

Duffy, Daniel

FOI # 14509

From: rlawrence@lwrlawyer.com
Sent: Monday, January 06, 2014 6:02 PM
To: Duffy, Daniel
Cc: Torres Rojas, Genara; Van Duyne, Sheree
Subject: Freedom of Information Online Request Form

Information:

First Name: Roger
Last Name: Lawrence
Company: LAWrence, Worden, Rainis & Bard
Mailing Address 1: 225 Broad Hollow Rd
Mailing Address 2: 150
City: Melville
State: NY
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Required copies of the records: Yes

List of specific record(s):

Contract between PANYNJ and Neelam Construction Corp. for storage tanks upgrade. contract LGA-743

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

April 25, 2014

Mr. Roger Lawrence
Lawrence Worden Rainis & Bard
225 Broad Hollow, Road 150
Melville, NY 11747

Re: Freedom of Information Reference No. 14509

Dear Mr. Lawrence:

This is in response to your January 6, 2014 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code") for a copy of the contract between the Port Authority and Neelam Construction Corp. for storage tanks upgrade. Contract # LGA-743.

Material responsive to your request and available under the Code can be found on the Port Authority's website at <http://www.panynj.gov/corporate-information/foi/14509-C.pdf>. Paper copies of the available records are available upon request.

Certain material responsive to your request is exempt from disclosure pursuant to exemptions (1) and (4) of the Code.

Please refer to the above FOI reference number in any future correspondence relating to your request.

Very truly yours,



Daniel D. Duffy
FOI Administrator

*225 Park Avenue South, 17th Floor
New York, NY 10003
T: 212 435 3642
F: 212 435 7555*



THE PORT AUTHORITY OF NY & NJ

A02-930.511
MBE/WBE

T. O.
Staunton Chow

LAGUARDIA AIRPORT

**STORAGE TANKS UPGRADE FOR REGULATORY
COMPLIANCE**

CONTRACT LGA-743

CONFORMED

JANUARY 2007

This proposal is not complete unless bidder's
Signature appears on page 23



THE PORT AUTHORITY OF NY & NJ

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Office of Regional and Economic Development

TABLE OF CONTENTS

INFORMATION FOR BIDDERS	1
1. FORM AND SUBMISSION OF PROPOSALS.....	1
2. PREREQUISITES.....	1
3. PAPERS ACCOMPANYING PROPOSALS.....	1
4. QUALIFICATION INFORMATION.....	4
5. ACCEPTANCE OR REJECTION OF PROPOSAL.....	5
6. DISPOSAL OF CONTRACT DOCUMENTS.....	5
7. MINORITY AND WOMEN'S BUSINESS ENTERPRISES PROGRAM (MBE/WBE).....	5
8. INSPECTION OF SITE.....	12
9. QUESTIONS BY BIDDERS.....	12
10. PORT AUTHORITY SECURITY REQUIREMENTS.....	12
11. PREVAILING RATE OF WAGE CERTIFICATION.....	13
12. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT, DISQUALIFICATION, PREQUALIFICATION DENIAL OR TERMINATION, ETC; DISCLOSURE OF OTHER REQUIRED INFORMATION.....	14
13. NON-COLLUSIVE BIDDING AND CODE OF ETHICS CERTIFICATION; CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION, PERCENTAGE, BROKERAGE, CONTINGENT FEE OR OTHER FEE.....	17
14. BIDDER ELIGIBILITY FOR AWARD OF CONTRACTS - DETERMINATIONS BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC CONTRACTS.....	18
15. ON SITE SUPERVISION.....	19
PROPOSAL.....	20
ACKNOWLEDGMENT.....	23
STATEMENT ACCOMPANYING PROPOSAL.....	24
FORM OF CONTRACT.....	25
CHAPTER 1 - GENERAL PROVISIONS	
16. DEFINITIONS.....	25
17. GENERAL AGREEMENT.....	27
18. AUTHORITY ACCESS TO RECORDS.....	28
19. AGENCY FOR RENTAL OF CONSTRUCTION EQUIPMENT.....	28
20. EXEMPTION FROM NEW YORK STATE AND NEW YORK CITY SALES TAXES.....	30

CHAPTER II - ADJUSTMENTS AND PAYMENTS

21. ADJUSTMENTS OF LUMP SUM32
22. COMPENSATION FOR EXTRA WORK32
23. COMPENSATION FOR EMERGENCY DELAYS35
24. SEMI- MONTHLY ADVANCES36
25. FINAL PAYMENT37
26. WITHHOLDING OF PAYMENTS38

CHAPTER III - PROVISIONS RELATING TO TIME

27. TIME FOR COMPLETION AND DAMAGES FOR DELAY40
28. EXTENSIONS OF TIME40
29. IDLE SALARIED MEN AND EQUIPMENT42
30. DELAYS TO CONTRACTOR43
31. CANCELLATION FOR DELAY44

CHAPTER IV - CONDUCT OF CONTRACT

32. AUTHORITY OF DIRECTOR45
33. AUTHORITY OF CHIEF ENGINEER45
34. AUTHORITY AND DUTIES OF ENGINEER46
35. NOTICE REQUIREMENTS46
36. EQUAL EMPLOYMENT OPPORTUNITY47
37. AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY49
38. AFFIRMATIVE ACTION PROGRAMS55
39. PREVAILING RATE OF WAGE55
40. EXTRA WORK ORDERS57
41. PERFORMANCE OF EXTRA WORK58
42. TITLE TO MATERIALS58
43. ASSIGNMENTS AND SUBCONTRACTS59
44. CLAIMS OF THIRD PERSONS59
45. CERTIFICATES OF PARTIAL COMPLETION59
46. CERTIFICATE OF FINAL COMPLETION60
47. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC60

CHAPTER V - WARRANTIES MADE AND LIABILITY ASSUMED BY THE CONTRACTOR

48. CONTRACTOR'S WARRANTIES61
49. RISKS ASSUMED BY THE CONTRACTOR62
50. NO THIRD PARTY RIGHTS63

51. INSURANCE PROCURED BY THE AUTHORITY.....	64
52. INSURANCE PROCURED BY CONTRACTOR.....	66

CHAPTER VI - RIGHTS AND REMEDIES

53. RIGHTS AND REMEDIES OF AUTHORITY.....	68
54. RIGHTS AND REMEDIES OF CONTRACTOR.....	69
55. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR.....	69
56. NO ESTOPPEL OR WAIVER.....	69

CHAPTER VII - MISCELLANEOUS

57. SUBMISSION TO JURISDICTION.....	70
58. PROVISIONS OF LAW DEEMED INSERTED.....	70
59. INVALID CLAUSES.....	70
60. NON-LIABILITY OF THE AUTHORITY REPRESENTATIVES.....	70
61. SERVICE OF NOTICES ON THE CONTRACTOR.....	70
62. MODIFICATION OF CONTRACT.....	71
63. PUBLIC RELEASE OF INFORMATION.....	71
SPECIFICATIONS.....	72

DIVISION 1 - GENERAL PROVISIONS

64. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS.....	72
65. AVAILABLE PROPERTY.....	73
66. OPERATIONS OF OTHERS.....	73
67. LABOR ACTIONS.....	73
68. CONTRACTOR'S MEETINGS.....	73
69. CONTRACT DRAWINGS.....	74
70. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES.....	75
71. SUBSTITUTION.....	77
72. WORKMANSHIP AND MATERIALS.....	79
73. INSPECTIONS AND REJECTIONS.....	81
74. MANUFACTURERS' CERTIFICATION.....	83
75. NO RELEASE OF CONTRACTOR.....	83
76. ERRORS AND DISCREPANCIES.....	83
77. ACCIDENTS AND FIRST AID PROVISIONS.....	83
78. SAFETY PROVISIONS.....	84
79. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS.....	85
80. LAWS AND ORDINANCES.....	85

81. IDENTIFICATION	85
82. SIGNS.....	86
83. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE.....	86
84. SURVEYS	86
85. TEMPORARY STRUCTURES	87
86. PERMIT AND REQUIREMENTS FOR WELDING	87
87. FINAL INSPECTION	87
88. WARRANTIES.....	87
89. UTILITY RECORD DRAWINGS	88
90. TEMPORARY UTILITY SERVICES	88
91. TEMPORARY SANITARY FACILITIES	89
92. PROGRESS SCHEDULE	89
93. ANALYSIS OF BID.....	89
94. AIRPORT OPERATIONS AND CONDITIONS.....	90
95. PERMIT AND REQUIREMENTS FOR ELECTRICAL DISTRIBUTION WORK.....	93
96. AIRPORT CONSTRUCTION SAFETY REQUIREMENTS.....	94
97. HOURS OF WORK.....	98
98. MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION	99

<u>SECTION</u>	<u>TITLE</u>
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DIVISION 2 - SITEWORK

02073	CUTTING, PATCHING AND REMOVAL
02222	EXCAVATION, BACKFILLING AND FILLING (NARROWSCOPE)
02574	ABRASIVE BLASTING OF PAVEMENTS
02580	THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS
02588	TRAFFIC PAINT PAVEMENT MARKINGS
02841	W-BEAM AND THRIE-BEAM GUIDE RAIL
02842	TEMPORARY TRAFFIC BARRIERS
02850	PLYWOOD SIGN PANELS AND WOOD SIGN POSTS
02851	ALUMINUM SIGN PANELS
02920	SCREENED TOPSOIL
02930	SEEDING (HYDRO-MULCH & DUST RETARDANT)
02940	SHRUBS IN GROUND NEW YORK
02960	ADDING COMPOST

SECTION TITLE

DIVISION 3 - CONCRETE

03100	CONCRETE FORMWORK
03200	CONCRETE REINFORCEMENT
03302	PORTLAND CEMENT CONCRETE (SHORT FORM)
03303	PLACEMENT OF PORTLAND CEMENT CONCRETE (SHORT FORM)

DIVISION 15 - MECHANICAL

15040	PETROLEUM PIPING AND APPURTENANCES
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DIVISION 16 - ELECTRICAL

16000	ELECTRICAL GENERAL REQUIREMENTS
16110	RACEWAYS
16120	WIRES, CABLES, SPLICES, TERMINATIONS(600 VOLTS OR LESS)
16127	CONTROL/SIGNAL TRANSMISSION MEDIA
16133	CONTROL PANELS, ENCLOSURES/CABINETS, AND TERMINAL BOXES
16135	BOXES AND FITTINGS
16140	WIRING DEVICES
16190	SUPPORTING DEVICES
16450	GROUNDING
16452	ELECTRICAL BONDING
16470	PANELBOARDS
16475	OVERCURRENT PROTECTIVE DEVICES(600 VOLTS OR LESS)

PREVAILING RATE SCHEDULE

M/WBE DIRECTORY

SCHEDULE A

SCHEDULE B

SCHEDULE C

SCHEDULE D

ANALYSIS OF BID

SECTION TITLE

DIVISION 3 - CONCRETE

- 03100 CONCRETE FORMWORK
- 03200 CONCRETE REINFORCEMENT
- 03302 PORTLAND CEMENT CONCRETE (SHORT FORM)
- 03303 PLACEMENT OF PORTLAND CEMENT CONCRETE (SHORT FORM)

DIVISION 15 - MECHANICAL

- 15040 PETROLEUM PIPING AND APPURTENANCES

DIVISION 16 - ELECTRICAL

- 16000 ELECTRICAL GENERAL REQUIREMENTS
- 16110 RACEWAYS
- 16120 WIRES, CABLES, SPLICES, TERMINATIONS(600 VOLTS OR LESS)
- 16127 CONTROL/SIGNAL TRANSMISSION MEDIA
- 16133 CONTROL PANELS, ENCLOSURES/CABINETS, AND TERMINAL BOXES
- 16135 BOXES AND FITTINGS
- 16140 WIRING DEVICES
- 16190 SUPPORTING DEVICES
- 16450 GROUNDING
- 16452 ELECTRICAL BONDING
- 16470 PANELBOARDS
- 16475 OVERCURRENT PROTECTIVE DEVICES(600 VOLTS OR LESS)

PREVAILING RATE SCHEDULE

M/WBE DIRECTORY

SCHEDULE A

SCHEDULE B

SCHEDULE C

SCHEDULE D

ANALYSIS OF BID

B.

- 1.) Certified financial statements, including applicable notes, reflecting the bidder's assets, liabilities, net worth, revenues, expenses, profit or loss and cash flow for the most recent calendar year or the bidder's most recent fiscal year.
- 2.) Where such certified financial statements are not available, then either reviewed or compiled statements from an independent accountant setting forth the information described in Paragraph 1, above.
- 3.) Where neither certified financial statements nor financial statements from an independent accountant are available, then financial statements containing the information described in Paragraph 1, above, prepared directly by the bidder. However, such financial statements must be accompanied by a signed copy of the bidder's most recent Federal income tax return and a statement in writing, signed by a duly authorized representative of the bidder, that such statements accurately reflect the current financial condition of the bidder.

Where statements submitted pursuant to either Paragraph 1 or 2, above, show the position of the bidder as of a date more than forty-five (45) days prior to the date on which Proposals are opened, the bidder shall also submit a statement in writing signed by a duly authorized representative of the bidder, that the present financial condition of the bidder is at least as good as that shown on the statements submitted.

