggregate washing facility, concrete heating system, and concrete transportation equipment.
- h. Inspection of Reinforcing Steel: The Owner's Testing Agency may inspect placement of reinforcing steel. Do not begin concrete placement on any pour unless the Owner's Representative and the Project Designer have been notified at least one day preceding the pour to allow reasonable time for inspection of the reinforcing steel.

3.07 ADJUSTING AND CLEANING

A. Repairs and Protection of Concrete Sidewalks

- 1. Repair or replace broken or defective concrete as directed by the Project Designer.
- 2. Protect concrete from damage until acceptance of concrete sidewalk construction. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain walks as clean as possible by removing surface stains as they occur.
- 3. Sweep concrete walks and wash them free of stains, discoloration, dirt, and other foreign materials just prior to final acceptance.

- B. Patching Existing Construction: Repair or patch adjacent existing concrete or other surfaces damaged from concrete sidewalk construction.

END OF SECTION 32 13 13

SECTION 32 16 13

CONCRETE CURBS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Curb installation
- B. Curb cut installation

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 32 12 16 – Asphalt Paving
- C. Section 32 13 13 – Concrete Paving

1.03 REFERENCES

- A. Comply with ACI 301-89 for all work specified as part of this section unless specifically indicated otherwise within the Contract Documents.

1.04 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the "Qualifications" requirements specified below in the "Quality Assurance" section of this specification.
 - 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified in the "Quality Assurance" section of this specification.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements
 - 1. Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

- B. Existing Conditions: Maintain access for vehicular and pedestrian traffic as required for other construction activity. Provide barricades, warning signals, warning lights and similar items as required.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with and complete concrete curb construction as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete: Normal weight, air entrained concrete with a minimum compressive strength of 4,500 psi at the end of 28 days. Design air content shall be 6% by volume, with an allowable tolerance of plus or minus 1%. Concrete shall contain a minimum of 6.5 bags of cement per cubic yard. Slump shall be between 2 and 4 inches.
- B. Joint Fillers: Closed Cell Polyurethane Joint Filler: Resilient, compressible, semi-rigid, closed cell isometric polymer foam material, minimum ½" thick similar to Ceramar Joint Filler as manufactured by W.R. Meadows, Inc., Elgin IL.
 - 1. Fiber board or cork joint filler material is NOT acceptable for use in concrete expansion joint work.
- C. Joint Sealants: Two part non-sag polyurethane sealant. For convenience, details and specifications have been based on the following manufacturers and their products:
 - 1. Vulkem 227 by Mameco International, Inc., Beachwood, OH.
 - 2. Dynatrol II by Pecora Corp, Harleysville, PA.
 - 3. Chem-Calk 500 by Bostik Inc., Middleton MA.
- D. Reinforcing Bars and Dowels: Deformed steel bars, ASTM A 615, Grade 60.

2.02 EQUIPMENT

- A. Forms: Steel of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Bent, twisted, split or defective form materials are not acceptable. Use flexible spring steel forms to form radius bends. Coat forms with non-staining, clear, paraffin base form oil that will not discolor or otherwise deface the surface of concrete.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which concrete curbs are to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.

1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Surface Preparation: Remove all loose material from the compacted sub-base surface immediately before placing concrete. Establish and maintain required lines and grades.

3.03 INSTALLATION

A. Form Construction

1. Set approved forms true to line and grade, rigidly braced and secured. Cast curb in 30 foot long sections.
2. If curbs will abut existing pavement, locate joints opposite existing pavement joints.
3. Profile of curb to be 18" high by 6" wide with a tooled 1½" radius on the top corner, unless specifically detailed otherwise on the Contract Documents.
4. Allow forms to remain in place a minimum of 24 hours after concrete placement.

- B. Joint Filler Installation: Provide joint fillers cut to size between the 30 foot sections, at the start and end of curved sections and where curbs abut existing concrete paving, fixed structures or appurtenances. Protect the top edge of the joint filler during concrete placement with a temporary cap and remove after concrete has been placed.

- C. Reinforcement Placement: Reinforce curbs as indicated on the Contract Drawings. Maintain a minimum 3" cover on all reinforcing bars.

- D. Concrete Placement: Do not place concrete until line and grade of subgrade and forms have been verified. Moisten subgrade as required to a uniform dampened condition at the time concrete is placed. Do not place concrete around structures until these items are brought to the required grade and alignment. Deposit and spread concrete in a continuous operation between joints.

- E. Concrete Consolidation: Consolidate concrete by spading, rodding, forking or using an approved vibrator eliminating all air pockets, stone pockets and honeycombing. Consolidate with care to prevent dislocation of dowels and joints.

- F. Remove forms and rub exposed face of the curb to a smooth rubbed finish. Plastering is not permitted.

- G. Joints: Saw cut control joints at 5' O.C., and install expansions joints at 30'O.C.

- H. Concrete Curing: Cover and cure newly poured concrete curbs for a minimum of seven days in accordance with ACI 301.

- I. Joint Sealant Installation: Remove temporary joint filler cap and install joint sealant per the manufacturer's recommendations.

3.04 ADJUSTING AND CLEANING

A. Repairs and Protection of Concrete Curbing

1. Repair or replace broken or defective concrete curbing as directed by the Project Designer.
2. Protect concrete curbing from damage until acceptance of the curb construction.

END OF SECTION 32 16 13

SECTION 32 18 14

SYNTHETIC GRASS SURFACES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Multi-purpose infilled synthetic turf playfield.

1.02 RELATED SECTIONS

- A. Section 11 68 33 – Athletic Field Equipment
- B. Section 31 00 00 – Earthwork
- C. Section 31 23 17 – Site Trenching
- D. Section 33 40 00 – Storm Drainage Utilities

1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. The latest edition of the following standards as referenced herein shall be applicable.
 - 1. National Collegiate Athletic Association (NCAA), “Rules and Interpretations” for the following sports:
 - a. Baseball
 - b. Soccer
 - c. Men’s Lacrosse
 - d. Field Hockey
 - 2. US Lacrosse, “Official Rules for Girl’s and Women’s Lacrosse” for Women’s Lacrosse.
- B. Factory Mutual Research Corporation: FM P7825 Approval Guide
- C. American Society for Testing and Materials Standards
 - 1. ASTM C88 – “Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate”
 - 2. ASTM D418 – “Standard Method of Testing Pile Yarn Floor Covering Construction”
 - 3. ASTM D422 – “Standard Test Method for Particle Size Analysis of Soils”
 - 4. ASTM D698 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cubic foot)”
 - 5. ASTM D1335 – “Standard Test Method for Tuft Bind of Pile Yarn Coverings”
 - 6. ASTM D1557 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cubic foot)”
 - 7. ASTM D1577 – “Standard Test Method for Linear Density of Textile Fibers”
 - 8. ASTM D1682 – “Standard Method of Tests for Breaking Load and Elongation of textile Fabrics”
 - 9. ASTM D2256 – “Standard Test Method for Tensile Properties of Yarns by the Single Strand Method”
 - 10. ASTM D2859 – “Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials”
 - 11. ASTM D2922 – “Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods”

12. ASTM D3385 – “Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer”
13. ASTM D5034 – “Standard Test Method for Breaking Strength and Elongation of Textile fabrics (Grab Test)”
14. ASTM D5848 – “Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings”
15. ASTM F355 – “Standard Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials”
16. ASTM F1015 – “Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces”
17. ASTM F1551 – “Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials”
18. ASTM F1936 – “Standard Test Method for Shock Absorbing Properties of North American Football Field Playing Systems as Measured in the Field”

1.04 SYSTEM DESCRIPTION**A. Design Requirements**

1. Labor, materials, tools and equipment necessary to install multipurpose, infilled artificial turf playfield as indicated on the contract documents in strict accordance with the manufacturer’s installation instructions and all approved shop drawings.
 - a. Ensure that the synthetic turf system maintains ASTM F355 G-max measurements of between 100 and 165 for the life of the warranty. G-max measurement at the time of installation shall not exceed 125.

1.05 SUBMITTALS**A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.****B. Product Data**

1. Submit manufacturer’s product literature, technical specifications, product characteristics, performance characteristics, installation instructions and similar information demonstrating compliance with the specified requirements.
2. Submit fiber manufacturer’s name, type of fiber and composition of fiber.
3. Provide sample copy of all required warranties as specified in this section.

C. Shop Drawings: Provide submissions of the following shop drawings indicating:

1. Field layout.
2. Field marking plan and details for the specified sports. Provide individual colored plans for each sport specified and a colored composite plan that shows the lines and markings in relation to each other. Details shall be at a scale that provides a clear presentation.
3. Roll and seaming layout.
4. Methods of attachment, field openings and perimeter conditions. Include all details for conditions where synthetic turf will be applied to covers, plugs, etc.

D. Samples: Provide submissions of the following samples:

1. Synthetic Turf and Infill Systems: One boxed sample, minimum 12” X 12” in size.
2. Synthetic Turf: Two samples, minimum 12” X 12” in size.
3. Infills: One sample of sand/rubber infill, and one sample of warning track mix in the proper mix ratio applicable to this project.

E. Quality Control Submittals

1. Test Reports

- a. Submit certified copies of independent, third party laboratory test reports for synthetic turf playfield system components as follows:

- (1) Pile height, face width and total fabric weight per ASTM D418 or D5848.
- (2) Primary and secondary backing weights per ASTM D418 or D5848.
- (3) Tuft bind per ASTM D1335.
- (4) Grab tear strength per ASTM D1682 or D5034.
- (5) Pill burn test per ASTM D2859.

- b. Submit necessary test data from the Installer to the Owner indicating that the finished field meets the required shock attenuation as per ASTM F355.