- 4.) A statement of work which the bidder has on hand, including any work on which a bid has been submitted, containing a description of the work, the dollar value, the location by city and state, the current percentage of completion and the expected date for completion.

4. QUALIFICATION INFORMATION

At any time after the opening of Proposals, the Chief Engineer may give oral or written notice to one or more bidders to attend a pre-award meeting and to furnish the Authority with information relating to his qualifications to perform the Work, including the following, which information shall be furnished within seven (7) days thereafter:

- A. The bidders MBE/WBE Participation Plan submitted on the form annexed hereto as Schedule C (see the clause hereof entitled "Minority and Women's Business Enterprises Program") and a detailed list of the plant and equipment which the bidder proposes to use, indicating which portions it already possesses.
- B. Detailed information relating to work which the bidder has completed for others, including personal and corporate references, sufficient to the Authority to determine the Contractor's responsibility, experience and capacity to perform the Work. If required by the Chief Engineer, the foregoing information shall include information to demonstrate to the satisfaction of the Chief Engineer that the contractor has within the past five years been a contractor on at least one contract of the same general type, extent and complexity as the Contract on which the Proposal has been submitted, and completed the work skillfully, in a satisfactory manner and on time.
- C. Information to supplement a) data shown in the financial statements and the statement of work on hand required to be submitted with the Proposal; and b) any statement submitted under the clause hereof entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, etc, Disclosure of Other Required Information", or "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee".
- D. Moreover, in the event that the bidder's performance on a past Port Authority or PATH contract or contracts has been rated less than satisfactory, the Chief Engineer may give oral or written notice to the bidder to furnish information demonstrating to the satisfaction of the Chief Engineer that, notwithstanding such rating, such performance was, in fact, satisfactory, or that the circumstances which gave rise to such unsatisfactory rating have changed or will not apply to performance of the Contract, and that such performance will be satisfactory.
- E. If the bidder has performed a contract for the States of New York or New Jersey, or any governmental entity within such States and has filed a questionnaire or other document required to be submitted in order for the bidder to qualify to perform the contract, the bidder may be requested by the Chief Engineer to submit the most recent completed questionnaire or other such document, or if the most recent completed questionnaire or other such document is not available, to submit a written statement indicating the approximate date of the contract and the name of the governmental entity which awarded them the contract.
- F. Any additional information relevant to the bidder's Proposal including information to supplement the bidder's initial analysis of bid.

In the event that any of the foregoing is requested and is not furnished within seven days thereafter or within such additional time as the Chief Engineer, in his sole discretion, may allow, the Authority may not be in a position to determine whether the bidder is qualified, whether the bidder understands the requirements of the contract or whether the bid is responsive and may, in its sole discretion, reject the bidder's Proposal.

The giving of such notice to the bidder in connection with any of the foregoing lists, statement or information shall not be construed as an acceptance of his Proposal. However, the Authority reserves the right in its sole and absolute discretion, to accept the Proposal of a bidder despite the fact that said bidder has not submitted any information, list or statement required pursuant to this Section within the above-stated time period.

5. ACCEPTANCE OR REJECTION OF PROPOSAL

Within sixty (60) days after the opening of the Proposals, the Authority will accept one of the Proposals, if it accepts any. The acceptance of a Proposal will be only by mailing to or delivering at the office designated in the Proposal a notice in writing specifically indicating acceptance signed by an authorized representative on behalf of the Authority. No other act of the Authority, its Commissioners, officers, agents, or employees shall constitute acceptance of a Proposal. Rejection of a Proposal will be only by either (a) a notice in writing specifically stating that the Proposal is rejected, signed by an authorized representative on behalf of the Authority and mailed to or delivered at the office designated in the Proposal or (b) omission of the Authority to accept a Proposal within sixty (60) days after the opening of Proposals; and no other act of the Authority, its Commissioners, officers, agents or employees shall constitute rejection of a Proposal, including any counter offer or other act of the Authority, its Commissioners, officers, agents or employees.

The Authority reserves the unqualified right, in its sole and absolute discretion, to reject all Proposals or to accept that Proposal if any, which in its judgment will under all the circumstances best serve the public interest and to waive defects in any Proposal.

6. DISPOSAL OF CONTRACT DOCUMENTS

All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York NY 10010.

7. MINORITY AND WOMEN'S BUSINESS ENTERPRISES PROGRAM (MBE/WBE).

The Port Authority has a long-standing practice of making its contract opportunities available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it.

"Minority-owned business" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups. or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Women-owned business" or "WBE" means a business which is at least 51 percent owned by one or more women, or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women, and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

- A. Black persons having origins in any of the black African racial groups not of Hispanic origin;
- B. Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central, or South American culture or origin, regardless of race;
- C. Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;
- D. Native American or Alaskan native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

To ensure meaningful participation of MBEs and WBEs on this project, the Authority has set a combined goal of 17 percent for firms owned and controlled by minorities and firms owned and controlled by women.

In the event that the Contractor subcontracts any portion of the Work, the Contractor shall use and document every good faith effort to meet the above goals for MBE and WBE participation in the Work. Such good faith efforts shall include at least the following:

- A. Attendance at pre-bid meetings, if any, scheduled by the Engineering Department;
- B. Utilization of the Port Authority's Directory of certified MBE/WBEs available on-line (see M/WBE Directory Letter in back of Contract Book) and/or proposing for certification other MBE/WBEs which appear to meet the Port Authority's criteria for MBE/WBE certification and which are technically competent to perform the Work which the bidder plans to subcontract;
- C. Active and affirmative solicitation of bids for subcontracts from MBE/WBEs;
- D. Advertisement in general circulation media, trade association publications and minority-focused media for a reasonable period before bids or proposals are due;
- E. Dividing the work to be subcontracted into smaller portions or encouraging the formation of joint ventures, partnerships or similar arrangements among subcontractors in order to increase the likelihood of achieving the MBE/WBE goals;
- F. Providing a sufficient supply of plans and specifications of prospective work to MBE/WBEs and providing appropriate materials to each in sufficient time to review; and
- G. Utilizing the services of available minority and women's community organizations; contractor's groups; local, State and Federal business assistance/development offices and other organizations that provide assistance to MBE/WBEs.

Subsequent to Contract award, the Contractor shall use and document every good faith effort to comply with its MBE/WBE Participation Plan and to permit its MBE/WBE subcontractors to perform. Participation percentages shall be monitored throughout the performance of this Contract. Such good faith efforts shall include at least the following:

- A. Ensuring that progress payments are made in a timely fashion in accordance with the requirements of this Contract;
- B. Not requiring bonds from and/or providing bonds and insurance for subcontractors where appropriate;
- C. Soliciting specific recommendations on methods for enhancing MBE/WBE participation from Port Authority staff responsible for such participation; and
- D. Nominating subcontractors for participation in business assistance programs sponsored by the Authority or the Regional Alliance of Small Contractors such as the Loaned Executive Assistance Program (L.E.A.P.).

Subsequent to Contract award, the Contractor shall also provide the Engineer, at his request, with a trade breakdown schedule showing when the Contractor's MBE/WBE subcontractors are scheduled to perform. The Contractor shall also submit to the Engineer, on a monthly basis, the Statement of Subcontractor's Payments annexed hereto as Schedule D.

In the event that, prior to Contract award and following review of the MBE/WBE Participation Plan submitted by the bidder pursuant to the clause hereof entitled "Qualification Information", the Chief Engineer determines that the Contractor has not made a good faith effort to meet the MBE/WBE participation goals set forth above and that the Contractor has not demonstrated that a full or partial waiver of such goals is appropriate, the Chief Engineer may advise the bidder that it is not responsible and may reject the bidder's Proposal.

If, during the performance of the Contract, the Contractor fails to demonstrate good faith in carrying out its MBE/WBE Participation Plan and in permitting its MBE/WBE subcontractors to perform and the Contractor has not demonstrated that a full or partial waiver of the above referenced MBE/WBE participation goals is appropriate, then, upon receipt of a future proposal or proposals from the Contractor, the Chief Engineer may advise the Contractor that it is not a responsible bidder and may reject such proposal(s).

Either prior or subsequent to acceptance of the bidder's Proposal, the bidder may request a full or partial waiver of the above described MBE/WBE participation goals by providing a reasonable demonstration to the Chief Engineer that its good faith efforts will not result in compliance with the goals set forth above because participation by eligible MBE/WBEs could not be obtained at a reasonable price or that such MBE/WBEs were not available or refused to perform as subcontractors. The bidder shall provide such documentation to support its request as the Chief Engineer may require.

Once approved, the MBE/WBE Participation Plan submitted by the bidder may be modified only with the written approval of the Engineer.

Following approval by the Engineer under the clause entitled "Assignments and Subcontracts" of one or more subcontractors who are either MBEs or WBEs and listed in the MBE/WBE Directory or determined to be "eligible" by the Chief Engineer in accordance with this numbered clause, the Authority may, at its sole option, provide to said approved M/WBEs, without charge, whatever appropriate consultant services may be available under the L.E.A.P. Program; provided, however, that such consultant services will only be furnished pursuant to a request in writing from the Contractor to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, 233 Park Avenue South - 4th Floor, New York, NY 10003.

Such services will be discontinued following a written request from the Contractor to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, to discontinue them.

The L.E.A.P. services include advising on scheduling, purchasing, planning and other aspects of construction to firms to mitigate business or management problems which could negatively impact on their performance. These services do not include engineering or legal advice. The determination as to whether or not to follow the advice given lies solely with the M/WBE subcontractor. Prior to being accepted as a participant in the L.E.A.P. Program, the M/WBE subcontractor will be required to release the Authority and the individuals furnishing consultant advice of all liability and responsibility in connection therewith.

The Authority has compiled and made available on-line an MBE/WBE Directory which specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated in the Directory. The Authority makes no representation as to the financial responsibility of such firms or their ability to perform Work required under this Contract. Subject to the following paragraph, only MBEs/WBEs listed in the Directory will count toward the required MBE/WBE participation.

If the Contractor wishes to perform a portion of the Work through a firm not listed in the Directory² but which the Contractor believes should be eligible because it is (1) an MBE/WBE, as defined above and (2) technically competent to perform portions of the Work or the Contractor believes it is such a firm, the Contractor shall submit to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, a written request for a determination that the proposed firm is eligible. This shall be done by completing and forwarding a) the form labeled "Schedule A" and, if appropriate, "Schedule B" which are annexed hereto and form a part hereof and b) technical references of jobs completed of similar scope and complexity on the form annexed hereto and made a part hereof labeled "MBE/WBE Approval Request" and such other information as may be necessary to permit the Authority to determine whether the firm is in fact an MBE/WBE and technically competent to perform portions of the Work.

² The following organizations may be able to refer the Contractor to MBEs/WBEs who are technically competent to perform portions of the Work. Any referrals which are not listed in the Directory shall be submitted to the Authority for a determination as to eligibility as provided above.

1. Queens Air Services Development Office
JFK International Airport
Building #141
Federal Circle, First Floor
Jamaica, NY 11430
(718) 244-6852
Fax (718) 244-7371
2. Hispanic American Chamber of Commerce of Essex County
P.O. Box 9146
Newark, NJ 07104
(973) 484-5441
Fax (973) 350-9238
3. Association of Minority Enterprises of NY, Inc.
135-20 Liberty Avenue
Richmond Hill, NY 11419
(718) 291-1641
Fax (718) 297-2986
4. Statewide Hispanic Chamber of Commerce of New Jersey
150 Warren Street, Suite 110
Jersey City, NJ 07302
(201) 451-9512
Fax (201) 451-9547
5. Newark Opportunity Center
17 Academy Street, Suite 501
Newark, NJ 07102
(973) 622-4537
Fax (973) 622-3914
6. Jamaica Business Resource Center
90-33 16th Street
Jamaica, NY 11432
(718) 206-2255
Fax (718) 206-3693
7. Council for Airport Opportunity
90-04 161st Street Jamaica,
NY 11432
(718) 523-7100
Fax (718) 526-3472
8. Urban Business Assistance Corp.
New York University Stern School of Business
44 West 4th Street, Suite 5-61
New York, NY 10012
(212) 995-4404
Fax (212) 995-4255

- | | |
|---|---|
| <p>9. Greater Jamaica Development Corp.
90-04 161st Street
Jamaica, NY 11432
(718) 291-0282
Fax (718) 291-7918</p> | <p>10. NYS Assn. Of Minority Contractors
Brooklyn Navy Yard
Building 280, 4th Floor, Suite 414
Brooklyn, NY 11205
(212) 246-8380
Fax (718) 246-8376</p> |
| <p>11. Professional Women in Construction
315 E. 56th Street, Suite 202
New York, NY 10022
(212) 486-7745
Fax (212) 486-0228</p> | <p>12. NY/NJ Minority Purchasing Council
205 East 42nd Street
New York, NY 10017
(212) 573-2385
Fax (212) 522-4004</p> |
| <p>13. Jamaica Chamber of Commerce
90-25 161st Street, Room 505
Jamaica, NY 11432
(718) 657-4800
Fax (718) 658-4642</p> | <p>14. Queens Overall Economic
Development Office
120-55 Queens Boulevard, Suite 309
Kew Gardens, NY 11424
(718) 263-0546
Fax (718) 263-0594</p> |
| <p>15. York College Small Business
Development Center
94-50 159th Street
York College,
Room S 107
Jamaica, NY 11451
(718) 262-2880
Fax (718) 262-2881</p> | <p>16. Small Business Development Center -
Rutgers University, University Heights
49 Bleeker Street
Newark, NJ 07102
(973) 353-1927
Fax (973) 353-1110</p> |
| <p>17. Small Business Development Center -
Kean University
East Campus, Room 242
Union, NJ 07083
(908) 527-2946
Fax (908) 527-2960</p> | <p>18. New Jersey Air Services Development
Office
Newark Liberty International Airport
Building #80 - Second Floor
Newark, NJ 07114
(973) 961-4278
Fax (973) 961-4282</p> |

- | | |
|--|--|
| <p>19. Caribbean-American Chamber of Commerce
Brooklyn Navy Yard Brooklyn,
NY 11205
(718) 834-4544
Fax (718) 834-9774</p> | <p>20. Manhattan Hispanic Chamber of Commerce
P.O. Box 3494
Grand Central Station
New York, NY 10163
(212) 683-5955
Fax (212) 683-5999</p> |
| <p>21. Asian Women in Business
358 Fifth Avenue, Suite 504
New York, NY 10001
(212) 868-1368
Fax (212) 868-1373</p> | <p>22. Asian American Business Development Center
80 Wall Street, Suite 418
New York, NY 10005
(212) 966-0100
Fax (212) 966-2786</p> |
| <p>23. New York State Federation of Hispanic Chambers of Commerce
2710 Broadway
New York, NY 10025
(212) 222-8300
Fax (212) 222-8412</p> | |

All such requests shall be in writing addressed to the Chief Engineer. If any such firm is determined to be eligible it shall only be by a writing over the name of the Chief Engineer. In the event that such firm is found not to be eligible, the Chief Engineer will only consider as a substitute for such firm, a firm listed in the Port Authority's MBE/WBE Directory available on-line.

Please note that the Contractor must submit the names of proposed MBEs/WBEs for work on this Contract if their names do not appear in the Port Authority's MBE/WBE Directory available on-line in accordance with the requirements of this clause and all other requirements of this Contract. MBEs/WBEs proposed as lessors of equipment or materialmen shall be deemed "subcontractors" for the purpose of this numbered clause and the clause hereof entitled "Assignments and Subcontracts" but shall not be deemed subcontractors for any other purpose. However only 60% of the amounts paid by the Contractor to such materialmen who are MBEs/WBEs, except in the case of firms who themselves manufacture materials for use under the Contract, shall be allowed in computing the percentages of the Contract Price required to be paid to MBEs/WBEs hereunder.

Nothing herein shall be deemed to supersede or to otherwise modify the clause of the Form of Contract entitled "Assignments and Subcontracts".

12. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT, DISQUALIFICATION, PREQUALIFICATION DENIAL OR TERMINATION, ETC; DISCLOSURE OF OTHER REQUIRED INFORMATION

By bidding on this Contract, 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, that the bidder and each parent and/or affiliate of the bidder has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred, found not responsible or otherwise disqualified from entering into contracts with any governmental agency or been denied a government contract for failure to meet prequalification standards; (c) had a contract terminated by any governmental agency for breach of contract or for any cause related directly or indirectly to an indictment or conviction; (d) changed its name and/or Employer Identification Number (taxpayer identification number) following its having been indicted, convicted, suspended, debarred or otherwise disqualified, or had a contract terminated as more fully provided in (a), (b) and (c) above; (e) ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal; (f) been denied a contract by any governmental agency for failure to provide the required security, including bid, payment or performance bonds or any alternative security deemed acceptable by the agency letting the contract; (g) failed to file any required tax returns or failed to pay any applicable federal, state or local taxes; (h) had a lien imposed upon its property based on taxes owed and fines and penalties assessed by any agency of the federal, state or local government; (i) been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency, including an inspector general of a governmental agency or public authority; (j) had any sanctions imposed as a result of a judicial or administrative proceeding with respect to any professional license held or with respect to any violation of a federal, state or local environmental law, rule or regulation; and (k) shared space, staff, or equipment with any business entity.

The foregoing certification as to "(a)" through "(k)" shall be deemed to have been made by the bidder as follows: if the bidder is a corporation, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each director and officer, as well as, to the best of the certifier's knowledge and belief, each stockholder with an ownership interest in excess of 10%; if the bidder is a partnership, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefor. If the bidder is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its bid, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the bidder's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the bid is submitted, the bidder agrees to immediately notify the Authority in writing of any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the bidder with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority determines at any time prior or subsequent to the award of the Contract that the bidder has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Authority may determine that the bidder is not a responsible bidder with respect to its bid on this Contract or with respect to future bids and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority". In addition, bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Bidders are also advised that the inability to make such certification will not in and of itself disqualify a bidder, and that in each instance the Authority will evaluate the reasons therefor provided by the bidder.

Under certain circumstances the bidder may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Port Authority. Said Monitor shall be charged with, among other things, auditing the actions of the bidder to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with the Port Authority.

As used in this clause, the following terms shall mean:

Affiliate - An entity in which the parent of the bidder owns more than fifty percent of the voting stock, or an entity in which a group of principal owners which owns more than fifty percent of the bidder also owns more than fifty percent of the voting stock.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, quasi-public agencies, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Employer Identification Number - The tax identification number assigned to firms by the Federal government for tax purposes.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting or investigative agency, including an inspector general of a governmental agency or public authority, and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the bidder by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than 50% of the voting stock of the bidder.

Space Sharing - Space shall be considered to be shared when any part of the floor space utilized by the submitting business at any of its sites is also utilized on a regular or intermittent basis for any purpose by any other business or not-for-profit organization, and where there is no lease or sublease in effect between the submitting business and any other business or not-for-profit organization that is sharing space with the submitting business.

Staff Sharing - Staff shall be considered to be shared when any individual provides the services of an employee, whether paid or unpaid, to the bidder and also, on either a regular or irregular basis, provides the services of an employee, paid or unpaid, to one or more other business(es) and/or not-for-profit organization(s), if such services are provided during any part of the same hours the individual is providing services to the bidder or if such services are provided on an alternating or interchangeable basis between the bidder and the other business(es) or not-for-profit organization(s). "The services of an employee" should be understood to include services of any type or level, including managerial or supervisory. This type of sharing may include, but is not limited to, individuals who provide the following services: telephone answering, receptionist, delivery, custodial, and driving.

Equipment Sharing - Equipment shall be considered to be shared whenever the bidder shares the ownership and/or the use of any equipment with any other business or not-for-profit organization. Such equipment may include, but is not limited to, telephones or telephone systems, photocopiers, computers, motor vehicles, and construction equipment. Equipment shall not be considered to be shared under the following two circumstances: when, although the equipment is owned by another business or not-for-profit organization, the bidder has entered into a formal lease for the use of the equipment and exercises exclusive use of the equipment; or when the bidder owns equipment that it has formally leased to another business or not-for-profit organization, and for the duration of such lease the bidder has relinquished all right to the use of such leased equipment.

**13. NON-COLLUSIVE BIDDING AND CODE OF ETHICS CERTIFICATION;
CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION, PERCENTAGE,
BROKERAGE, CONTINGENT FEE OR OTHER FEE**

By bidding on this Contract, 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, that: (a) the prices in its 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) the prices quoted in its bid have not been and will not be knowingly disclosed, directly or indirectly, by the bidder prior to the official opening of such bid to any other bidder or to any competitor; (c) no attempt has been made and none will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition; (d) this organization has not made any offers or agreements, or given or agreed to give anything of value (see definition of "anything of value" appearing in the clause of the Form of Contract entitled "No Gifts, Gratuities, Offers of Employment, etc.") or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "Questions by Bidders"); nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; (e) no person or selling agency, other than a bona fide employee or bona fide established commercial or selling agency maintained by the bidder for the purpose of securing business, has been employed or retained by the bidder to solicit or secure this Contract on the understanding that a commission, percentage, brokerage, contingent or other fee would be paid to such person or selling agency; the bidder has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or from a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Contract.

The foregoing certification as to "(a)", "(b)", "(c)", "(d)" and "(e)" shall be deemed to have been made by the bidder as follows: if the bidder is a corporation, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each parent, affiliate, director and officer of the bidder, as well as, to the best of the certifier's knowledge and belief, each stockholder of the bidder with an ownership interest in excess of 10%; if the bidder is a partnership, such certification shall be deemed to have been made not only with respect to the bidder itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefor. If the bidder is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its bid, setting forth in such statement the reasons for its uncertainty.

Notwithstanding that the bidder may be able to make the foregoing certification at the time the bid is submitted, the bidder shall immediately notify the Authority in writing during the period of irrevocability of bids on this Contract or any extension of such period, of any change of circumstances which might under this clause make it unable to make the foregoing certification or required disclosure. The foregoing certification or signed statement shall be deemed to have been made by the bidder with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority should determine at any time prior or subsequent to the award of this Contract that the bidder has falsely certified as to any material item in the foregoing certification or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certification required to be disclosed, the Authority may determine that the bidder is not a responsible bidder with respect to its bid on this Contract or with respect to future bids on Authority contracts and may, in addition to exercising any other rights or remedies it may have, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of the Authority".

In addition, bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Bidders are also advised that the inability to make such certification will not in and of itself disqualify a bidder, and that in each instance the Authority will evaluate the reasons therefor provided by the bidder.

Under certain circumstances the bidder may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Port Authority. Said Monitor shall be charged with, among other things, auditing the actions of the bidder to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with the Port Authority.

14. BIDDER ELIGIBILITY FOR AWARD OF CONTRACTS - DETERMINATIONS BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC CONTRACTS

Bidders are advised that the Authority has adopted a policy to the effect that in awarding its contracts it will honor any determination by an agency of the State of New York or New Jersey that a bidder is not eligible to bid on or be awarded public contracts because the bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a bidder whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a bid on a Port Authority contract and then to establish that it is eligible to be awarded the contract on which it has bid because (i) the state agency determination relied upon does not apply to the bidder, or (ii) the state agency determination relied upon was made without affording the bidder the notice and hearing to which the bidder was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or a violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

15. ON SITE SUPERVISION

This Contract is being set aside for bidding by Port Authority certified Minority and Womens' Business Enterprises or Small Business Enterprises. Given this bidding preference, the successful bidder shall, at a minimum, maintain a regular on site presence at the Construction Site and exercise day-to-day financial and operational management, control and oversight of the Work.

PROPOSAL

To The Port Authority of New York and New Jersey:

The undersigned³

Neelam Construction Corp. organized under the laws of state of NJ

(hereinafter called "the Contractor") hereby offers to perform all the obligations and to assume all the duties and liabilities of the Contractor provided for in the annexed Contract, at the price inserted by the undersigned in the clause of the Form of Contract entitled "General Agreement".

This offer shall be irrevocable for 60 days after the date on which The Port Authority of New York and New Jersey opens this Proposal.

To induce the acceptance of this Proposal, the undersigned hereby makes each and every certification, statement, assurance, representation and warranty made by the Contractor in said Contract. Moreover as a condition to receipt and consideration by the Authority of the Proposal whether or not it is accepted, the undersigned agrees that all information of any nature whatsoever, regardless of the form of the communication, received from the undersigned (including its officers, agents, or employees) by the Authority, its Commissioners, officers, agents or employees, and notwithstanding any statement therein to the contrary, has not been given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind except as may arise under letters patent of the undersigned, if any.

³ Insert bidder's name at the top of the page. After the bidder's name, insert one of the following phrases:

If a corporation, give state of incorporation, using the phrase, "a corporation organized under the laws of the State of _____."

If a partnership, give full names of partners, using also the phrase, "co-partners doing business under the firm name of _____."

If an individual using a trade name, give individual name, using also the phrase, "an individual doing business under the trade name of _____."

If a joint venture, give the information required above for each participant in the joint venture.

Unless expressly stated otherwise, the Information for Bidders, all papers required by it and submitted in connection herewith at any time, said Form of Contract, and all papers made part of the Contract by the terms of the Form of Contract are made part of this Proposal.

The undersigned hereby designates the following as the bidders office⁴:

Neelam Construction Corp.

263 Herbert Avenue

Closter NJ 07624

The telephone number of the bidder is:

(201) 768-2213

The fax number of the bidder is:

(201) 768-2548

The E-Mail address of the bidder is:

Neelam1238@aol.com

⁴

Insert office address.

SIGNATURE AND CERTIFICATE OF AUTHORITY⁵

Dated, 1/8, 2007

(Signature of individual or name of corporation or partnership)

Kanti Bhanderi

(Signature of agent, partner or corporate officer)

By⁶ President

(Acknowledgment of signature to be taken on proper form on following page(s))

Kanti Bhanderi

CERTIFICATE OF AUTHORITY, IF BIDDER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)

Pravin Bhanderi

⁵ If bidder is a joint venture, insert signatures as appropriate for one participant of the joint venture on this page and attach and complete an additional signature sheet in the same form as appears on this page for each other participant as required.