2. Existing Installation Listing: Provide a list, including project name, owner's representative name and telephone number for a minimum of ten fields of 65,000 SF or more installed in the United States during the past two years with the same manufacturer and company, including the exact same infill system, fiber and fiber manufacturer proposed for this project.
3. Base Stone Materials Acceptance: Prior to beginning installation of new synthetic turf over the existing stone base, arrange for a representative of the synthetic turf manufacturer and installer to inspect the base stone. The manufacturer and the installer must certify the acceptance of the base stone for the purpose of obtaining the manufacturer's warranty for the finished synthetic playing surface.
4. Lead Components – As part of the approval process of the submitted product, the synthetic turf playfield system supplier must certify in writing that no lead or lead chromate components are utilized in the manufacturing of the turf.

- F. Closeout Procedures: Comply with the requirements of Division 1. The submission shall include maintenance instructions as specified in the "Operating and Maintenance Data" manual requirements described in this section including all necessary instructions for the proper care and preventative maintenance of the new infilled synthetic turf system including painting and inlaid or tufted markings and actual locations of seams, drains or other pertinent information.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacturing of products specified in this section.

- B. Installer Qualifications: Company specializing in the installation of synthetic turf and infill systems specified for this project and complying with the following requirements:

1. Provide trained technicians skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of approved supervisors to provide cutting, sewing, gluing, shearing, topdressing or brushing operations.
2. Designated supervisory personnel on the project certified by the synthetic turf manufacturer as competent in installation of the proposed material, including sewing seams and the proper installation of the infill mixtures.
3. Provide representatives on the site to certify installation and warranty compliance.

- C. Pre-Installation Meeting: Schedule and conduct a pre-installation meeting at least one week prior to the beginning of the installation of the synthetic grass surfacing system including the Owner,

Owner's Designated Representative, Project Designer, Contractor or designated representative, applicable subcontractor representatives and synthetic grass surfacing representative.

- D. Independent G-max and Infill Depth Testing: The Prime Contractor is to provide for independent testing for shock attenuation per ASTM F355 and ASTM F1936. Independent testing lab performing such services includes Hummel & Company, Inc., Trumansburg, New York (Telephone #607-387-5694).

1.07 PROJECT CONDITIONS

- A. Existing Conditions: Repair damage to any porous stone base prior to installation of the synthetic grass surfacing system.
- B. Field Measurements: Establish and maintain required lines and elevations for grade control. Verify measurements shown on the Contract Documents in field prior to ordering or installing materials.

1.08 SEQUENCING AND SCHEDULING

- A. Proceed with and complete synthetic turf playfield construction as rapidly as portions of the site become available, working within seasonal limitations for the work required.
- B. Coordinate synthetic turf playfield installation to ensure perimeter edge details, underground storm piping and connections and other associated work required for the system as detailed and recommended by the manufacturer and approved by the Project designer are provided.

1.09 WARRANTY

- A. The Prime Contractor and/or Manufacturer shall provide a warranty to the Owner that includes the following in writing in the warranty document:
 - 1. The turf warranty shall be from a single source and shall provide full coverage for all defects in all materials and workmanship of the synthetic turf for its intended usability and playability for a period of eight years from the date of Final Completion and acceptance of the turf field. The turf manufacturer must verify that their on-site representative has inspected the installation and that the work conforms to the manufacturer's requirements.
 - 2. In addition to the Turf Contractor's/Manufacturer's single source warranty, an additional prepaid insurance policy supported from a third party, A.M. Best, A-rated or better domestic insurance carrier shall be provided for the full eight year warranty period. The insurance policy should be written specifically naming the field being constructed as part of this project and shall additionally require payment of a claim be made directly to the Owner of said field. Evidence of such coverage must be submitted and approved.
 - 3. The turf warranty shall include general wear and damage caused from ultra-violet degradation.
 - 4. The turf warranty shall specifically list what components and properties are covered by the warranty. The list shall include but not limited to any and all defects or failures relating to construction of the synthetic turf system and stone base, drainage through the synthetic turf system and dynamic base stone, synthetic turf seam rupture, synthetic turf yarn ultra-violet stability, excessive wear and tensile strength.
 - 5. The turf warranty shall cover defects in the workmanship of installation and further warrants that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's on-site representative.
 - 6. The turf warranty shall include all necessary materials, labor, transportation costs, etc., to complete repairs or replacements. The warranty shall guarantee the availability of the same or better replacement materials for the synthetic turf system for the warranty period.

7. The turf warranty shall be non-prorated and shall not place limits on the amount of field's usage.
8. The turf warranty shall clearly define the conditions under which the manufacturer considers the warranty to be void.
9. The turf warranty shall define the typical time frame within which repairs will be initiated by the synthetic turf contractor, once notice has been received requesting repairs.
10. The warranty shall guarantee the G-max ratings at the completion of construction and for the duration of the warranty as described in this specification.

1.10 MAINTENANCE

- A. The synthetic turf contractor shall provide training for the Owner regarding the recommended maintenance program for the synthetic turf field. The training shall include a detailed review of the turf maintenance manual required to be provided by the synthetic turf manufacturer.
- B. The synthetic turf contractor shall provide training for the Owner's facility maintenance staff in the use of the field groomer and all other equipment to be utilized for maintenance of the synthetic turf field.
- C. Extra Materials: Upon final completion, provide the following materials directly to the Owner in the minimum quantities specified:
 1. Seaming Tape – 200 LF
 2. Seaming Epoxy – One standard sized pail.
 3. Turf fabric (for each color provided) – 200 SF of each color used in playing field areas and logos, excluding the field line colors, with at least one piece of each color being 15' wide by 10' long.
 4. 4" Wide Colored Fabric – Minimum 100 LF of each color specified for inlaid line striping.
 5. One set (4 total) of both Men's and Women's lacrosse goal circles with all overlapping lines from other sports permanently installed.
 6. One set (4 total) of the 1st, 2nd, 3rd, and home plate colored areas with all overlapping lines from other sports permanently installed.
 7. 1000 pounds each of silica sand and ground rubber in weatherproof bags.
 8. 1000 pounds each of all materials comprising the warning track mix in weatherproof bags

PART 2 PRODUCTS

2.01 MATERIALS

- A. For convenience, synthetic turf and infill system details and specifications have been based on "A-Turf Titan System" by A-Turf Inc., Cheektowaga, NY (Tel. #1-888-777-6910), or the pre approved equals listed below.
 1. "Legion 46", by "Shaw Sports Turf", 1201 Roberts Blvd NW, Suite 220, Kennesaw, GA (Tel. #866-703-4004) complying with, but not limited to, the following minimum properties.
 2. "Astroturf Game Day Grass Q448" by Astroturf LLC., Dalton, Georgia 30721 (Tel. #1-800-723-8873) complying with, but not limited to, the following minimum properties.

B. Synthetic Turf and Infill System Minimum Properties

	Standard	Property	Specification
1.	ASTM D1907	Fiber Denier	12,200denier(4 ends/1,800 per end for Mono, 5,000 denier per end for XP)
2.	ISO 4892-2	U.V. Performance	resistant
3.	ASTM D3575	Yarn Breaking Strength	33.44 lbs
4.	ASTM D3575	Yarn Maximum Elongation	73.10%
5.	ASTM D789	Yarn Melting Point	233 degrees F.
6.	ASTM D418/D5848	Pile Height	2 .25" nominal
7.	ASTM D5848	Pile Weight	50 oz./sq. yd.
8.	ASTM D418	Tuft Gauge	1/2"
9.	ASTM D5848	Primary Backing Weight	7.0 oz./sq. yd.
10.	ASTM D5848	Secondary Backing Weight	22 oz/sq. yd.
11.	ASTM D1335	Tuft Withdrawal Force	>9 lbs
12.	ASTM D1335	Tuft Bind	>9 lbs (without fill)
13.	ASTM D1335	Tuft Bind	12 lbs (with fill)
14.	ASTM1682/D5034	Grab Tear (width)	351 lbs/force
15.	ASTM 1682/D5034	Grab Tear (length)	350 lbs/force
16.	ASTM F1015	Relative Abrasive Index	<30
17.	ASTM D4491	Carpet Permeability	Greater than 20"/hour
18.	ASTM D2859	Flammability (Pill Burn)	Pass
19.	ASTM F1551	Permeability w/o infill	>20"+/-/hr

- C. Carpet: 100% polyethylene parallel long slit fiber (TenCate XP Blade) and monofilament (TenCate Monoslide Ultra XQ, four ply) blended in dual yarn types and dual yarn thicknesses. Yarn thickness to be 310 Microns and 100 Microns. Fibers to be broadloom tufted into fibrous, perforated primary backing with secondary backing, furnished in 15' wide rolls by sufficient length to extend from sideline to sideline without splices and including white perimeter line tufted into individual sideline rolls; head seams, other than at sidelines are not acceptable.

1. Primary Backing: C18, D18 or H18 dimensionally stable 1-part (3 components) polypropylene, polyester and fiber backing.
2. Secondary Backing: Application of porous, heat activated urethane to permanently lock fiber tufts in place.
3. Color: Custom 75% Field Green/ 25% Lime Green configuration for natural aesthetics.

- D. Standard Infill Mix: Controlled resilient layered granular mixture, partially covering carpet, consisting of rounded or non-angular uniformly sized silica sand installed minimum of 3lbs. per square yard, ambient ground SBR rubber crumb, and non-marking rubber installed at 3 lbs per square yard. Total weight shall be 6 lbs per square foot and will leave .25" void space between the finish infill level of 2.00" and the top of the fiber at 2.25".

- E. Warning Track Infill Mix: Controlled resilient layer of ambient ground SBR rubber crumb, and non-marking rubber installed at approx. 3 lbs per square yard, or as required to achieve a total minimum infill depth of 1", followed by a minimum 1" infill depth of '1/4" Clean Red Lava' crushed red scoria igneous rock aggregate screened through a 5/16" top screen and 2mm bottom screen as manufactured by Partac Peat Corporation, Kelsey Park, Great Meadows, NJ (phone# 800-247-BEAM), and consisting of the following.

1. Color: Red.
2. Weight: Approximately 1,200 pounds per cubic yard.
3. Sieve Analysis: Complying with the following:

Percent Passing	
Sieve Size	
5/16	<1%
¼"	50-70%
#10 (2.0mm)	30-50%
Smaller	<2%

- F. Accessories: Glue, thread, paint, seaming fabric and other materials used to install and mark the synthetic grass surfacing system shall be provided as recommended by the synthetic turf manufacturer.
- G. Base Stone Materials: Refer to Project Manual Section 31 00 00 – Earthwork and details on the Drawings for additional information on the Dynamic Finish Stone and Drainage Stone layers.
- H. Perimeter Edging: As shown on the contract documents.
- I. Impermeable Liner/Geotextile Fabric
 - 1. For convenience, details have been based on Mirafi 500X as manufactured by Ten Cate/Mirafi, Pendergrast, GA (Tel. #706-693-2226).
- J. Underdrain System
 - 1. 1" X 12" flat drain.
 - 2. Perforated collector drain pipe.
 - 3. Materials to be similar to ADS, or approved equal. Refer to Section 33 40 00 – Storm Drainage Utilities for product information.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which the synthetic turf playfield is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. Arrange for synthetic turf installer to inspect the base stone and accept in writing this sub-base surface for planarity and compaction. Arrange for installer to have dimensions of the field and locations for markings measured by a registered land surveyor to verify conformity to the specifications and applicable standards and make record of finished field as-built measurements.
 - 2. Verify the compaction of the base stone course is 95% according to the Modified Proctor procedure (ASTM D1557), and that the surface tolerance does not exceed ¼" over 10 feet and ½" from design grade. The synthetic turf contractor shall provide a minimum of 48 hours notice to the Owner and their Designated Representative prior to scheduling final compaction or planarity testing.
 - 3. Arrange for the inspection of the base stone and curbs using a laser level and plot on a 10 foot topographical grid. Based on this topographical survey, arrange for the suitable fine grading of the stone area, including proper rolling and compacting. Do not approve the dynamic base stone for tolerance to grade without obtaining topographic survey.

4. Arrange for the synthetic grass surfacing manufacturer to inspect and certify that the base stone area to receive the synthetic grass surfacing is ready for installation of the system, is perfectly clean as the installation commences, and will be maintained in that condition throughout the installation process.
5. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 INSTALLATION

- A. Install infilled synthetic turf system in accordance with the manufacturer's instructions: obtain written acceptance of any variance from the manufacturer's on-site representative (submit copy to the Project Designer), verifying that changes do not in any way affect warranty.
 1. Preparation of the playfield subgrade and base stone shall be performed in accordance with Section 31 00 00 – Earthwork.

3.03 FIELD MARKINGS

- A. Standards: All designs, markings, layouts, field lines and materials for the sports of baseball, soccer, men's and women's lacrosse and field hockey shall be in accordance with the current NCAA "Rules and Interpretations" for each sport and per the Contract Documents.
- B. All lines and markings shall either be tufted and/or inlaid. There shall be no painted lines on the new synthetic turf playfield surface.
- C. Preliminary colors of field lines and markings are included in this specification section. Final color selection will be made by the Owner.
- D. For the purpose of developing the Contract Bid Price, the Contractor shall assume that all field lines are independent of each other and that no common field lines will be permitted. In all instances where field lines for different sports are defined to be in the same location, the lines shall be tufted or inlaid directly adjacent to each other. Installation of common sport field lines will be considered as part of a playfield linestriping shop drawing provided by the contractor during the submittal process.
- E. If NCAA rules provide a range of acceptable line widths, the contractor shall include the cost to provide the widest for the bid price, unless specifically indicated otherwise on the Contract Documents. The final determination of line widths will be made during the review of submittals.
- F. Inlay College approved logo's as indicated on the Contract Documents. Color selections to be during the shop drawing process.
- G. The following are additional line striping requirements
 1. Baseball
 - a. Rules Manuals: All field lines and markings for the sport of baseball shall be in accordance with the current NCAA Rules and Interpretations Manual and per the Contract Documents.
 - b. Field Size: As indicated on the Documents
 - c. Line striping Color: White
 - d. Field Color: Green

- e. Base Area Color: Tan
- f. Warning Track Color: Red
- g. Field Lines: All lines shall be 2" wide unless specifically noted otherwise on the drawings.
- h. Type of Markings: Factory tufted and inlaid.

2. Soccer

- a. Rules Manuals: All field lines and markings for the sport of soccer shall be in accordance with the current NCAA Soccer Rules and Interpretations Manual and per the Contract Documents.
- b. Field Size: 210' by 345'
- c. Linestriping Color: As indicated on the drawings.
- d. Field Linestriping: Provide tufted or inlaid 4" wide lines as denoted on the Contract Documents.
- e. Center Marking: Inlaid 9" diameter spot. Color selections to be during the shop drawing process.

3. Field Hockey

- a. Rules Manuals: All field lines and markings for the sport of field hockey shall be in accordance with the current NCAA Field Hockey Rules and Interpretations Manual and per the Contract Documents.
- b. Field Size: 180' by 300'
- c. Linestriping Color: As indicated on the drawings
- d. Field Linestriping: All lines shall be 4" wide, tufted or inlaid, unless specifically indicated otherwise in the rules manual or within the Contract Documents.

4. Women's Lacrosse

- a. Rules Manuals: All field lines and markings for the sport of women's lacrosse shall be in accordance with the current US Lacrosse "Official Rules for Girl's and Women's Lacrosse" Manual and per the Contract Documents.
- b. Field Size: 210' x 345'
- c. Linestriping Color: As indicate don the drawings
- d. Field Linestriping: All lines shall be 4" wide, tufted or inlaid, unless specifically indicated otherwise in the rules manual or within the Contract Documents.

5. Men's Lacrosse

- a. Rules Manuals: All field lines and markings for the sport of men's lacrosse shall be in accordance with the current NCAA Men's Lacrosse Rules and Interpretations Manual and per the Contract Documents.
- b. Field Size: 180' by 330'
- c. Linestriping Color: As indicate don the drawings
- d. Field Linestriping: All lines shall be 4" wide, tufted or inlaid, unless specifically indicated otherwise in the rules manual or within the Contract Documents.

3.04 FIELD QUALITY CONTROL

- A. Material Testing: The Owner shall retain and pay for the services the services of an independent testing agency to provide the following testing services. The frequency of testing and the number of tests performed will be determined by the Owner's Designated Representative, the Consulting Geotechnical Engineer and the Project Designer, unless specifically noted otherwise in the Contract Documents. If any tested material is found to be non-compliant with the requirements of

the Contract Documents, the Contractor shall bear the cost of correcting the non-compliant condition, including if necessary, the removal of all non-compliant material from the project site and replacement of the materials to comply with the required specifications. All retesting associated with non-compliant material shall be paid for by the Site Contractor.

1. In-Place Density Testing: Density testing shall be performed on the installed and prepared base stone in accordance with ASTM D2922, "Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods". One density test will be performed per 2,500 SF of placed base stone.
 2. In-Place Infiltration Testing: Infiltration testing shall be performed on the installed and prepared base stone in accordance with ASTM D3385, "Standard Test Method for Infiltration Rate of Soils In Field Using Double-Ring Infiltrometer" or ASTM D2434, "Standard Test Method for Permeability of Granular Soils (Constant Head). Eight to ten infiltration tests shall be performed per field.
 3. Gradation Testing: Gradation testing shall be performed on the base stone delivered to the project site in accordance with ASTM D422, "Standard Test Method for Particle Size Analysis of Soils".
 4. Porosity Testing: Testing to be performed on delivered base stone.
 5. Additional Testing: The Owner reserves the right to have additional tests performed that are deemed necessary to confirm that the installation of materials associated with the new synthetic turf playfield system comply with the requirements of the Contract Documents.
- B. Depth of Infill and G-Max Testing: Verification of installed infill depth and G-max testing to be performed by an independent testing firm retained and paid by the contractor. The testing firm must be approved by the Owner prior to Contractor authorizing any testing work.
1. Infill Depth: Measurement of infill to verify depth shall be taken at a minimum of ten locations throughout each installed playfield area. The amount of installed infill shall in all cases meet the minimum specified depth with an allowable tolerance of plus ¼".
 2. G-Max: Testing shall be performed to verify that shock attenuation properties of the field meet the requirements indicated in this specification. Upon construction completion of the synthetic turf playfield, in place G-Max testing of the synthetic turf system shall be performed in accordance with ASTM F355 and ASTM F1936. At the time of completion and final acceptance of the playfield, G-Max ratings shall fall between 100 and 125 at all test locations.
 - a. The Owner shall periodically test the playfield area for G-Max properties throughout the entire warranty period of the synthetic turf playfield at their own expense. If test results show that G-Max readings exceed 165 at any location, the synthetic turf contractor shall take all steps necessary to correct the condition. The synthetic turf contractor shall provide the Owner with adequate information to describe the corrective measures to be utilized and shall follow-up in writing confirming that the work provided was successful.

3.05 ADJUSTING AND CLEANING

- A. Provide final cleaning of synthetic grass surfacing installations and maintain the area clean and free from debris during installation. Clean surfaces, recesses, enclosures and similar areas as required, leaving the area of installation in a clean, immaculate condition ready for immediate occupancy and use by the Owner.
- B. Protect the installed synthetic grass surfacing from subsequent construction operations. Do not permit traffic over unprotected surfacing.
- C. Repairs and Protection of Infilled Synthetic Turf Playfield System

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

1. Repair or replace defective synthetic turf areas as directed by the Project Designer.
2. Protect infilled synthetic turf from damage until acceptance of the playfield construction.