⁶ If Proposal is signed by an officer or agent, give title.

⁷ NOTE: The foregoing signature shall be deemed to have been provided with full knowledge that the foregoing Proposal, the accompanying Contract booklet, as well as any certification, statement, assurance, representation, warranty, schedule or other document submitted by the bidder with the Proposal will become a part of the records of the Authority and that the Authority will rely in awarding the Contract on the truth and accuracy of such Proposal and each such certification, statement, assurance, representation, warranty and schedule made therein by the Contractor. Knowingly submitting a false statement in connection with any of the foregoing may be the basis for prosecution for offering a false instrument for filing (see, e.g., N.Y. Penal Law, Section 175.30 et seq.).

ACKNOWLEDGMENT⁸

ACKNOWLEDGMENT OF BIDDER, IF A CORPORATION

State of NJ

SS:

County of Bergen

On this 8th day of Jan, 2007, before me personally came and appeared Kanti Bhanderi, to me known, who, being by me duly sworn, did depose and say

that he resides at _____, that he is the Pres Ex. 1 of NEELAM CONST. CORP., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

(Notary Seal)

CHIMAN N. BHANDERI
NOTARY PUBLIC OF NEW JERSEY
ID# 2081741
COMMISSION EXPIRES 7/27/2011

Chiman Bhanderi

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

(Notary Signature)

ACKNOWLEDGMENT OF BIDDER, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Notary Seal)

(Notary Signature)

⁸ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required

STATEMENT ACCOMPANYING PROPOSAL⁹

Names and Residences of Officers, If Bidder is a Corporation

Name	Title	Residence ¹⁰
Kanti Bhanderi	Pres	
Pravin Bhanderi	Sec.	Ex. 1

Names and Residences of Partners, If Bidder is a Partnership

Name	General or Limited Partner	Residence ¹¹
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Bidder's Residence, If an Individual¹²

⁹ If bidder is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Statement Accompanying Proposal sheet in the same form as appears on this page for each other participant as required.

¹⁰ Give Street and Number of Residence. Do not give business address.

¹¹ Give Street and Number of Residence. Do not give business address.

¹² Give Street and Number of Residence. Do not give business address.

FORM OF CONTRACT

CHAPTER I

GENERAL PROVISIONS

16. DEFINITIONS

To avoid undue repetition, the following terms whenever they occur in this Form of Contract or any of the other papers forming a part of the Contract shall be construed as follows:

"Contract" shall mean, in addition to this Form of Contract, the Information for Bidders, the Proposal, the Authority's acceptance, the Specifications and the Contract Drawings (including written addenda issued over the name of the Chief Engineer), all of which are made part hereof as though herein set forth in full. The Contract as so defined shall constitute the complete and exclusive statement of the terms of the agreement between the parties and the Contract may not be explained or supplemented by course of dealing, usage of trade or course of performance.

The term "days" or "calendar days" in reference to a period of time shall mean consecutive calendar days, Saturdays, Sundays and holidays, included.

The term "construction site" or words of similar import shall mean several sites within LaGuardia Airport, and the vicinity thereof.

"Work" shall mean all structures, equipment, plant, labor, materials (including materials and equipment, if any, furnished by the Authority) and other facilities and all other things necessary or proper for or incidental to performing storage tank upgrades, including tank markings, installation of signage, replacement of tank level monitoring and leak detection system with associated electrical work, inspection of internal lining of large tanks, replacement of corroded fuel supply and return pipes, associated civil work and related other Work at LaGuardia Airport and the vicinity thereof; and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things.

"Work required by the Contract Drawings and Specifications in their present form" or words of similar import shall include all Work required by the Specifications in their present form (whether or not shown upon the Contract Drawings), all Work shown upon the Contract Drawings in their present form (whether or not mentioned in the Specifications), and all Work involved in or incidental to the accomplishment of the results intended by the Specifications and Contract Drawings in their present form (whether or not mentioned therein or shown thereon)."

"Equipment" and "plant" shall include construction equipment and plant rented as agent for the Authority.

"Extra Work" shall mean Work required by the Chief Engineer, Assistant Chief Engineer - Construction or Engineer of Construction pursuant to the clause hereof entitled "Extra Work Orders" which is in addition to that required by the Contract Drawings and Specifications in their present form.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings" and, except as used in the phrase "Contract Drawings in their present form", shall include any future alterations and revisions of said drawings.

"Shop Drawings" shall mean all drawings, diagrams, illustrations, schedules, including supporting data, which are specifically prepared for this Contract and submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work. The terms "shop drawings", "placing drawings" and "working drawings" are used interchangeably in this Contract.

"Catalog Cuts" shall mean all standard drawings, diagrams, illustrations, brochures, schedules, performance charts and instructions submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work.

"Chief Engineer" shall mean the Chief Engineer of the Authority for the time being, or his successor in duties, acting personally.

"Director" shall mean the Director of Aviation of the Authority for the time being, or his successor in duties for the purpose of this Contract, acting personally or through his authorized representative for the purpose of this Contract, who is at present the Authority's Director of Aviation Operations.

"Engineer" shall mean the Chief Engineer, acting either personally or through his duly authorized representatives acting within the scope of the particular authority vested in them.

"Assistant Chief Engineer - Construction" shall mean the Assistant Chief Engineer - Construction of the Authority for the time being, or his successor in duties, acting personally.

"Engineer of Construction" shall mean the designated Engineer of Construction for the facility at which the Work is being performed or his successor in duties, acting personally.

"Inspector" shall mean any representative of the Engineer designated by him as Inspector and acting within the scope of the particular authority vested in him.

The term "permanent construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, furnished by the Authority to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Authority after the completion of the Work (whether or not they are yet delivered or installed), even though they are subsequently to be removed by others. The terms, "permanent installation", "permanent structure", "permanent materials", and words of similar import shall have the same meaning as the term "permanent construction".

"Subcontractor" shall mean anyone who performs Work (other than or in addition to the furnishing of materials, plant or equipment) at or about the construction site, directly or indirectly for or in behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnished merely his own personal labor or his own personal services or who performs Work which consists only of the operation of construction equipment of which he is the lessor.

"Materialman" shall mean anyone who furnishes materials, plant or equipment to the Contractor or any subcontractor for use at or about the construction site in the performance of Work.

"Materialman" or "subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor or of the parent or the subsidiary of the Contractor has a substantial interest, provided, however, that for the purpose of the clause hereof entitled "Assignments and Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor himself.

"Workingman" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"Lump Sum" shall mean the amount stipulated in the clause hereof entitled "General Agreement".

"Notice" shall mean a written notice.

Whenever they refer to the Work or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed" and words of similar import shall mean directed, required permitted, ordered, designated or prescribed by the Engineer; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by or acceptable or satisfactory to the Engineer; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgment of the Engineer.

Whenever "including", "such as" or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of the things preceding such words.

17. GENERAL AGREEMENT¹³

The Contractor agrees to perform storage tank upgrades, including tank markings, installation of signage, replacement of tank level monitoring and leak detection system with associated electrical work, inspection of internal lining of large tanks, replacement of corroded fuel supply and return pipes, associated civil work and related other Work at LaGuardia Airport and the vicinity thereof and to furnish all structures, equipment, plant, labor, materials and other facilities and to do all other things necessary or proper therefor or incidental thereto, all in strict accordance with the Contract Drawings and Specifications and any future changes therein; and the Contractor further agrees to assume and perform all other duties and obligations imposed upon him by this Contract. The furnishing of equipment and plant, however, shall be subject to the provisions of the clause hereof entitled "Agency for Rental of Construction Equipment".

The Authority agrees to pay to the Contractor and the Contractor agrees to accept from the Authority, in full consideration for the performance by the Contractor of his duties and obligations under this Contract and the whole thereof, a compensation of:

<u>Seven Hundred Thirty Eight Thousands</u>	Dollars
<u>Six Hundred Fifty and</u>	Cents
<u>XX</u>)
(\$ <u>738,650.00</u>)	

(throughout this Contract called the "Lump Sum"), and such compensation only, subject only to the express provisions of this Contract specifically setting forth actual, defined additions to or deductions from such compensation.

The enumeration in this Form of Contract and in the Specifications of particular things to be furnished or done at the Contractor's expense, or without cost or expense to the Authority, or without additional compensation to the Contractor shall not be deemed to imply that only things of a nature similar to those enumerated shall be so furnished and done; but the Contractor shall perform all Work as required without other compensation than that specifically provided, whatsoever changes may be made in the Contract Drawings and Specifications, whatsoever Work may be required in addition to that required by the Contract Drawings and Specifications in their present form, and whatsoever obstacles or unforeseen conditions may arise or be encountered.

¹³ For sales tax exemptions, see clause entitled "Exemptions from New York State and New York City Sales Taxes".

18. AUTHORITY ACCESS TO RECORDS

The Authority shall have access during normal business hours to all records and documents of the Contractor relating to any amounts for which the Contractor has been compensated, or claims he should be compensated, by the Authority by payment determined on any basis other than by payment of a lump sum or unit price amount agreed upon in writing by the Contractor and the Authority; provided, however, such access shall extend to certified payroll records as described in the clause of the Form of Contract entitled "Prevailing Rate of Wage" regardless of the method by which the Contractor is compensated under this Contract. The Contractor shall obtain for the Authority similar access to similar records and documents of subcontractors. Such access shall be given or obtained both before and within a period of three years after Final Payment to the Contractor; provided, however, that if within the aforesaid three year period the Authority has notified the Contractor in writing of a pending claim by the Authority under or in connection with this Contract to which any of the aforesaid records and documents of the Contractor or of his subcontractors relate either directly or indirectly, then the period of such right of access shall be extended to the expiration of 6 years from the date of Final Payment with respect to the records and documents involved.

No provision in this Contract giving the Authority a right of access to records and documents is intended to impair or affect any right of access to records and documents which the Authority would have in the absence of such provision.

19. AGENCY FOR RENTAL OF CONSTRUCTION EQUIPMENT

A. General Provisions

The Contractor further agrees to act as the agent of the Authority, subject to the provisions of this numbered clause relating to such agency for the rental of all construction equipment necessary or desirable for or incidental to the performance of the Contract (other than construction equipment owned and also used by the Contractor or owned and also used by any subcontractor) and, in the exercise of such agency, to assume all the obligations and duties imposed upon him by this Contract. The Contractor may authorize any subcontractor to act as his subagent for rental of such equipment for use by such subcontractor, subject to all the provisions of this Contract. "Construction equipment" as used in this numbered clause shall include plant.

The Authority will pay the rental charges for said equipment directly to the lessors thereof, but the charges so paid shall be deducted from the compensation payable to the Contractor under the Contract; provided, however, that the Authority will pay such charges, and the Contractor is authorized by the Authority to act as such agent, to the extent only that the charges payable for such rental do not exceed the compensation payable to the Contractor under the Contract; and provided further that the Contractor performs all the obligations relating to said agency imposed upon him by this Contract.

The Authority will provide the Contractor with a statement to be furnished by him and the subcontractors to such lessors which will identify this Contract as the one under which the Contractor is authorized to rent said equipment and which will identify the site to which delivery must be made. The Contractor shall arrange for delivery of said equipment directly to the construction site. Payment of the rental charges therefore shall be made by the Authority on the basis of invoices made out to the Authority in which is contained the place of delivery and on which the Contractor has certified by endorsement that such construction equipment is being or has been used in the performance of the Contract, said invoices to be submitted through the Contractor to the Authority at the time said equipment is put into use at the construction site. In the event said invoices are not submitted promptly, at the time stated above, but are submitted at a time when, by reason of prior advances and payments to the Contractor or for his account, the amounts still payable to the Contractor in connection with the Contract are insufficient to pay said invoices, then the Authority shall not be liable to the lessors for any amounts in excess of said amounts still payable to the Contractor which remain in the possession of the Authority.

Notwithstanding the above agency arrangement, the Authority shall not be liable to lessors of construction equipment for any amounts except rental charges based on time of use of such equipment, and the Contractor's agency is limited accordingly. All obligations incurred by the Contractor or subcontractors for any other expenses, including repairs and damages for breach of the rental agreement, shall be obligations incurred by the Contractor or subcontractors as principal not as agent of the Authority. Moreover, as between the Authority and the Contractor, the Contractor shall be responsible for all amounts due to lessors of construction equipment notwithstanding the above agency arrangement.

The Contractor shall indemnify the Authority against any claim of any kind whatsoever made against the Authority by a lessor of construction equipment and the Contractor assumes the risk of all claims against him by any lessor of construction equipment, including in both cases, claims in connection with a subcontractor.

The agency provided for under this numbered clause shall not relieve the Contractor of any of his duties and obligations elsewhere provided for under this Contract.

B. Option Not to Act as Agent

Notwithstanding the provisions of A above, the Contractor shall have the right to elect not to act as the agent of the Authority for the rental of any particular item or items of said construction equipment, in which event, with regard to any such rentals by the Contractor as principal and not agent, the provisions of A of this numbered clause shall be inapplicable as well as those provisions of the clause of the Form of Contract entitled "Exemption From New York State and New York City Sales Taxes", which relate to rental of construction equipment.