END OF SECTION 32 18 14

SECTION 32 18 25

INFIELD SKINNED AREA

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Construction of pitcher's mound using approved, imported clay baseball mixes blended with water absorbing additives as indicated on the Contract Documents.

1.02 RELATED SECTIONS

- A. Section 11 68 33 – Athletic Field Equipment
- B. Section 31 00 00 – Earthwork
- C. Section 32 18 14 – Synthetic Grass Surfaces
- D. Section 32 92 30 – Athletic Field Construction

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the "Qualifications" requirements specified below in the "Quality Assurance" section of this specification.
 - 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified in the "Quality Assurance" section of this specification.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Qualifications: The person's installing the infield work and their direct supervisor shall be personally experienced in the construction playfield areas. On site supervisory personnel shall have been employed by the company engaged in the installation for a minimum of five years. All other individuals on the installation crew must have a minimum of six months experience in the playfield contracting industry.
- B. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.06 SEQUENCING AND SCHEDULING

- A. Proceed with and complete infield construction as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Clay Mix: A mixture of natural materials amended with a non-toxic binder to uniformly coat all the soil particles. The product shall be packaged in 50lb. bags. For convenience, specifications have been based on "Hilltopper Mound Clay" by Partac Peat Corp., Kelsey Park, Great Meadows, New Jersey (Tel # 800-247-2326).
 - 1. Particle Size Analysis:
 - 1. 2-3% Gravel
 - 2. 10-15% Course Sand
 - 3. 15-25% Fine & Medium Sand
 - 4. 30-40% Silt
 - 5. 30-50% Clay

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which baseball and softball infields is to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Upon completion of playfield rough grading, trenching and irrigation work, completely scarify the infield subsurface thoroughly to a depth of at least 2 inches.

3.03 INSTALLATION

- A. Place a minimum 4" depth of clay mix in the bull pen area pitcher's mounds as detailed on the Contract Documents, and as instructed by the clay mix manufacturer.
- B. Installed clay mix in the portable pitcher's mound, specified in section 116843- Athletic Field Equipment, per the pitcher's mound manufacturer's installations instructions.

HMH Site and Sports Design

HMH Project No. 11-001

Purchase College

State University of New York

Acquisition and Installation of a Synthetic Turf Field Facility

3.04 ADJUSTING AND CLEANING

A. Repairs and Protection of Infields

1. Repair defective infield areas as directed by the Project Designer.
2. Protect mounds from damage until acceptance of playfield construction.

END OF SECTION 32 18 25

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation for fence post bases
- B. Concrete anchorage for posts
- C. Installation of chain link fences
- D. Installation of chain link gates

1.02 RELATED SECTIONS

- A. Section 32 12 16 – Asphalt Paving
- B. Section 32 13 13 – Concrete Paving
- C. Section 32 92 00 – Turf and Grasses
- D. Section 32 93 00 – Exterior Plants

1.03 REFERENCES

- A. Comply with ASTM A 53 for requirements of Schedule 40 piping.

1.04 DEFINITIONS

- A. Height of Fence: Distance measured from the top of finish grade to the top of the fabric.

1.05 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Shop Drawings: Complete detailed drawings for each height and style of fence and gate required. Include separate schedule for each, listing all materials required and technical data such as size, weight and finish to ensure conformance to the specifications.
- D. Quality Control Submittals
 - 1. Qualifications Certification: Submit written certification or similar documentation signed by the applicable subcontractor, prime contractor and/or manufacturer (where applicable) indicating compliance with the "Qualifications" requirements specified below in the "Quality Assurance" section of this specification.
 - 2. Experience Listing: Submit a list of completed projects using the products proposed for this project, including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified in the "Quality Assurance" section of this specification.
- E. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.06 QUALITY ASSURANCE

- A. Comply with the standards of the Chain Link Fence manufacturer's Institute, including (unless otherwise indicated):
 - 1. Specification for Metallic Coated Steel Chain Link Fence Fabric
 - 2. Industrial Steel Specification for Fence Rails, Posts, Gates and Accessories
 - 3. ASTM F-567 - Standard Practice for Installation of Chain Link Fence for installation unless otherwise indicated on the Contract Documents.
- B. Qualifications
 - 1. Provide metal fences and gates as a complete unit produced by a single manufacturer, including necessary erection accessories, fitting and fasteners. Products shall be provided by a company specializing in commercial quality chain link fencing with at least five years experience.
- C. Regulatory Requirements
 - 1. Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit as specified in "Submittals-Quality Control Submittals" above.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.08 SEQUENCING AND SCHEDULING

- A. Proceed with and complete chain link fence and gate installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Framework Standards
 - 1. Steel Pipe: Cold rolled steel pipe meeting the requirements of ASTM A-569 with a minimum yield strength of 50,000 psi.
 - 2. Interior Coating: In line applied zinc rich coating with zinc powder loading of a minimum 90% by weight applied after fabrication conforming to ASTM B 6 high grade and Special High Grade Zinc.
 - 3. Exterior Coatings
 - a. PVC exterior coating: Fusion bonded polyvinyl chloride similar to Brighton Colorbond Fence System by Merchant Metals, Brighton, Michigan. Color to be black unless specifically noted otherwise on the Contract Documents.
 - 4. Size of Pipe: As indicated.
 - 5. Similar to SS-40 Pipe with Flo-Coat by Allied Tube and Conduit Corporation, Harvey, Illinois.

B. Framework and Footings for Fences

1. End Posts, Corner Posts and Pull Posts.

- a. Pipe: 3.00" O.D.
- b. Set pull posts at the midway point of all lines 500 feet or longer and at all changes of direction or grade of 15 degrees or more. Place pull posts at each radius point within the curved line where the internal angle is 30 degrees or more.
- c. Footing Size: min. 12" O.D. by 4'-0" deep, unless specifically indicated otherwise on Drawings.

2. Line Posts

- a. Pipe: 2.50" O.D.
- b. Space line posts at a maximum of 10 feet on center unless specifically noted otherwise on the contract documents.
- c. Footing Size: min. 12" O.D. by 4'-0" deep, unless specifically indicated otherwise on Drawings.

C. Post Brace: Provide manufacturer's standard adjustable brace at gate posts and at both sides of corner and pull posts, with a horizontal brace located at the mid-height of the fabric.

D. Top, Intermediate and Bottom Rails

1. 1.66" O.D. pipe, weighing 1.84 pounds per linear foot. Install rails in the manufacturer's longest lengths utilizing expansion couplings, approximately 6" long at each joint. Provide means for attaching the top rail securely to each gate post, corner post, pull post and end post.
 - a. Provide bottom rails for all fences.
 - b. Intermediate rail is not required on 4' high fences.

E. Swing Gate Posts

1. Single leaf of gate: 4.00" O.D. pipe, 9.11 pounds per linear foot.

F. Swing Gate Framework

1. 1.90" O.D. pipe, 2.72 pounds per linear foot.
2. Assemble gate frames by welding.
3. Provide truss rods as cross bracing to prevent sag or twist.

G. Swing Gate Hardware

1. Hinges: Non-lift type, offset to permit 180 degree swing and of a suitable size and weight to support the gate. Provide 1½ pair of hinges for each leaf over 6' high.
2. Latch: Forked type for single gates 10 feet wide or less. Drop bar type with keeper for double gates and single gates over 10 feet wide complete with flush plate set in concrete. Drop bar length shall be 2/3 the height of the gate. A padlock eye shall be an integral part of the latch construction.

H. Chain Link Fabric

1. PVC Coated Fabric: Unless otherwise specified, provide 2" mesh, 9 gauge steel wires, with one piece fabric widths. The PVC coating is to be fused and adhered to galvanized wire in accordance with Federal Specification RR-F-191 H/ID, ASTM F-668 Class 2B, and ASTM F934. Coating thickness to be 7 mils.
 - a. Manufacturer: Brighton Colorbond Fence System by Merchant Metals, Brighton, Michigan or similar.
 - b. Color to be black unless specifically noted otherwise on the Contract Documents.
2. Selvages: Top and bottom selvages to be knuckled unless specifically noted otherwise on the Contract Documents.

I. Post Caps:

1. Weather tight closure cap, one cap per post.
2. Furnish caps with openings to permit passage of rail.
3. Fasteners: Tamper resistant cadmium plated steel screws.
4. PVC Coated: Complying with the requirements of Brighton Colorbond Fence System by Merchant Metals, Brighton, Michigan.

J. Stretcher Bars: One piece equal to the full length of the fabric, minimum cross section 3/16" by 3/4".

K. Metal Bands (for securing stretcher bars): Steel, wrought iron or malleable iron.

L. Hardware: Self locking bands, tie wires and similar accessories.

1. PVC Coated Hardware: Complying with the requirements of Brighton Colorbond Fence System by Merchant Metals, Brighton, Michigan.

M. Wire Ties: PVC finish complying with ASTM A809, 0.40 ounces per square foot.

1. For tying fabric to line posts, rails, and braces: 9 gauge steel wire installed at 12" O.C.

N. Truss Rods: 3/8" diameter.

O. Bolts and Nuts: ASTM A 307, Grade A

P. Concrete: Portland cement concrete having a minimum compressive strength of 4500 psi at 28 days.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which chain link fences and gates are to be constructed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can

be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Clear and grub plant material along the fence line as required to eliminate growth interfering with the fence alignment. Remove all debris from the project property.
- B. Do not begin installation of the fence until finish grading in area has been completed.