20. EXEMPTION FROM NEW YORK STATE AND NEW YORK CITY SALES TAXES

A. Materials Incorporated in Permanent Construction

The attention of the Contractor is directed to the following provision of the New York State and New York City Sales and Compensating Use Tax Act:

"#1115. Exemptions from sales and use taxes. (a) Receipts from the following shall be exempt from the tax on retail sales imposed under subdivision (a) of section eleven hundred five and the compensating use tax imposed under section eleven hundred ten:

(15) Tangible personal property sold to a contractor, subcontractor or repairman for use in erecting a structure or building of an organization described in subdivision (a) of section eleven hundred sixteen, or adding to, altering or improving real property, property or land of such an organization, as the terms real property, property or land are defined in the real property tax law; provided, however, no exemption shall exist under this paragraph unless such tangible personal property is to become an integral component part of such structure, building or real property."

The Authority is an exempt organization of the type described in subdivision (a) of section eleven hundred sixteen.

In view of the foregoing, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such tangible personal property.

If (i) any claim is made against the Contractor by the State of New York or City of New York for such sales or compensating use taxes, or (ii) any claim is made against the Contractor by a materialman or a subcontractor on account of a claim against such materialman or subcontractor by the State of New York or City of New York for such sales or compensating use taxes, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

- 1.) the Contractor, or the Contractor and any such subcontractor, as the case may be, have complied with such rules and regulations as may have been promulgated relating to the claiming of the exemption from such taxes and have filed all the forms and certificates required by the applicable laws, rules and regulations in connection therewith;
- 2.) and the Authority is afforded the opportunity before any payment of tax is made, to contest said claim in the manner and to the extent that the Authority may choose and to settle or satisfy said claim and such attorney as the Authority may designate is authorized to act for the purpose of contesting, settling and satisfying said claim; and
- 3.) the Contractor, or the Contractor and any such subcontractor, as the case may be, give immediate notice to the Authority of any such claim, cooperate with the Authority and its designated attorney in contesting said claim and furnish promptly to the Authority and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six years after the date of Final Payment or longer if such a claim is pending or threatened at the end of such six years.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

B. Rental of Construction Equipment

The rental by the Contractor or subcontractor of construction equipment not owned by the Contractor or subcontractors for use in the performance of the Contract will also not be subject to New York State or New York City sales or compensating use taxes, provided that:

- 1.) the Contractor's and any subcontractor's use of construction equipment rented from others, and any agreement for such rental, is based upon the agency arrangement provided for in the clause hereof entitled "Agency for Rental of Construction Equipment" and the Contractor and subcontractors have performed all their obligations under said clause;
- 2.) delivery of said equipment is to the construction site;
- 3.) the Contractor or subcontractor has furnished to the lessor the statement from the Authority identifying this Contract as the one under which the Contractor or subcontractor has been authorized to rent said equipment and identifying the construction site to which delivery must be made;
- 4.) the invoice for said equipment is made out to the Authority and prescribes the place of delivery; and
- 5.) the amounts payable for rental of said equipment do not exceed the amount of compensation payable in connection with the Work.

In view of the above, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such rentals of equipment.

If (i) any claim is made against the Contractor by the State or City of New York for sales or compensating use taxes on such rental of construction equipment or (ii) any claim is made against the Contractor by a materialman, lessor or a subcontractor on account of a claim against such materialman, lessor or subcontractor by the State or City of New York for sales or compensating use taxes on rental of said equipment, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that the provisos listed above in this numbered clause as A.1 through A.3 and B.1 through B.5 are complied with.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

CHAPTER II

ADJUSTMENTS AND PAYMENTS

21. ADJUSTMENTS OF LUMP SUM

If any Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced, the Engineer shall have full authority on behalf of both parties to make such adjustment by way of reduction in the Lump Sum as he may in his sole discretion deem equitable and reasonable, and in making such adjustment, no allowance to the Contractor shall be made for anticipated profits.

The Chief Engineer shall have authority to agree in writing with the Contractor for adjustments by way of reduction in the Lump Sum in lieu of those for which provision is heretofore made in this numbered clause.

22. COMPENSATION FOR EXTRA WORK

The Chief Engineer shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

If such agreement on compensation is not made, and Extra Work be performed, the Contractor's compensation shall be increased by the following amounts and such amounts only:

- 1.) In the case of Extra Work performed by the Contractor personally, an amount equal to the actual net cost in money of the labor and materials required for such Extra Work, plus twenty per cent (20%) of such net cost, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable.
- 2.) In the case of Extra Work performed by a subcontractor, an amount equal to the actual net cost in money of the labor and materials required for such Extra Work, plus twenty per cent (20%) of such net cost plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer deems reasonable, plus seven per cent (7%) of the sum of the foregoing cost, percentage of cost, and rental.

As used in this numbered clause (and in this clause only):

"Labor" means foremen, surveyors, laborers, mechanics and other employees below the rank of superintendent, exclusive of timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Engineer's authority to determine what employees of any category are "required for Extra Work" and as to the portion of their time allotted to Extra Work; and "cost of labor" means the wages actually paid to and received by such employees plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages. "Employees" as used above means only the employees of one employer.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Authority on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Engineer on the basis of the following:

A.

- 1.) Hourly rental for those items of equipment listed in the "Rental Rate Blue Book" (published by Machinery Information Division, K-III Directory Corporation, 1735 Technology Drive, Suite 410, San Jose, California 95131-2398), (hereinafter called "the Blue Book") shall be 100% of the applicable rates as listed in said book, reduced to an hourly basis (see formula below) except that such applicable rates shall be reduced by 50% for all hours of rental payable hereunder in excess of 8 hours each day. The edition of this publication to be used shall be the one in effect on the date of the actual rental of the equipment. The "Estimated Operating Cost per Hour" as set forth for such item of equipment in the Blue Book shall be added to the hourly rental for each hour that such equipment is actually engaged in performing Extra Work. No amount for operating cost will be allowed during periods when such equipment is not actually engaged in performing Extra Work (i.e. standby rental time). None of the provisions of the Blue Book shall be deemed referred to or included in this Contract except as specifically set forth in this Section.
- 2.) If no listing of rental rate and/or hourly operating cost for the item of equipment is in the Blue Book, the Engineer shall determine the reasonable rate of rental and/or hourly operating cost of the particular item of equipment by such other means as he finds appropriate.

B. When utilizing the rental rates appearing in the Blue Book, the Engineer shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:

- 1.) The rate to be applied for an item of equipment used on a particular Extra Work order shall be the daily, weekly or monthly rates from the foregoing publication based on the total number of work days or portions thereof that a particular item of equipment or substitute item of equipment is at the construction site for use by the Contractor or subcontractors whether under this Contract or any other contract with the Authority. Included within this period will be (i) work days of idleness of the equipment at the construction site whether such idleness results from acts or omissions of the Contractor, Authority or third persons, breakdowns in the equipment or any other cause, (ii) work days on which the equipment is removed from the construction site solely to enable the performance of repairs thereon, and (iii) work days intervening between the removal of equipment from the construction site for repairs and the delivery to the construction site of the same or substitute equipment. The number of work days in the period for each rate shall be as indicated below:

Three work days or less.	Daily Rate
More than three work days but not more than fifteen work days.	Weekly Rate
More than fifteen work days.	Monthly Rate

The pro rata portion which one hour bears to the applicable rate shall be determined in accordance with the following formula:

Hourly rate based on daily rental.	1/8 of daily rental from Blue Book
Hourly rate based on weekly rental.	1/40 of weekly rental from Blue Book
Hourly rate based on monthly rental.	1/176 of monthly rental from Blue Book

- 2.) The rental rate shall be multiplied by the applicable regional adjustment factor shown for such item of equipment in the Blue Book. The adjustment factor shall not apply to the hourly operating cost.
 - 3.) If the Engineer should determine that the nature or size of the equipment used by the Contractor in connection with Extra Work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Engineer to be suitable for the Extra Work, the reasonable rental will not be based upon the equipment used by the Contractor but will be based on the smallest or least elaborate equipment determined by the Engineer to have been suitable for the performance of the Extra Work.
- C. In the case of equipment utilized only for Extra Work: (a) in addition to amounts determined as provided in subparagraphs A and B above, there will be added to the rental as computed above the reasonable cost of transporting such equipment to and from the construction site, and (b) notwithstanding the number of hours during which such equipment is utilized, the minimum rental therefor will be for a period of eight hours.

In computing the Contractor's compensation insofar as it is based upon Extra Work, and notwithstanding any provision to the contrary appearing in the Blue Book, no consideration shall be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided cover items of cost and expense to the Contractor of any type whatsoever, including administration, overhead, taxes (other than those enumerated above), clean-up, consumables including gas and oil, drafting (including printing or other reproduction), coordination, field measurements, maintenance, repairs, insurance, profit to the Contractor and small tools.

Whenever any Extra Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor shall, at the end of each day, submit to the Engineer (a) daily time slips showing the name and number of each workman employed on such Work, the number of hours which he is employed thereon, the character of his duties, and the wages to be paid to him, (b) a memorandum showing the state and federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefor, and (d) a memorandum of equipment used in the performance of such Work, together with the rental claimed therefor. Such memoranda and time slips are for the purpose of enabling the Engineer to determine the amounts to be paid by the Authority under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Extra Work and shall constitute a waiver by the Contractor of claims for payment for such Work. In the event that the Chief Engineer and the Contractor shall agree in writing upon a lump sum or other compensation for Extra Work in lieu of compensation as provided in the second paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

23. COMPENSATION FOR EMERGENCY DELAYS

If the Contractor is specifically directed by the Engineer to suspend his operations as stipulated in the Specifications entitled "Airport Operations And Conditions" or if the Contractor is specifically directed not to start his operations at a time when operations are permitted to start as stipulated in such Section, and if solely because of such suspension or direction not to start any of the Contractor's or subcontractor's employees or equipment then engaged in or about to start such Work are necessarily kept idle at the construction site, during the hours when they would otherwise be engaged in the performance of the Work, then the Contractor's compensation shall be increased by an amount equal to the salaries and wages in amounts approved by the Engineer which the employer is required to pay and actually pays to such employees for the period or periods of such idleness, plus a proper proportion of (a) taxes actually paid by the employer pursuant to law upon the basis of such salaries and wages, and (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such salaries and wages, and in addition thereto such rental as the Engineer deems reasonable for such equipment during the period or periods of such idleness. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Idle Salaried Men and Equipment".

In the event that the Contractor deems that any payment should be made pursuant to this numbered clause, he shall give prompt written notice to the Engineer stating the reasons why he believes such payments should be made and shall moreover, furnish to the Engineer at the end of each day, a memorandum showing the name, payroll title, salary rate and employer of each of the workingmen, and description, owner and claimed rental rate for each item of equipment claimed to have been kept idle. Said notice and memorandum are for the purpose of enabling the Engineer to verify the Contractor's claim at the time. Accordingly, notwithstanding any other provisions hereof, the failure of the Contractor to furnish such notice and memorandum shall constitute a conclusive binding determination on his part that he is not entitled to compensation as provided herein and shall constitute a waiver by the Contractor of all claims for such payment, such notice and memorandum being conditions precedent to payment under this numbered clause.

24. SEMI- MONTHLY ADVANCES

On or about the first and fifteenth day of each month, the Engineer shall (upon receipt from the Contractor of such information as he may require, including a certification in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause) estimate and certify to the Authority the approximate amount of Work performed and compensation earned by the Contractor up to that time showing separately:

- A. The amount of Work (other than Extra Work) performed by the Contractor up to that time and a sum bearing the same proportion to the Lump Sum as the Work performed (other than Extra Work) bears to the Work performed and to be performed (other than Extra Work).
- B. The increases, if any, in the Contractor's compensation for which provision is specifically made elsewhere in this Contract.

As an aid to the Contractor and to facilitate his performance, the Authority shall, within fifteen days after the receipt of each such semi-monthly certificate, advance to the Contractor by check the sums so certified, minus, however, either ten per cent (10%) of the sum certified pursuant to subparagraph A of this numbered clause or five percent (5%) of the Lump Sum, whichever is less, and minus all prior advances and payments to the Contractor or for his account and minus payments by the Authority to lessors of construction equipment.

Within seven days of receipt of any sum attributable to Work performed by a subcontractor or materialman or within such later period as is provided in the subcontract or purchase agreement, the Contractor shall advance to the subcontractor or materialman said sum, less such amount, if any, as the Contractor is authorized to retain under the subcontract or purchase agreement.

Notwithstanding the above, the Authority shall have the right, at its sole discretion, to directly pay the subcontractors and material suppliers who perform Work for or furnish materials to the Contractor in connection with the Work of this Contract.

Prior to certifying any amount for payment hereunder, the Engineer may require that the Contractor submit a certification accurately and fully setting forth the total amount due and payable to each subcontractor and supplier for Work performed or materials provided by such subcontractor or supplier in connection with the Work of this Contract. Any payment made by the Authority to a subcontractor or supplier pursuant to the provisions of this numbered clause shall be made in reliance upon such certification and all such payments shall be considered as advances to the Contractor of the compensation payable hereunder. No such payment shall relieve the Contractor of any of its obligations hereunder.

Furthermore, within fifteen (15) days of the Contractor's receipt of the Authority acceptance of the Contractor's Proposal, the Contractor shall submit to the Engineer a listing of all subcontract and material supply agreements entered into by the Contractor for the performance of Work required by this Contract. Such listing shall include the names and addresses of each such subcontractor and supplier and the amounts payable under each such agreement. As and when any modifications are made to such agreements or any additional subcontracts or supply agreements are entered into, the Contractor shall inform the Engineer of such and shall indicate the amounts payable thereunder.

Nothing contained herein shall be deemed to create any additional rights in such subcontractors or suppliers or to alter the rights of the Authority as such are set forth in the clause hereof entitled "Withholding of Payments"

25. FINAL PAYMENT

After the rendition of the Certificate of Final Completion and upon receipt from the Contractor of such information as may be required, the Engineer shall certify in writing to the Authority and to the Contractor the total compensation earned by the Contractor.

If so required, the Contractor shall thereupon (i) certify to the Authority in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause and (ii) furnish to the Authority a detailed sworn statement of all claims, just and unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe may thereafter be made on account of the Work.

Within thirty days after issuance of such certificate of total compensation earned (or within thirty days after receipt of the documents provided for in the immediately preceding paragraph, if required), the Authority shall pay to the Contractor by check the amount stated in said certificate, less all other payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

The acceptance by the Contractor, or by anyone claiming by or through him, of Final Payment shall be and shall operate as a release to the Authority of all claims and of all liability to the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the Authority and others relating to or arising out of the Contract, including claims arising out of breach of contract and claims based on claims of third persons, excepting only his claims for reimbursement for certain sales taxes as hereinbefore provided. No payment, however, final or otherwise, shall operate to release the Contractor from any obligations in connection with this Contract.

The Contractor's agreement as provided in the immediately preceding paragraph above shall be deemed to be based upon the consideration forming part of this Contract as a whole and not to be gratuitous; but in any event even if deemed gratuitous and without consideration, such agreement as provided in the immediately preceding paragraph above shall nevertheless be effective. Such release shall include all claims, whether or not in litigation and even though still under consideration by the Authority or the Engineer. Such release shall be effective notwithstanding any purported reservation of right by the Contractor to preserve such claim. The acceptance of any check designated as "Final Payment" or bearing any similar designation shall be conclusively presumed to demonstrate the intent of the Contractor that such payment was intended to be accepted as final, with the consequences provided in this numbered clause, notwithstanding any purported reservation of rights.

The Contractor agrees that he shall not be entitled to, and hereby waives any right he might otherwise have to, and shall not seek any judgment whether under this Contract or otherwise for any such Final Payment or for an amount equivalent thereto or based thereon, or for any part thereof, if such judgment would have the effect of varying, setting aside, disregarding or making inapplicable the terms of this numbered clause or have the effect in any way of entitling the Contractor to accept such Final Payment or an amount equivalent thereto or based thereon or any part thereof other than in the same fashion as a voluntary acceptance of a Final Payment subject to all the terms of this Contract including this numbered clause, unless and until the Contractor should obtain a judgment on any claim arising out of or in connection with this Contract (including a claim based on breach of contract) for an amount not included in said Final Payment. In any case in which interest is allowable on the amount of the Final Payment, such interest shall be at the rate of 6% per annum for the period, if any, in which such interest is due.

26. WITHHOLDING OF PAYMENTS

If (1) the Contractor fails to perform any of his obligations under this Contract or any other agreement between the Authority and the Contractor (including his obligation to the Authority to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Authority) or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor is made against the Authority or (3) any subcontractor under this Contract or any other agreement between the Authority and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor or if in the opinion of the Chief Engineer any of the aforesaid contingencies is likely to arise, then the Authority shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Chief Engineer may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Chief Engineer may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Authority to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Authority does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Authority to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Authority shall create any obligation of any kind to such materialmen, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the rights of the Authority under this numbered clause.

In the event that wages and/or supplements have been paid in an amount less than as required by this Contract, the Authority shall also have the right to withhold from the Contractor out of any payment, final or otherwise, on this, or any other open contract that the Contractor has with the Authority, so much as may be necessary to pay to laborers, mechanics, architects, draftsmen, engineers and technical workers, and others employed on the Work, the difference between the sums such persons should have received as wages and/or supplements and the amounts they actually received, and to pay such sums over to such persons. All such payments shall be deemed to be payments for the Contractor's account. In addition, the Contractor shall be required to pay to the Authority an amount equal to the Authority's cost of any investigation conducted by or on behalf of the Authority, that discovers a failure to pay wages and/or supplements as required by this Contract by the Contractor or its subcontractors, the cost of such investigation to be determined by the Chief Engineer personally. If the Contractor fails or refuses to pay for the cost of any such investigation after demand by the Authority, the Authority may deduct from any amount payable to the Contractor by the Authority, under the Contract or under any other open contract between the Contractor and the Authority, an amount equal to the cost of such investigation.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Authority, the Authority shall pay the Contractor interest thereon at the rate of six percent (6%) per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

CHAPTER III

PROVISIONS RELATING TO TIME

27. TIME FOR COMPLETION AND DAMAGES FOR DELAY

The Contractor shall complete the performance of all Work under this Contract within 270 calendar days after receipt by him of the acceptance of his Proposal.

If Chapter V of the Form of Contract contains a clause entitled "Insurance Procured by the Contractor", the Contractor shall not commence the performance of the Work until the date of receipt by him of notice from the Authority that the insurance procured by him pursuant to said clause is satisfactory, as evidenced by the certificate to be furnished in accordance with said clause.

The time for completion shall not be extended on account of the time required to furnish the documents referred to above, but the Authority shall give notice to the Contractor within ten days after receipt of the certificate of insurance as to whether or not such insurance is satisfactory.

The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. The Contractor guarantees that he can and will complete the performance of the Work within the time hereinbefore stipulated or within the time as extended in accordance with the clause hereof entitled "Extensions of Time". Inasmuch as the damage and loss to the Authority which will result from delay in completing the performance of the Work within the time herein stipulated will include items of loss whose amount will be incapable or very difficult of accurate estimation, the damages to the Authority for each calendar day by which the Contractor does not complete performance of the Work within the time or times above stipulated or within such time or times as extended in accordance with the clause hereof entitled "Extensions of Time", shall be liquidated in the sum of Five hundred dollars Dollars (\$500) per calendar day.

28. EXTENSIONS OF TIME

The time above provided for completion of any part of the Contract shall be extended (subject, however, to the provisions of this numbered clause) only if in the opinion of the Engineer the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

- A. Such cause is beyond the Contractor's control and arises without his fault;
- B. Such cause comes into existence after the opening of Proposals on this Contract and neither was nor could have been anticipated by investigation before such opening.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated before opening of such Proposals on this Contract except to the extent that the actual monthly average temperature varies from a temperature which is 10 per cent (10%) above or below the monthly normal temperature and except to the extent that the actual number of days of precipitation (of 0.1 inch or more) per month exceeds a number equal to two plus the normal number of days of precipitation per month.

In any case, the variations in temperature and precipitation described in the immediately preceding sentence will be cause for an extension of time only if occurring between the actual time of commencement of the Work at the construction site and the time for completion stipulated in the clause hereof entitled "Time for Completion and Damages for Delay" (or such time as extended as provided for herein). In the case of portions of months the number of days will be pro-rated by the Engineer. Temperature and precipitation shall be as recorded by the U. S. Weather Bureau in its publications, including that entitled "Local Climatological Data with Comparative Data", which is applicable to the area in which the Work is to be performed, and in the case of precipitation, the normal number of days of precipitation (of 0.1 inch or more) per month as abstracted from the aforementioned publications are as follows:

Month	Normal number of days per month on which precipitation exceeds 0.1 inch
January	7
February	7
March	8
April	7
May	6
June	6
July	5
August	7
September	6
October	6
November	7
December	7

In any event, even though a cause of delay meets all the above conditions, an extension shall be granted only to the extent that (i) the performance of the Work is actually and necessarily delayed and (ii) the effect of such cause cannot be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling), whether before or after the occurrence of the cause of delay, and an extension shall not be granted for a cause of delay which would not have affected the performance of the Contract were it not for the fault of the Contractor or for other delay for which the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include subcontractors and materialmen, whether or not in privity of contract with the Contractor, and employees and others performing any part of the Contract and all the foregoing shall be considered as agents of the Contractor.

The period of any extension of time shall be that necessary to make up the time actually lost, subject to the provisions of this numbered clause, and shall be only for the portion of the Contract actually delayed. The Engineer may defer all or part of his decision on an extension and any extension may be rescinded or shortened if it subsequently is found that the delays can be overcome or reduced by the exercise of reasonable precautions, efforts and measures.

As a condition precedent to an extension of time, the Contractor shall give written notice to the Engineer within 48 hours after the time when he knows or should know of any cause which might under any circumstances result in delay for which he claims or may claim an extension of time (including those causes which the Authority is responsible for or has knowledge of), specifically stating that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at the time, the nature and expected duration of the delay and its effect on the various portions of the Contract. Since the possible necessity for an extension of time may materially alter the scheduling, plans and other actions of the Authority, and since, with sufficient opportunity, the Authority might if it so elects attempt to mitigate the effect of a delay for which an extension of time might be claimed, and since merely oral notice may cause disputes as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations and failure of the Contractor to give written notice as above required shall be a conclusive waiver of an extension of time.

It shall in all cases be presumed that no extension, or further extension, of time is due unless the Contractor shall affirmatively demonstrate to the satisfaction of the Engineer that it is. To this end the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, the foregoing presumption shall be deemed conclusive.

29. IDLE SALARIED MEN AND EQUIPMENT

If any salaried men or equipment of the Contractor or any sub-contractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day on each of two or more full days on which they would be engaged in the performance of the Work but for causes due solely to acts or omissions of the Authority or the Engineer occurring after the opening of Proposals on this Contract, and if such idleness is not due to any cause within the control of the Contractor or of any of his subcontractors or materialmen or his or their employees, then the Authority shall pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Authority or the Engineer) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Engineer deems reasonable. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Compensation for Extra Work"; provided, however, that the seven per cent (7%) of the rental to be paid in accordance with said clause in the case of equipment utilized by subcontractors shall not be payable in connection with such idle equipment; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Engineer before the end of the second of the above mentioned 2 or more full days (whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered clause), specifically stating that salaried men or equipment have been kept idle under circumstances which might result in payment under this numbered clause; and he shall furnish with such notice, for all the days that have occurred, and shall in addition furnish at the end of each additional day of the above mentioned 2 or more full days, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried men claimed to have been kept idle at the construction site, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Engineer to verify the Contractor's claim at the time, and of enabling him to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered clause, so that the day on which notice is given shall be counted as not later than the second of the above mentioned 2 or more full days and no subsequent day shall be counted for which the above memoranda are not furnished at the end of such day.

30. DELAYS TO CONTRACTOR

As between the Contractor and the Authority, the Contractor assumes the risk of all suspensions of or delays in performance of the Contract, regardless of the length thereof, arising from all causes whatsoever, whether or not relating to this Contract, including wrongful acts or omissions of the Authority, its officers, agents, employees and contractors, except only to the extent, if any, that compensation or an extension of time may be due as expressly provided for elsewhere in this Contract for such suspension or delays and except to the extent, if any, that compensation may be agreed to by the Chief Engineer in writing pursuant to the clause hereof entitled "Compensation for Extra Work" for impact costs incurred by the Contractor in connection with the performance of Extra Work. Subject only to such exceptions, the Contractor shall bear the burden of all costs, expenses and liabilities which he may incur in connection with such suspensions or delays, and all such suspensions, delays, costs, expenses and liabilities of any nature whatsoever, whether or not provided for in this Contract, shall conclusively be deemed to have been within the contemplation of the parties.

Notwithstanding any provisions of this Contract, whether relating to time of performance or otherwise, the Authority makes no representation or guaranty as to when the construction site or any part thereof will be available for the performance of the Contract or as to whether conditions at the construction site will be such as to permit the Contract to be performed thereon without interruption or by any particular sequence or method or as to whether the performance of the Contract can be completed by the time required under this Contract or by any other time.

Wherever in connection with this Contract it is required, expressly or otherwise, that the Authority shall perform any act relating to the Contract, including making available or furnishing any real property, materials, or other things, no guaranty is made by the Authority as to the time of such performance and the delay of the Authority in fulfilling such requirement shall not result in liability of any kind on the part of the Authority except only to the extent, if any, that an extension of time or compensation may be due as expressly provided for elsewhere in this Contract.

31. CANCELLATION FOR DELAY

If the performance of the Contract or any portion of it shall, in the opinion of the Chief Engineer, be materially delayed, whether or not through the fault of the Contractor, by any cause which affects the Contractor's ability to perform the Contract without affecting to the same degree the Authority's own ability to perform it, either directly or through others, the Authority shall have the right at any time during the existence of such delay to cancel this Contract as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Contract arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Authority. In the event of such cancellation, no allowance shall be made for anticipated profits.