3.03 INSTALLATION

- A. Space posts equidistant in the fence line at a maximum of 10 feet on center unless specifically noted otherwise on the Contract Documents.
- B. Setting Post in Earth: Drill holes for fence footings. Set posts in the center of the hole and fill the hole with concrete. Plumb and align posts, vibrate or tamp concrete for consolidation. Do not attach fabric to posts until the concrete has cured a minimum of seven days.
- C. Located corner posts at corners and at changes in direction. Use pull posts at all abrupt changes in grade and at intervals no greater than 500 feet. On runs over 500 feet, space pull posts evenly between corner or end posts. On long curves, space pull posts so that the strain of the fence will not bend line posts.
- D. Install top rail continuously through post tops or extension arms, bending to radius for curved runs. Install expansion couplings as recommended by the fencing manufacturer.
- E. Install bottom and intermediate rails in one piece between posts and flush with the post on the fabric side using special offset fittings where necessary.
- F. Brace corner posts, pull posts, end posts and gate posts to adjacent line posts with horizontal rails.
- G. Diagonally brace corner posts, pull posts, end posts and gate posts to adjacent line posts with truss rods and turnbuckles.
- H. Attach the fabric to the active playfield or security side of the fence. Maintain a 1 inch clearance above the finished grade except where indicated otherwise. Thread stretcher bars through the fabric using one bar for each gate and end post and two for each corner and pull post. Pull fabric tight so that the maximum deflection of the fabric is 2 inches when a 30 pound pull is exerted perpendicular to the center of a panel. Maintain tension by securing stretcher bars to posts with metal bands spaced at 15" O.C. Fasten fabric to steel framework with wire ties spaced 12" O.C. for line posts and 24" O.C. for rails and braces. Bend back wire ends to prevent injury. Tighten stretcher bar bands, wire ties and other fasteners securely.
- I. Position bolts for securing metal bands and hardware so nuts are located opposite the fabric side of the fence. Tighten nuts and cut off excess threads so no more than 1/8" is exposed. Peen ends to prevent loosening or removal of nuts. Secure post tops and extension arms with tamper resistant screws.
- J. Install gates plumb and level and adjust for full opening without interference. Install ground set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary.

3.04 ADJUSTING AND CLEANING

A. Repairs and Protection of chain link fences and gates.

1. Repair or replace broken or defective chain link fences and gates as directed by the Project Designer.
2. Protect chain link fences and gates from damage until acceptance of the fencing construction.

END OF SECTION 32 31 13

SECTION 32 92 00

LAWNS AND GRASSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Subsoil preparation
- B. Placement of topsoil
- C. Seeding and application of soil amendments and fertilizers
- D. Mulching
- E. Protection of seeded areas
- F. Turf maintenance during warranty period
- G. Cleanup and protection
- H. Inspections and final acceptance

1.02 RELATED SECTIONS

- A. Section 31 20 00 – Earth Moving
- B. Section 32 93 00 – Exterior Plants

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Quality Control Submittals

- 1. Experience Listing: Submit a list of completed projects including owner's contact information and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified in the "Quality Assurance" section of this specification.
- 2. Topsoil Analysis Report: Submit topsoil analysis report for on-site stockpiled or imported topsoil. Do not mix or utilize topsoil until a soil analysis report is approved by the Project Designer.

- a. Provide required representative samples of topsoil and organic or inorganic amendment materials proposed for use in the project to the independent testing agency noted below for analysis and recommended treatment. The Contractor shall pay for all costs incurred for testing and analysis of the soil material. Test reports shall be from current year.

- (1) All soil samples and proposed amendments shall be sent to the Owner's Testing Agent:

Hummel & Company, Inc.
35 King Street
Trumansburg, New York 14886
Telephone Number: 607-387-5694

- b. All reports shall be sent to the Project Designer for approval.
- c. Samples of imported topsoil to be brought to the site must be approved prior to delivery.

- d. Deficiencies in the topsoil shall be corrected by the Contractor, as directed by the Project Designer, after review of the testing agency report.
 - e. Ensure test reports include specific recommendations regarding exact types, times and rates of application of soil additives and fertilizers based upon soil test results and type of seed mix to be planted. Follow soil additive recommendations before and during topsoil respread operations. Include the following in the topsoil analysis:
 - (1) pH factor
 - (2) Percent organic matter as determined by a Loss on Ignition or Walkey/Black Test (ASTM F-1647).
 - (3) Proctor testing per ASTM D698.
 - (4) Chemical analysis testing nitrogen, phosphorus, potassium, calcium, magnesium, cation exchange capacity, base saturation percentages, micronutrients and acidity (pH).
 - (5) Particle size analysis of the topsoil as determined by ASTM F-1632, performed and compared to the USDA Soil Classification System.
 - f. Include in the recommendations the type, composition, rate and means of application of soil amendments and fertilizer necessary to establish the required pH factor, organic matter content and supply of nutrients satisfactory for planting.
 - g. All materials and procedures regarding soil amendments and fertilizers specified in this section are approximate; adjust all soil amendments to comply with the test reports.
3. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.

C. Contract Closeout Submittals: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Worker's Qualifications: The person's performing the planting and their direct supervisor shall be personally experienced in the construction and caring of lawn areas. On site supervisory personnel shall have been employed by the company engaged in the installation and care of lawn areas for a minimum of five years. All other individuals on the landscape crew must have a minimum of six months experience in the landscape contracting industry.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Packing and Shipping: Ship seed and associated materials with certificates of inspection required by governing authorities.
- B. Do not make substitutions. If specified seed material is not obtainable, submit to the Project Designer proof of non-availability and a proposal for use of equivalent material.
- C. Store all seed at the site in a cool, dry place as approved by the Owner's Representative. Replace any seed damaged during storage.
- D. Deliver seed in vendor's unopened packages bearing labels showing the vendor's name and seed analysis by weight.
- E. Deliver fertilizer in the manufacturer's standard sized bags showing the weight, analysis, and manufacturer's name. Store all fertilizer under a waterproof cover or in a dry place as approved by the Owner's Representative.

1.06 PROJECT CONDITIONS

- A. Water: Water is not available on site, the contractor shall supply water at their own cost as required to maintain the health of the newly planted material.
- B. Provide irrigation materials capable of adequately watering new lawn areas until acceptance.

1.07 PESTICIDE APPLICATIONS

- A. Any contractor applying pesticides must notify the Owner's designated pesticide representative and all property neighbors not less than 48 hours in advance of any pesticide application including herbicides, insecticides and fungicides in accordance State Regulations.

1.08 SEQUENCING AND SCHEDULING

- A. Proceed with and complete lawn planting as rapidly as portions of the site become available, working within seasonal limitations for the work required.
- B. The Contractor shall complete a minimum of three mowings before requesting the Project Designer review for acceptance of seeding work.

PART 2 PRODUCTS

2.01 SEED

- A. Grass seed shall be certified "Blue Tag" seed composed of a blend of varieties mixed in proportion by weight and tested for minimum percentages of purity and germination. Submit the proposed mixture to the Project Designer for approval.
 - 1. Seed blend shall consist of 80% Kentucky Bluegrass and 20% Perennial Ryegrass on a weight basis. The seed shall be a blend of at least two Kentucky Bluegrass varieties of which no less than 60% of the seed shall be at least two of the following cultivars; Rambo, Princeton-105, Wildwood, Allure, Coventry, Champagne, Northstar, Cardiff, Nimbus, Raven, SR2100, Misty, America, Brilliant, Limousine, Conni, Liberator, Apollo, NuGlade, Total Eclipse, Unique, Impact, Midnight, Arcadia and Serene. The Perennial Ryegrass may be any one of the following cultivars; Palmer III, Calypso II, Brightstar II, Secretariat, Monterey, Catalina, Pennant II, Premier II, Sonata, Sunshine and Ascend. The Perennial Ryegrass shall have a minimum germination percentage of 85%. The percentage of weed seed shall not exceed 1% and other crop seed shall not exceed 0.5% by weight of the mixture. Any variety substitutions or deviations from these specifications must be approved by the Project Designer.

2.02 TOPSOIL

- A. Use either approved topsoil imported to the project site or approved on-site topsoil stripped, stockpiled and amended to meet the required specifications.
 - 1. On-site topsoil shall be from existing stockpiles stripped from the project site and approved by the Project Designer.
 - 2. Where quantity of topsoil required exceeds that available from on-site stockpiles, provide imported topsoil from local sources or from areas having similar soil characteristics to that found on the project site which are producing or have produced fair to good yield farm crops

without unusual fertilization for a minimum period of ten years or from arable or cultivable areas supplied with good natural drainage. Do not obtain topsoil from bogs or marshes or from farmland that has utilized "Atrazine" or similar herbicide within the past five years.

B. Provide topsoil conforming to the following:

1. Original loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.
2. Containing not less than four percent nor more than 20 percent organic matter in that portion of a sample passing a ¼" sieve when determined by the wet combustion method on a sample dried at 105 degrees F.
3. Containing a pH value within the range of 6.3 and 7.0 on that portion of the sample which passes a ¼" sieve.
4. On-site and imported topsoil shall be mechanically screened prior to resspreading to comply with the following gradation:

SIEVE DESIGNATION	PERCENT PASSING
¾ inch	100
¼ inch	97 – 100
No. 200	20 - 65

2.03 FERTILIZER

- A. Mixed commercial fertilizers containing total nitrogen, available phosphoric acid and soluble potash in the ratio of 10-6-4 (50% N/UF). 50% of the total nitrogen shall be derived from a urea form furnishing a minimum of 3.5% water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water soluble urea, nitrate and ammoniacal compounds.

2.04 LIME

- A. Dolomitic Limestone: Approved agricultural dolomitic limestone containing no less than 50% of total carbonates and 25% total magnesium with a neutralizing value of at least 100%. The material shall be ground to such a fineness that 40% will pass through a number 100 U.S. standard sieve, and 98% will pass through a number 20 U.S. standard sieve. The lime shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any lime which becomes caked or otherwise damaged making it unsuitable for use will be rejected.
- B. Calcitic Limestone: Approved agricultural calcitic limestone containing a minimum of 86% calcium carbonate expressed as CaCO₃. The material shall be ground to such a fineness that 40% will pass through a number 100 U.S. standard sieve, and 98% will pass through a number 20 U.S. standard sieve. The lime shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any lime which becomes caked or otherwise damaged making it unsuitable for use will be rejected.