CHAPTER IV

CONDUCT OF CONTRACT

32. AUTHORITY OF DIRECTOR

If at any time it shall be, from the viewpoint of the Authority, impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Authority, he shall have authority to suspend performance of any part or all of the Contract until such time as he may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Authority impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof whether or not for reasons beyond the control of the Authority, he shall have authority to cancel this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations of the parties arising out of portions already performed, but no allowance shall be made for anticipated profits.

33. AUTHORITY OF CHIEF ENGINEER

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner which the Authority, acting through the Chief Engineer, deems best, the Chief Engineer shall have absolute authority to determine what is or is not necessary or proper for or incidental to the portion thereof specified in the clause hereof entitled "General Agreement" and the Contract Drawings and Specifications shall be deemed merely his present determination on this point. In the exercise of this authority, he shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required by them in their present form, even though of a totally different character from that now required; and to vary, increase and diminish the character, quantity and quality of, or to countermand, any Work now or hereafter required. Such variation, increase, diminution or countermanding need not be based on necessity but may be based on convenience.

To resolve all disputes and to prevent litigation the parties to this Contract authorize the Chief Engineer to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) and his decision shall be conclusive, final and binding on the parties. His decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of the Engineer or others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Contract provided, however, that notwithstanding the decision reached by the Chief Engineer in a review of determinations by the Assistant Chief Engineer for Construction or Engineer of Construction that a particular item of Work is not Extra Work the Contractor shall be compensated therefor as provided in written orders of the Assistant Chief Engineer for Construction or Engineer of Construction expressly and unmistakably indicating his intention to treat Work described therein as Extra Work issued in accordance with the provisions of the clause hereof entitled "Extra Work Orders" for amounts not in excess of \$25,000 and subject to the aggregate limit specified in said clause.

All such questions shall be submitted in writing by the Contractor to the Chief Engineer for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Authority relating to any such question the Contractor must allege in his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information shall be introduced or relied upon in such an action that has not been so presented to the Chief Engineer.

This numbered clause shall be governed by and construed in accordance with the law of the State of New York, without giving effect to its choice of law provisions.

34. AUTHORITY AND DUTIES OF ENGINEER

In the performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the Engineer and shall perform the Contract to the satisfaction of the Engineer at such times and places, by such methods and in such manner and sequence as he may require, and the Contract shall at all stages be subject to his inspection. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Contract Drawings, Specifications and any orders for Extra Work. The Contractor shall employ no equipment, materials, methods or men to which the Engineer objects, and shall remove no materials, equipment or other facilities from the construction site without permission. Upon request, the Engineer shall confirm in writing any oral order, direction, requirements or determination.

The Contractor is requested to orally advise the Engineer of questions as they arise. Although such advice will not substitute for the written notice and information for which requirements are set forth elsewhere herein, it is anticipated that it will facilitate prompt decisions on the part of the Engineer and others.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control or in which the Contract shall be performed to his satisfaction or subject to his inspection, shall not imply that only the matters of a nature similar to those enumerated shall be so governed and performed, but without exception the entire Contract shall be so governed and so performed.

35. NOTICE REQUIREMENTS

No claim against the Authority shall be made or asserted in any action or proceeding at law or in equity, and the Contractor shall not be entitled to allowance of such claim, unless the Contractor shall have complied with all requirements relating to the giving of written notice of the information with respect to such claim as provided in this numbered clause. The failure of the Contractor to give such written notice and information as to any claim shall be conclusively deemed to be a waiver by the Contractor of such claim, such written notice and information being conditions precedent to such claim. As used herein "claim" shall include any claim arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) for damages, payment or compensation of any nature or for extension of any time for performance of any part of this Contract.

The requirements as to the giving of written notice and information with respect to claims shall be as follows:

- A. In the case of any claims for Extra Work, extension of time for completion, idle salaried men and equipment, or any other matter for which requirements are set forth elsewhere in this Contract as to notice and information, such requirements shall apply.

- B. In the case of all other types of claim, notice shall have been given to the Engineer, personally, as soon as practicable, and in any case, within 48 hours, after occurrence of the act, omission, or other circumstance upon which the claim is or will be based, stating as fully as practicable at the time all information relating thereto. Such information shall be supplemented with any further information as soon as practicable after it becomes or should become known to the Contractor, including daily records showing all costs which the Contractor may be incurring or all other circumstances which will affect any claim to be made, which records shall be submitted to the Engineer, personally.

The above requirements for notices and information are for the purpose of enabling the Authority 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 expense or circumstances as they occur, and the requirements herein for such notice and information are essential to this Contract and are in addition to any notice required by statute with respect to suits against the Authority.

The above referred to notices and information are required whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for a claim and whether or not the Authority has indicated it will consider a claim.

No act, omission, or statement of any kind shall be regarded as a waiver of any of the provisions of this numbered clause or may be relied upon as such waiver except only either a written statement signed by the Executive Director of the Authority or a resolution of the Commissioners of the Authority expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more particularly no discussion, negotiations, consideration, correspondence, or requests for information with respect to a claim by any Commissioner, officer, employee or agent of the Authority shall be construed as a waiver of any provision of this numbered clause or as authority or apparent authority to effect such a waiver.

Since merely oral notice or information may cause disputes as to the existence or substance thereof, and since notice, even if written, to other than the Authority representative above designated to receive it may not be sufficient to come to the attention of the representative of the Authority with the knowledge and responsibility of dealing with the situation only notice and information complying with the express provisions of this numbered clause shall be deemed to fulfill the Contractor's obligation under this Contract.

36. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.

- B. The Contractor shall send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under clauses A through H (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Authority as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, sex, color or national origin and that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this Contract, shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commission for Human Rights of such failure or refusal.
- C. The Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses A and B and such provisions of the State's laws against discrimination as the State Commission for Human Rights shall determine.
- D. The Contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin.
- E. The Contractor shall comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, shall furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and shall permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.

- F. This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Authority upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State, the Authority or other public authority or agency of the State, until he has satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor by the Commission and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designee. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.

- G. The Contractor shall include the provisions of clauses A through F in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such subcontract or purchase order as the Authority may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Authority, the Contractor shall promptly so notify the General Counsel to the Authority, requesting him to intervene and protect the interests of the Authority.

- H. The provisions of this numbered clause which refer to the State Commission for Human Rights, the Attorney General and the Industrial Commissioner are inserted in this Contract for the benefit of such parties, as well as for the benefit of the Authority, and said Commission, Commissioner and the Attorney General shall have a direct right of action against the Contractor to effectuate the intent of this clause.

37. AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY

The Contractor shall comply with the provisions set forth hereinafter. These provisions are modeled on the conditions for bidding on federal government contracts adopted by the Office of Federal Contract Compliance in 1978.

Each bidder, contractor or subcontractor (hereinafter called the Contractor) must fully comply with the clause entitled 'Equal Employment Opportunity' and these bid conditions. The Contractor commits itself to the goals for minority and female utilization set forth below and all other requirements, terms and conditions of these bid conditions by submitting a properly signed bid.

The Contractor shall appoint a company executive to assume the responsibility for the implementation of the requirements, terms and conditions of these bid conditions.

- A. The goals for minority and female participation, expressed in percentage terms, for the Contractor's workforce at the construction site under this Contract are as follows:

Minority, except laborers	30%
Minority, laborers	40%
Female, except laborers	6.9%
Female, laborers	6.9%

These goals are applicable to all construction Work performed at the construction site under the Contract.

The Contractor's compliance with this Section shall be based on its implementation of the clause entitled 'Equal Employment Opportunity', and specific affirmative action obligations required herein of minority and female employment and training must be substantially uniform throughout the length of the Contract and in each trade. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract. Compliance with the goals will be measured against the total work hours performed.

B.

- 1.) The Contractor shall provide written notification to the General Manager, Business and Job Opportunity, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
- 2.) The Contractor shall submit a Workforce Projection Schedule, which shall be correlated to the progress schedule, within thirty days after acceptance of the proposal, for the approval of the Engineer. The Contractor shall maintain and periodically update it at intervals as required by the Engineer. The Workforce Projection Schedule shall include the time period in which each trade shall be utilized, the average number of workers required per trade on a weekly basis, the peak period for each trade, and the number of workers required per trade for the peak period on a weekly basis.

C.

- 1.) As used in these specifications:
 - a. Omitted
 - b. "Manager" means General Manager, Business and Job Opportunity, Office of Regional and Economic Development of the Authority;
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;

d. "Minority" includes:

- (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central or South American culture or origin, regardless of race;
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
- 2.) Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the Work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 such provisions as are necessary for the Contractor to achieve the aggregate goals set forth above.
- 3.) Omitted.
- 4.) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p hereof. The goals set forth above are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in the total workforce at the construction site under the Contract including employees of the Contractor and the subcontractors. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified. These goals may be achieved through utilization of journeyworkers and apprentices. In the event they are not achieved through the utilization of journeyworkers, the maximum number of apprentices provided for in the applicable collective bargaining agreement may be utilized to achieve said goals.
- 5.) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations hereunder.
- 6.) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

- 7.) The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these provisions shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
- a. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - b. Develop maximum job opportunities for apprentices appropriate to the conditions of the Work and subject to the applicable collective bargaining agreement, in conjunction with training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7a above.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Manager when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

- g. Review, at least annually, the company's EEO policy and affirmative action obligations hereunder with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth.
- k. Tests and other selection requirements shall comply with 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations hereunder are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

- 8.) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p hereof provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.
- 9.) Goals for minorities and for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation hereof if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation hereof if a specific minority group of women is under-utilized).
- 10.) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- 11.) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- 12.) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the clause entitled "Equal Employment Opportunity", including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Authority. Any Contractor who fails to carry out such sanctions and penalties shall be in violation hereof.
- 13.) The Contractor, in fulfilling its obligations hereunder shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 hereof so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these provisions, the Authority shall proceed accordingly.

- 14.) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports, including the Monthly Employment Utilization Report, relating to the provisions hereof as may be required and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- 15.) Nothing herein provided shall be construed as a limitation upon the application of any laws which establish standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

38. AFFIRMATIVE ACTION PROGRAMS

The Contractor assures that it will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. The Contractor assures that it will require that its covered suborganizations provide assurances to the Contractor that they similarly will undertake affirmative action programs and that they will require assurances from their suborganizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

39. PREVAILING RATE OF WAGE

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of wage and supplements for others engaged in the same trade or occupation at the time and in the locality in which the Work is being performed as determined by the Engineer and notwithstanding that such rate may be higher than the rate in effect on the date of opening of Proposals.

For purposes of this Contract, the Engineer has determined that the prevailing rates of wage and supplements are those established by the Commissioner of Labor of the State of New York for the locality and for the period of time in which the Work is performed. The currently prevailing rates of wage and supplements are set forth in the Prevailing Rate Schedule annexed hereto and made a part hereof. These rates are subject to annual adjustment effective July 1st of each year and a Prevailing Rate Schedule reflecting all adjustments will be available for the Contractor's inspection on or about July 15th of each year on the 3rd Floor, 3 Gateway Center, Newark, New Jersey 07102 during regular business hours.

The provisions of this numbered clause are inserted in this Contract for the benefit of such workmen, laborers and mechanics as well as for the benefit of the Authority; and if the Contractor or any subcontractor shall pay or provide any such workman, laborer or mechanic less than the rates of wages and supplements above described, such workman, laborer or mechanic shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he is entitled under this clause. If such workman, laborer or mechanic is employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of at least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and supplements) such workman, laborer or mechanic shall have a direct right of action against the Contractor. The Authority shall not be a necessary party to any action brought by any workman, laborer or mechanic to obtain a money judgment against the Contractor or any subcontractor pursuant to this numbered clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates of wages or providing higher supplements than the minimum hereinbefore prescribed; and nothing herein contained shall be construed to constitute a representation or guarantee that the Contractor or any subcontractor can obtain workmen, laborers and mechanics for the minimum herein before prescribed.

The Contractor shall post at the Work site, in a place that is prominent, accessible and visible to all employees of the Contractor and its subcontractors during the daily time period that the Contractor and/or subcontractor performs Work at the site, the appropriate prevailing wage and supplement schedules. The Contractor must inform all employees, including those of its subcontractors, that they may obtain a copy of the prevailing wage and supplement schedule from the Contractor.

The Contractor and every subcontractor shall make and maintain weekly payroll records during the course of the Work and for the period set forth in the clause hereof entitled "Authority Access to Records" for all employees employed in the Work. Such records shall contain the name, address and social security number of each such employee, the employee's correct payroll classification, rate of pay and supplements, daily and weekly number of hours worked, deductions made and actual wages and supplements paid. The Contractor shall submit these weekly payroll records to the Authority (on forms furnished by the Authority) of all his payroll records and those of each of his subcontractors as the Authority may require with the Contractor's monthly Payment Application, together with an affidavit by the Contractor and by each subcontractor to the effect that such payroll records are correct and complete, the wage and supplement rates contained therein are not less than those required by the provisions of this Contract, and the classifications set forth for each employee conform with the work performed. Such copies and summaries and the original payroll records shall be available for inspection by the Authority (including its Inspector General), and the Contractor and its subcontractors shall permit such representatives to interview employees during working hours on the job site.