2.05 MULCH

- A. Dry Application Straw: Stalks of oats, wheat, rye or other approved crops which are free from noxious weeds. Weight shall be based on 15% moisture.
- B. Hydro-Application: Colored wood cellulose fiber product specifically designed for use as a hydro-mechanical applied mulch.

1. For convenience, details and specifications have been based on the following manufacturers and their products:
 - a. Conwed Hydro Mulch as manufactured by Conwed Fibers, Hickory NC.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which lawn installation is to be completed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 1. When the installer confirms conditions as being acceptable, to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Strip and stockpile full depth of existing topsoil. Screen topsoil to comply with gradation specifications prior to respread of the material.
- B. Perform earthwork operations to accomplish design elevations as indicated on the Contract Documents. Loosen subgrade of lawn areas to a minimum depth of four inches. Remove stone and any other deleterious matter encountered over 1½" in any dimension within the subgrade.
- C. Respread screened topsoil in general lawn areas to a minimum depth of six inches as required to meet lines, grades, and elevations shown after light rolling and settlement. Depth of topsoil may be increased in lawn areas if required to spoil excess topsoil at job site.
- D. If required per the testing recommendation, provide lime or sulfur as required to adjust pH of the screened topsoil to be 6.3 to 7.0. Apply lime or sulfur materials at a rate of 80 pounds per 1000 square feet (final application rate to be determined by the soil test report). Cultivate soil amendments to a four inch depth.
- E. Grade lawn areas to a smooth even surface with loose, uniformly fine texture. Roll, rake, remove ridges and fill depressions as required to meet finish grades. Limit fine grading operations to areas which can be planted immediately after grading.
- F. Moisten prepared lawn areas before seeding if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
- G. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and prior to seeding.
- H. Preparation of Unchanged Grades: Where lawns are to be seeded in areas that have not been altered or disturbed by excavating, grading, or stripping operations, prepare the soil bed for lawn planting as follows:

1. Prior to preparation of unchanged grades, remove existing grass, vegetation and turf. Dispose of such material outside of the Owner's property; do not turn over into the soil being prepared for lawns unless specifically indicated to do so on the Contract Drawings.
2. Till soil to a depth of not less than six inches.
3. Apply soil amendments and initial fertilizers as recommended.
4. Remove high areas and fill in depressions.
5. Till soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.

3.03 SEEDING

- A. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.
- B. Application Rate: Six pounds of seed per 1000 square feet.
- C. Dry Mechanical Application of Seed: Sow seed with Brillion seeder with notched rollers in three passes, second pass at 90 degrees to the first and the third at 45 degrees to the second. Sow at a rate of two pounds per 1000 square feet for each pass for a total of six pounds per thousand square feet. Incorporate the seed into the upper one inch of the prepared soil bed and water with a fine spray.
- D. Hydroseeding
 1. Apply seeding material with an approved hydroseeder.
 2. Fill tank with water and agitate while adding seeding materials. Use sufficient fertilizer, mulch and seed to obtain the specified application rate. Maintain constant agitation to keep the contents in a homogeneous suspension. Prolonged delays in application or agitation that may cause injury to the seed will be the basis for rejection of the material remaining in the tank.
 3. Distribute uniformly a slurry mixture of water, seed, fertilizer and mulch at a minimum rate of 57 gallons per 1000 square feet. (2500 gallons per acre).The Owner's Representative may order the amount of water increased if distribution of seeding materials is not uniform.

3.04 MULCHING

- A. Dry Application: Immediately following seeding operations cover seeded areas with a uniform blanket of shredded straw mulch mechanically blown at a rate of 100 pounds per 1000 square feet of seeded area.
- B. Hydro Application: Apply approved mulch in accordance with the manufacturer's written instructions and recommended rates of application.

3.05 PROTECTION OF SEEDED AREAS

- A. Where grade is less than 3:1, mechanically spread mulch material and crimp into soil utilizing approved disc type machinery with rows at a 6" spacing.
- B. Where grade is 3:1 or greater, cover seeded areas with jute matting and roll matting down over the slopes without stretching or pulling.
 1. Lay the jute matting smoothly on the soil surface, burying the top end of each section in a narrow six inch trench. Leave a 12 inch overlap from the top roll over the bottom roll. Leave a four inch overlap over the adjacent section.
 2. Staple outside edges and overlaps at 36 inch intervals.
 3. Lightly dress slopes with topsoil to ensure close contact between the matting and the soil layer below.

4. In ditches, unroll matting in the direction of flow. Overlap ends of strips six inches with the upstream section on the top.

3.06 MAINTENANCE

- A. Begin maintenance immediately after seeding. If seeded in the fall, continue maintenance the following spring until acceptable lawn conditions are established.
- B. Water to ensure proper seed germination and to keep the surface of the seed bed damp. Continue watering new seeding until acceptance by the Owner. Apply water slowly so that the surface of the soil will not puddle or crust.
- C. Cut grass for the first time when it reaches a height of 2½" and maintain a minimum height of 2". Do not cut more than 1/3 of the blade at any one mowing. Remove clippings.
- D. Apply herbicide as soon as weeds germinate, during calm weather when the air temperature is above 50 degrees F. using a licensed applicator to apply the herbicide. When using herbicides, apply in accordance with the manufacturer's instructions.
- E. Replant damaged grass areas showing root growth failure, deterioration, bare spots and eroded areas.
- F. Refertilize newly seeded areas 28 days after the initial seeding. Apply a minimum of one pound of nitrogen per 1000 square feet of athletic field area. Use a complete fertilizer with a 2-1-1 ratio or as recommended by soil test results.

3.07 CLEANUP AND PROTECTION

- A. During landscape construction work, keep pavements clean and the project area in an orderly condition.
- B. Protect landscape construction and materials from damage due to landscape operations, operations by other contractors, trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape construction as directed.

3.08 INSPECTIONS AND FINAL ACCEPTANCE

- A. When seeding work and lawn establishment is completed, (including maintenance), request the Project Designer to make an inspection to determine acceptability. Final acceptance of lawn areas will be granted when a uniform stand of acceptable grass is obtained with a minimum of 95% coverage.
- B. Where inspected lawn installation does not comply with the requirements of the Contract Documents, repair rejected work. The Contractor's maintenance responsibility shall continue until reinspected by the Project Designer and found acceptable. Maintenance responsibilities shall include refertilization, overseeding, watering and mowing of seeded areas.

END OF SECTION 32 92 00

SECTION 32 93 00

EXTERIOR PLANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Inspection of plant material
- B. Preparation for planting
- C. Installation of plants
- D. Follow-up inspections and replacements of plants

1.02 RELATED SECTIONS

- A. Section 32 00 00 - Earthwork
- B. Section 32 92 00 – Turf and Grasses

1.03 REFERENCES

- A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.
- B. Size and Grading Standards: Conform to the current edition of “American Standard for Nursery Stock” by the American Association of Nurserymen, Inc., unless otherwise specified.

1.04 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.
- B. Plants: Living trees, shrubs, perennials, ground cover, and other plant material specified in this section.

1.05 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. List of plants: Before plant material is shipped to the project site, submit a complete itemized list of all plants including the source of supply.
- C. Product Data: Furnish the following with each planting material delivery:
 - 1. Invoice indicating sizes and varieties of plant material.
 - 2. Certificates of inspection required by State and Federal agencies.
 - 3. Labels for each plant or bundles of plants indicating name and size.
- D. Quality Control Submittals
 - 1. Experience Listing: Submit a list of completed projects including owner’s contact information and telephone number for each project, demonstrating compliance with applicable “Qualifications” requirements specified in the “Quality Assurance” section of this specification.
 - 2. Planting Soil Analysis Report: Refer to details on Drawings for planting soil requirements.

- E. Contract Closeout Submittals: Comply with the requirements of Section 01 77 00.

1.06 QUALITY ASSURANCE

- A. Worker's Qualifications: The person's performing the planting and their direct supervisor shall be personally experienced in the planting and caring of plant material. On site supervisory personnel shall have been employed by the company engaged in the planting and caring for a minimum of two years. All other individuals on the landscape crew must have a minimum of six months experience in the landscape contracting industry.
- B. Tree Caliper
 - 1. Trees up to four inches in caliper shall be sized at a point six inches above the top of the root ball.
- C. Inspection: The Project Designer reserves the right to inspect plant material either at the nursery or on the project site before planting for compliance with the requirements for name, variety, size and quality.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Notify the Owner's Representative a minimum of 48 hours in advance of delivery of plant material.
- B. Do not make substitutions. If specified plant material is not obtainable, submit to the Project Designer proof of non-availability and a proposal for use of equivalent material. When authorized, adjustment of the contract amount will be made.
- C. Protect plant material against climatic and mechanical injury.
- D. Acceptance of Plant Material at the Project Site
 - 1. Provide freshly dug trees and shrubs. Do not prune prior to delivery. Do not bend or bind tie trees or shrubs in such a manner as to damage bark, break or destroy the natural shape of the plant material. Provide protective covering during delivery.
 - 2. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than six hours after delivery, set trees and shrubs in the shade, protect from weather and mechanical damage and keep roots moist.
 - 3. Label at least one tree and shrub of each variety with a securely attached waterproof tag bearing a legible description of the botanical and common name of the plant material.
 - 4. Reject plants when the ball of earth surrounding the roots has cracked or broken prior to or during the planting process.
 - 5. Reject plants when burlap, staves, and ropes required in connection with transplanting have been displaced prior to acceptance.
- E. Deliver fertilizer in the manufacturer's standard sized bags showing the weight, analysis, and manufacturer's name. Store all fertilizer under a waterproof cover or in a dry place.

1.08 PROJECT CONDITIONS

- A. Water: Water is not available on site, the contractor shall supply water at their own cost as required for to maintain the health of the newly planted material.

- B. Utilities: Determine the location of underground utilities and perform work in a manner avoiding possible damage, including required hand excavation. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- C. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Owner's Representative before planting.

1.09 PESTICIDE APPLICATIONS

- A. Any contractor applying pesticides must notify the Owner's designated pesticide representative and all property neighbors not less than 48 hours in advance of any pesticide application including herbicides, insecticides and fungicides in accordance State Regulations.

1.10 PLANTING GUARANTEE

- A. The plant guarantee shall extend for a period of one full year from the date of substantial completion of the work. Substantial completion for the work of this section is the date when all planting operations or seasonal portions of the planting operations or replacement operations have been completed and are accepted by the Owner's Representative or the Project Designer.
 - 1. The Contractor shall arrange for and conduct a final inspection with the Owner or the Owner's Representative at the end of the one year guarantee period.
 - 2. Replace plant materials found dead or in an unhealthy or unsightly growing condition and that have lost their natural shape due to dead branches or other causes due to the Contractor's negligence at the Contractor's expense.
 - 3. Replace with plant materials of the same size and species and with a new guarantee period commencing on the date of replacement.
 - 4. Provide maintenance and additional watering for an additional 12 month period.

PART 2 PRODUCTS

2.01 PLANT MATERIALS

- A. Shrubs and Trees: The Contractor shall provide plant material complying with the following:
 - 1. Nursery grown stock as indicated in the itemized plant list or on the Contract Documents complying with the recommendations and requirements of ANSI Z60.1 "Standard for Nursery Stock" and as specified.
 - 2. Acclimated plants true to genus and species grown in recognized nurseries in accordance with good horticultural practices.
 - 3. Well developed root and branch systems. Do not prune branches before delivery.
 - 4. Free of disease, insect eggs, bark abrasions, frost cracks, dead or broken branches and disfiguring knots.
 - 5. Buds intact and reasonably closed at the time of planting.
 - 6. Balled and burlapped from soil which will hold a natural ball. Manufactured balls are unacceptable.
 - 7. Conform to size indicated or larger, or within the minimum/maximum size when so indicated. Larger plants cut back to specified dimensions will not be acceptable.
 - 8. Specified trees shall have a single erect leader from ground to top, surrounded with uniformly arranged branches unless specifically noted otherwise.
 - 9. Transplanted or root pruned 360 degrees at least once during the previous three years.

- B. Ground Covers: Provide plants established and well rooted in removable containers with not less than the minimum length and number of runners required by ANSI Z60.1 for pot size shown and listed.

2.02 PLANTING SOIL

- 1. See planting soil requirements on Drawings.

2.03 FERTILIZER

- A. 10-6-4 Commercial Fertilizer: Containing not less than 10% nitrogen, 6% available phosphoric acid and 4% water soluble potash. (Existing topsoil analysis shall be utilized to verify the actual fertilizer analysis to be used in this project)

2.04 MULCH

- A. Pea Stone: See detail on Drawings.

2.05 MISCELLANEOUS MATERIALS

- A. Stakes, Deadmen and Guy Stakes: Sound, durable white or red cedar or other approved wood, free of insect and fungus infestation.
- B. Guy Wire or Cable: No. 12 galvanized wire or cable.
- C. Tree Wrapping: 4 inch wide strips of jute burlap or waterproof paper.
- D. Protective Hose: Two-ply garden hose cut to required lengths to protect tree trunks from damage from wire.
- E. Anti-Desiccant: Emulsion type, film forming agent designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance with the manufacturer's instructions; similar to "Wilt-Pruf" by Wilt-Pruf products, Essex, CT.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which landscape planting is to be completed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the installer confirms conditions as being acceptable, to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

A. Planting Layout:

1. Stake out all tree locations and planting areas.
2. Obtain layout approval from the Owner's Representative prior to excavations of plant pits and beds.

B. Plant Pit Dimensions:

1. Balled and Burlapped Plants: Pit depth should not exceed the ball depth. The pit width measured at the ground surface shall be three times the width of the ball or as indicated.
2. Container Grown Plants: Two times the diameter of the container measured at the ground surface.
3. Ground Cover Beds: Excavate the entire planting bed to a depth of 4" and replace with amended planting soil.
4. Bare Root Plants: Diameter equal to the width of the roots spread to their natural position plus 24 inches, measured at the ground surface.
5. Hedge Trenches: 18 inches wide and 18 Inches deep.

C. Excavation: Excavate pits to the dimensions specified. Dispose of excavated material of the site unless otherwise directed.

3.03 PLANT INSTALLATION

A. Setting Plants

1. Backfill pits with planting soil and firm to the level upon which plants were previously growing. Set plants plumb. Plant budded or grafted plants two inches below the bud or graft line. Complete backfilling with planting soil and settle continually with water.
2. Balled Plants: Set plants in position and backfill 1/3 depth of ball. Remove burlap from the top and adjust to eliminate air pockets. Remove all metal caging and synthetic twine. Complete backfill and settle with water.
3. Bare-Root Plants: Set plant in position and place planting soil around roots settling with water. Use care to avoid bruising or breaking roots when firming the soil. Prune bruised or broken roots
4. Ground Covers: Dig holes large enough for installation of ground cover material. Work soil around roots to eliminate air pockets. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils. Mulch ground cover areas with a 2" layer of mulch.

B. Wrapping: Wrap deciduous trees within four days after planting from the ground line to the height of the second branches. Wrap in a single layer wound spirally starting from the base and overlapping 1½ inches. Secure wrapping in place by use of approved staples or other approved methods and materials.

C. Staking: Set tree stakes into solid ground below the bottom of the plant before backfilling. Place stakes at the outer edge of the roots or ball in line with the prevailing wind at a ten degree angle from the tree trunk.

D. Anti-Desiccant: Apply anti-desiccant spray to broadleaved ericaceous plants installed in the Fall season, as directed.

- E. Surface Finish: Form saucer as indicated on drawings or as directed. Grade soil to form a basin on the lower side of sloped plantings, which will catch and retain water. Topdress basins with fertilizer spread evenly at a rate of 1½ pounds per square yard of plant pit surface.
- F. Mulching: Spread a minimum of 3" of pea gravel over the finished surface of the planting area as detailed on the plans. Water plants thoroughly after mulching is complete.
- G. Pruning: Prune plant material immediately after planting using sharp tools approved by the Owner's Representative. Remove approximately 1/3 of the wood of deciduous plants, maintaining the natural habit of the plant. Cut no leaders.
- H. Guying: Secure deciduous trees two inches and over in caliper, multi-stemmed trees six feet and over in height, and evergreen trees six feet and over in height with minimum three guys. Attach guy wires with protective hosing to stakes and trees as indicated. Connect multi-stemmed trees with protected wires maintaining each stems relationship to one another.
- I. Establishment of Planting: Maintain plantings immediately following planting operations and continue throughout the warranty period. Establishment of plantings shall consist of keeping plants in healthy growing conditions by watering, weeding, cultivating, pruning, spraying, tightening of guys, remulching and by any other necessary operations for establishment. Water all plants at least once a week between April 1 and October 31 with approximately five gallons of water per square yard (one inch layer of water) per watering unless otherwise directed by the Owner's Representative. Provide additional water during periods of dry weather when required or when directed. Treat plants with sound horticultural preventative or remedial measures to control insects, diseases and rodents.
- J. Weeding: Schedule maintenance work at least three times during the growing season of the 12 month warranty period to keep planting areas free from weeds. Coordinate maintenance work with the Owner's Representative.

3.04 CLEANUP AND PROTECTION

- A. During landscape construction work, keep pavements clean and the project area in an orderly condition.
- B. Protect landscape construction and materials from damage due to landscape operations, operations by other contractors, trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape construction as directed.

3.05 INSPECTIONS AND REPLACEMENTS

- A. Substantial Completion Inspection and Replacements: Notify the Owner's Representative in writing at least ten days prior to the requested date of planting substantial completion inspection. Remove and replace dead, unhealthy, or badly impaired plants according to the original specification, if so directed. Replace plants during the next planting season if this inspection is not within a planting season.
- B. End of Warranty Inspection and Replacements: Remove stakes, guy wires and tree wrapping at the end of the one year warranty period unless otherwise directed. Remove and replace dead, unhealthy or impaired plants according to the original specifications, as directed. Replace plants during the next planting season if this inspection is not within a planting season.

END OF SECTION 32 93 00

SECTION 33 40 00

STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Drainage pipe
- B. Drainage structures
- C. Frames, grates and covers
- D. Headwall and end sections
- E. Filter fabric
- F. Warning tape

1.02 RELATED SECTIONS

- A. Section 31 00 00 – Earthwork
- B. Section 31 23 17 – Site Trenching

1.03 SUBMITTALS

- A. Comply with the requirements of Section 01 33 00 – Submittal Procedures and as modified below.
- B. Product Data: Submit manufacturer's name, specifications and installation instructions for each item specified.
- C. Shop Drawings: Submit details of all underground structures including catch basins, drop inlets, storm manholes, drywells, trench drains, headwalls, outlet structures, frames and grates, frames and covers, culvert end sections and similar items indicated on the Contract Documents.
- D. Closeout Procedures: Comply with the requirements of Section 01 77 00.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Obtain written permission from applicable agencies prior to the start of construction. Submit one copy of the permit to the Owner's Representative.
- B. Comply with applicable municipal regulations. Coordinate connections into existing municipal sewers with appropriate town/village/county/city or state representatives. Pay for all fees associated the connection to municipal sewer system.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Establish and maintain required lines and elevations for grade control.

1.06 SEQUENCING AND SCHEDULING

- A. Proceed with and complete storm drainage installation as rapidly as portions of the site become available, working within seasonal limitations for the work required.

PART 2 PRODUCTS

2.01 PIPING

- A. Polyvinyl Chloride Pipe (PVC): SDR 35 pipe, 4" diameter and larger complying with ASTM D 3034.
- B. High Density Polyethylene Pipe (HDPE): Solid or perforated double wall smooth interior pipe complying with the following:
 1. 4" to 10" diameter pipe to conform to AASHTO M 252. 12" to 36" diameter pipe to conform to AASHTO M 294.
 2. Coefficient of Roughness (Interior Pipe Surface): 0.012 maximum (Manning Formula)
 3. Classification: Type S
 4. Minimum Pipe Stiffness Values
 - a. 4" – 12" Diameter: 50 psi
 - b. 15" Diameter: 42 psi
 - c. 18" Diameter: 40 psi
 - d. 24" Diameter: 34 psi
 - e. 30" Diameter: 28 psi
 - f. 36" Diameter: 22 psi
 5. Joint Couplings: Polyethylene, bell and spigot type couplers utilizing an elastomeric gasket conforming to ASTM F 477. Snap on type or split collar through 24" diameter, screw on type where applicable.
 - a. Corrugated to match pipe corrugations, width not less than one half the pipe diameter.
 - b. Split couplings shall engage an equal number of corrugations on each side of the joint
 6. Fittings: Either molded or fabricated, high density polyethylene components meeting the properties specified for, and designed specifically for the pipe manufactured by the pipe manufacturer.
 7. Perforated Pipe: Conform to AASHTO M-252 or AASHTO M-294, Type SP with Class I perforations.
 8. Specifications have been based on products manufactured by Advanced Drainage Systems, Inc, Columbus, Ohio (Tel. #614-457-3051) or Hancor, Inc., Findlay, Ohio (Tel. #800-847-5880).
- C. Corrugated Polyethylene Piping: Solid and perforated piping complying with the following:
 1. Pipe Classification: AASHTO M252, Type S
 2. Material Classification: ASTM D 3350
 3. Property Description: Cell Class 324420C
 4. Pipe Size: As indicated on the Contract Documents
 5. Perforation Size: 9/16" by 1/16" slots with a minimum inlet area of 2.4" per lineal foot of pipe.
 6. Joint Couplings: External snap couplers with gaskets for solid wall and external snap couplers without gaskets for perforated pipe
 7. Specifications have been based on products manufactured by Advanced Drainage Systems, Inc, Columbus, Ohio (Tel. #614-457-3051) or Hancor, Inc., Findlay, Ohio (Tel. #800-847-5880).

2.02 DRAINAGE STRUCTURES

- A. Catch Basins: Pre-cast, round, reinforced concrete structures with integral floors and accessories complying with the following:
1. Riser Sections: ASTM C 478, height and width as indicated on the Contract Documents.
 2. Joints Between Riser Sections: Rubber gaskets per ASTM C 443 as recommended by the manufacturer.
 3. Concrete for Pre-Cast Units: Air content 6% by volume with an allowable tolerance of +/- 1.5%. Minimum compressive strength of 4000 psi after 28 days.
 4. Pre-Cast Concrete Structure Load Rating: AASHTO HS-20 with 30% impact and 130 lb/cf equivalent soil pressure.
 5. Steps: Polypropylene plastic steps reinforced with minimum ½" diameter steel rod integrally cast into the pre-cast section sidewalls and complying with Section 725-02.01 of the New York State Department of Transportation Standard Specifications.
 6. Frame and Grate: Provide castings of uniform quality, free from blow holes, porosity, hard spots, shrinkage defects, cracks or other injurious defects. Manufacture all castings true to pattern and free from surface imperfections. Provide heavy duty frames and grates with machined horizontal bearing surfaces.
 - a. Casting Load Rating: AASHTO H20 wheel loading requirements. Manufacture, workmanship and certified proof-load tests shall conform to AASHTO M306-89 Standard Specification for Drainage Structure Castings.
 - b. Material: Cast iron complying with ASTM A 48, Class 30B or 35B.
 - c. Frames: 7" deep with minimum 24" clear, round opening and 34" bottom flange diameter.
 - d. Grates: 24" round, bicycle safe units, 1 3/8" thick.
 - e. Coatings: Minimum one shop coat of asphaltum to be applied to all frame and grate surfaces.
 - f. Acceptable Casting: Specifications have been based on "Model #1197 Straight Type Frame" and "Type A Bicycle Grate" by Syracuse Castings, Cicero, New York (Tel #315-699-2601)
- B. Drop Inlets: Pre-cast, square, reinforced concrete structures with integral base and accessories complying with the following:
1. Riser Sections: ASTM C 890, height and width as indicated on the Contract Documents.
 2. Keyed Joints Between Riser Sections: Rubber gaskets per ASTM C 443 as recommended by the manufacturer.
 3. Concrete for Pre-Cast Units: Air content 6% by volume with an allowable tolerance of +/- 1.5%. Minimum compressive strength of 4000 psi after 28 days.
 4. Pre-Cast Concrete Structure Load Rating: AASHTO HS-20 with 30% impact and 130 lb/cf equivalent soil pressure.
 5. Frame and Grate: Provide castings of uniform quality, free from blow holes, porosity, hard spots, shrinkage defects, cracks or other injurious defects. Manufacture all castings true to pattern and free from surface imperfections. Provide heavy duty frames and grates with machined horizontal bearing surfaces.
 - a. Casting Load Rating: AASHTO H20 wheel loading requirements. Manufacture, workmanship and certified proof-load tests shall conform to AASHTO M306-89 Standard Specification for Drainage Structure Castings.
 - b. Material: Cast iron complying with ASTM A 48, Class 30B or 35B.

- c. Frames: 3" deep with minimum 25 1/4" clear, square opening and 30" square bottom flange width.
- d. Grates: 23 7/8" square with ADA compliant units, 1 1/2" thick.
- e. Coatings: Minimum one shop coat of asphaltum to be applied to all frame and grate surfaces.
- f. Acceptable Casting: Specifications have been based on "Model #2815 Heavy Duty Square Frames and Grates" by Syracuse Castings, Cicero, New York (Tel #315-699-2601).

2.03 HEADWALLS AND END SECTIONS

- A. High Density Polyethylene (HDPE) Units: Flared end section fabricated in accordance with the pipe manufacturer's specifications.

2.04 FILTER FABRIC

- A. Continuous filament fabric consisting of polypropylene fibers and heat bonded nylon sheathed polypropylene fibers.
 - 1. Specifications have been based on "Mirafi 140N" manufactured by Mirafi Construction Products, Pendergrass, Georgia (Tel. #706-693-2226).

2.05 WARNING TAPE

- A. Standard, 4 mil polyethylene, 3" wide tape, purple, detectable type tape, imprinted with the words "CAUTION BURIED STORM SEWER" in black letters.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer Verification of Conditions: Examine conditions under which storm drainage is to be installed with the materials and components specified in this section. Affected Prime Contractors, the Owner's Representative and the Project Designer shall be notified in writing of any conditions detrimental to the proper and timely installation of the work.
 - 1. When the installer confirms conditions as being acceptable to ensure proper and timely installation of the work and to ensure requirements of applicable warranties or guarantees can be satisfied, submit written confirmation to the Project Designer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to the installer.

3.02 PREPARATION

- A. Excavation of trenches and for appurtenances and backfilling for storm drains shall be in accordance with the applicable portions of Project Manual Section 31 00 00 – Earthwork and Section 31 23 17 – Trenching.
- B. Inspect all pipe and fittings prior to installation. Remove defective pipe and fittings from the site.

3.03 INSTALLATION

A. Pipe Installation

1. Lay pipes true to line and grade. Gravity flow storm drainage systems shall be laid with bells facing upgrade.
2. Do not lay pipe on unsuitable material, in wet trenches or when a trench and weather conditions are unsuitable for the work.
3. Support the pipe on compacted bedding material.
4. Clean interior of all pipe thoroughly before installation.
5. Lower pipe in to trench carefully and bring to the proper line, grade and joint. After joining, the interior of each pipe shall be thoroughly wiped or swabbed to remove any dirt, trash or excess jointing materials.
6. Do not walk on pipe in trenches until covered by layers of backfill to a minimum depth of 12" over the crown of the pipe.
7. Install gravity sewer pipe to comply with the manufacturer's specifications.
8. Warning tape shall be continuously placed 12" above the storm sewer piping.

B. Concrete Drainage Unit Installation

1. Pre-cast reinforced concrete rings shall be installed true and plumb on a minimum 6" aggregate base bedding compacted to 95% of the maximum density.
2. The joints between rings, the base and the top shall be sealed with preformed flexible gasket material specifically manufactured for this type of application. Adjust the length of rings so that eccentric cone tops and top slabs will be at the required elevation. Cutting of the conical top section will not be acceptable.
3. Grout storm piping entering units in place with the ring penetration completely filled for the full depth of the wall.
4. Install drainage unit frames, covers and grates on a mortar bed flush with the finish pavement or surrounding lawn area.

3.04 ADJUSTING AND CLEANING

- A. Deflection Tests: Provided by the Prime Contractor in accordance with the requirements of Division 1 of the Project Manual.
- B. Upon completion of the installation, leave all components of the storm drainage system completely free from silt, debris and other obstructions.
- C. Repairs and Protection of Storm Drainage Infrastructure
 1. Repair or replace broken or defective storm drainage components as directed by the Project Designer.
 2. Protect storm drainage from damage until acceptance of the infrastructure construction.

END OF SECTION 33 40 00