The Engineer may at any time request the Contractor to prepare a daily report on the the Authority form entitled *Contractor Daily Sign-In Sheet*, copies of which can be obtained from the Engineer, The *Contractor Daily Sign-In Sheet* shall be completed as follows:

- 1.) At the beginning of each workday the Contractor shall:
 - a. fill in the top of the *Contractor Daily Sign-In Sheet*, including the location, date, contractor/subcontractor name and contract number;
 - b. ensure that each employee, including those of subcontractors, has printed and signed his or her name and indicated his or her work classifications, the last four digits of his or her social security number, and his or her starting time;

- 2.) At the end of each workday, the Contractor shall:
- a. ensure that each employee, including those of subcontractors, has signed out and indicated his or her ending time;
 - b. sign the Certification Statement at the bottom of the form to indicate that the information contained in the *Contractor Daily Sign-In Sheet* is true and accurate; and
 - c. submit the original completed form to the Engineer's representative.

In an area of his office at the Site of the Work which is accessible to his employees, the Contractor shall display such printed material as may be provided by the Engineer setting forth information for the employees of the Contractor and his subcontractors concerning the wage and supplemental benefit requirements set forth in this numbered clause. The Contractor shall also cause each of his subcontractors to display such material in a similarly accessible place in any office which the subcontractor maintains at the Site of the Work.

The Contractor's failure to comply with any provision of this numbered clause shall be deemed a substantial breach of this Contract.

40. EXTRA WORK ORDERS

No Extra Work of a cost in excess of \$25,000 shall be performed except pursuant to written orders of the Chief Engineer expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, no Extra Work of a cost of \$25,000 or less shall be performed except pursuant to written orders of the Chief Engineer, Assistant Chief Engineer - Construction or the Engineer of Construction expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, exclusive of Extra Work expressly authorized by or pursuant to a resolution of the Commissioners of the Authority or its Committee on Construction, the Chief Engineer and, subject to the foregoing limitation, the Assistant Chief Engineer - Construction and the Engineer of Construction, shall have authority to order any item of Extra Work, if the cost thereof to the Authority together with the cost of all other Extra Work previously ordered and not expressly authorized as aforesaid will not in the aggregate be in excess of the sum specified in the letter of acceptance of the Contractor's Proposal as the limit on such authority to order Extra Work; provided, however, that Extra Work in excess of such aggregate amount may be ordered as above provided to the extent expressly authorized in a writing signed by the Executive Director of the Authority delegating authority vested in him pursuant to the By-Laws or a resolution of the Commissioners of the Authority or its Committee on Construction and in the case of Extra Work ordered by the Assistant Chief Engineer - Construction or Engineer of Construction to the extent expressly authorized in a writing signed by the Chief Engineer delegating authority vested in the Executive Director as aforesaid, which in turn was vested in him by the Executive Director.

In the absence of such an order signed by the Chief Engineer in the case of Extra Work of a cost in excess of \$25,000 and by the Chief Engineer or Assistant Chief Engineer - Construction or Engineer of Construction in the case of Extra Work of a cost of \$25,000 or less, if the Engineer shall direct, order or require any Work, whether orally or in writing, which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith, but shall within twenty-four hours give written notice thereof to the Chief Engineer and the Engineer, stating why he deems it to be Extra Work, and shall moreover furnish to the Engineer time slips and memoranda as required by the clause hereof entitled "Compensation for Extra Work". Said notice, time slips and memoranda are for the purpose of affording to the Chief Engineer an opportunity to verify the Contractor's claim at the time and (if he desires so to do) to cancel promptly such order, direction or requirement of the Engineer, of affording to the Engineer an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Authority an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction, order or requirement of the Engineer does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

41. PERFORMANCE OF EXTRA WORK

The provisions of this Form of Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

42. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Authority upon delivery at the construction site or upon being especially adapted for use in or as a part of the permanent construction, whichever may first occur, subject however to the Contractor's assumption of risk under the clause hereof entitled "Risks Assumed by the Contractor", subparagraph A.

The Contractor shall promptly furnish to the Authority such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Authority.

43. ASSIGNMENTS AND SUBCONTRACTS

Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that the Contractor may subcontract portions of the Work to such persons as the Engineer may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Authority a certification or, if a certification cannot be made, a statement by such person, partnership or corporation to the same effect as the certification or statement required from the Contractor pursuant to the clauses of the "Information For Bidders" entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee". All further subcontracting by any subcontractor shall also be subject to such approval of the Engineer. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without expense to the Authority, of a surety bond guaranteeing payment by the subcontractor of claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of any part of the Work.

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor of any of his obligations; no subcontract, no approval of any subcontractor and no act or omission of the Authority or the Engineer shall create any rights in favor of such subcontractor and against the Authority; and as between the Authority and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes be deemed to be agents of the Contractor. Moreover, all subcontracts and all approvals of subcontractors shall be and, regardless of their form, shall be deemed to be conditioned upon performance by the subcontractor in accordance with this Contract; and if any subcontractor shall fail to perform the Contract to the satisfaction of the Engineer, the Engineer shall have the absolute right to rescind his approval forthwith and to require the performance of the Contract by the Contractor personally or through other approved subcontractors.

44. CLAIMS OF THIRD PERSONS

The Contractor undertakes to pay all claims lawfully made against him by subcontractors, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to cause all subcontractors to pay all such claims lawfully made against them.

45. CERTIFICATES OF PARTIAL COMPLETION

If at any time prior to the rendition of the Certificate of Final Completion, any portion of the permanent construction has been satisfactorily completed, and if in the judgment of the Engineer such portion of the permanent construction is not necessary for the operations of the Contractor but will be immediately useful to and is needed by the Authority for other purposes, the Engineer may render to the Authority and to the Contractor a certificate in writing to that effect (herein called a Certificate of Partial Completion), and thereupon or at any time thereafter the Authority may take over and use the portion of the permanent construction described in such Certificate and exclude the Contractor therefrom.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Authority shall not operate to release the Contractor from any obligations under or upon this Contract.

46. CERTIFICATE OF FINAL COMPLETION

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Engineer shall render to the Authority and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all Work under this Contract, including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Engineer, and certifying the date as of which it was so completed.

The rendition of the Certificate of Final Completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Authority shall not operate to release the Contractor from any obligations under or upon this Contract.

47. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Contract, the Contractor shall not offer, give or agree to give anything of value either to an Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority of duties involving transactions with the Contractor on behalf of the Authority, whether or not such duties are related to this Contract or any other Authority contract or matter. Any such conduct shall be deemed a material breach of this Contract.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Contract or any other Authority contract), etc., which might tend to obligate the Authority employee to the Contractor, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Contract or any other Authority contract.

Where used in this clause, the term "Authority" shall be deemed to include all subsidiaries of the Authority. Currently, those subsidiaries are the Port Authority Trans-Hudson Corporation (PATH), the Newark Legal and Communications Center and the New York and New Jersey Railroad Corporation.

In addition, during the term of this Contract, the Contractor shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the Office of the Secretary of the Authority).

The Contractor shall include the provisions of this clause in each subcontract entered into under this Contract.

CHAPTER V
WARRANTIES MADE AND LIABILITY
ASSUMED BY THE CONTRACTOR

48. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

- A. That he is financially solvent, that he is experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and, if the Contractor be a corporation, that it is authorized to perform this Contract;
- B. That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examination, analysis, inspection and investigations was adequate;
- C. That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform it in strict accordance with such provisions and requirements;
- D. That no Commissioner, officer, agent or employee of the Authority is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder; and
- E. That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Authority, its Commissioners, officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith.

Moreover, the Contractor accepts the conditions at the construction site as they may eventually be found to exist and warrants and represents that he can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at his own cost and expense, anything in this Contract to the contrary notwithstanding.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Authority as to the feasibility of performance of this Contract or any part thereof. Moreover, the Authority does not warrant or represent either by issuance of the Contract Drawings and Specifications or by any provision of this Contract as to time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

The Contractor further represents and warrants that he was given ample opportunity and time and by means of this paragraph was requested by the Authority to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

49. RISKS ASSUMED BY THE CONTRACTOR

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, of the Authority, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Authority subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs A through C below:

- A. The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Authority;
- B. The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Authority on account of injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Authority premises, including claims against the Contractor or the Authority for the payment of workers' compensation, whether such claims, fines or penalties are made or assessed and whether such injuries, damage, loss and liability are sustained at any time both before and after the rendition of the Certificate of Final Completion;

- C. The risk of loss or damage to any property of the Contractor, and of claims made against the Contractor or the Authority for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Authority premises or the vicinity thereof.

The Contractor shall indemnify the Authority against all claims described in subparagraphs B and C above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State General Obligations Law, Section 5-322.1 or by other applicable law. If so directed, the Contractor shall defend against any claim described in subparagraphs B and C above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority. Unless a claim is one which the Contractor is not required to indemnify the Authority against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The provisions of this numbered clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this numbered clause if they were named at each place above at which the Authority is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Authority by action of its Board of Commissioners may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this numbered clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

Inasmuch as the Authority has agreed to indemnify the City of New York against claims of the types described in subparagraph B above made against said city, the Contractor's obligation under subparagraph B above shall include claims by said city against the Authority for such indemnification, including those arising from acts or omissions (whether negligent or not) of said city.

50. NO THIRD PARTY RIGHTS

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by use of the words "benefit" or "direct right of action".

51. INSURANCE PROCURED BY THE AUTHORITY

In order to reduce the cost of this Contract, the Authority will procure and will maintain in force and pay the premiums on:

- A. A policy of primary public liability (Comprehensive - Commercial General Liability, including Contractual) insurance on which the Contractor and the subcontractors will be insureds issued by an insurance company satisfactory to the Authority, with current coverage limits of \$2 million per occurrence combined single limit for bodily injury and property damage liability.
- B. Policies of excess public liability insurance from various insurers, with combined coverage limits of \$23 million per occurrence, excess of the primary \$2 million insurance coverage.
- C. A policy of workers' compensation and employer's liability insurance fulfilling the Contractor's and the subcontractor's obligations under the applicable State Workers' Compensation Law for those employees of the Contractor and the subcontractors employed pursuant to this Contract in operations conducted at the site of the Work hereunder. Coverage under this policy may, as appropriate, include one or more of the following endorsements:
 - 1.) Longshore and Harbor Workers' Compensation Act Coverage Endorsement. (Applies when performing work on or around navigable waters).
 - 2.) Maritime Coverage Endorsement (Applies to masters or members of the crews of vessels, if vessels are used).
 - 3.) Federal Employer's Liability Act Coverage Endorsement. (May apply to railroad related Work).

Determination in any instance as to the appropriateness of the included coverage described in C.1, 2 and 3 above will be made based upon information to be provided by the Contractor relating to the mode of performance of work to be done under the Contract.

The policy described in C above will not provide coverage for any workers' compensation for the Contractor and/or subcontractors who perform any asbestos Work. In such cases, the Contractor or subcontractors shall procure and maintain, at their own expense, the workers' compensation insurance in accordance with the requirements of law in the state(s) where the work will take place, along with employer's liability insurance (in limits of not less than \$1 million per occurrence).

Should the Contractor and/or subcontractors be required to procure the workers' compensation insurance, within ten days after the acceptance of its Proposal the Contractor shall deliver to the General Manager, Risk Management, The Port Authority of NY & NJ, Treasury Department, 225 Park Avenue South, 12th Floor, New York, N.Y. 10003 (Attn: Contract Insurance Review), an original certificate, stating the Contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also be delivered to the Engineer. With regard to insurance required to be procured by a subcontractor, the Contractor shall deliver the certificate described above at least ten days before the subcontractor commences Work.

The requirements for insurance procured by the Contractor or subcontractors shall not in any way be construed as a limitation on the nature or extent of the obligations of the Contractor or subcontractors.

- D. A policy of builder's risk insurance, covering the improvements or other Work to be effectuated by the Contractor and the subcontractors, with coverage limits of \$50 million per occurrence for all locations combined (subject to a \$50 million annual aggregate for flood and earthquake damage and a limit of \$10 million per occurrence for damage to off-site storage and property in-transit). The deductible is \$10,000 per occurrence for all losses except those caused by flood and earthquake, where a \$50,000 deductible per occurrence with respect to flood, and a \$25,000 deductible per occurrence with respect to earthquake are in effect. The policy form contains various exclusions, including but not limited to the following property exclusions: automobiles; aircraft; and Contractors' and subcontractors' machinery, tools, and equipment and property of a similar nature, including forms, shoring, scaffolding, temporary structures, rental property/equipment and similar property, not intended to become a permanent part of a building or structure. The Contractor and the subcontractors must refer to the policy form to determine all properties and perils included and excluded and to determine their rights and responsibilities as insureds under the policy form. The Contractor and the subcontractors are responsible for payment for all losses within the deductibles and losses not covered by the builder's risk policies.

The current policies described in A through D of this numbered clause are on file and available for examination by appointment in the office of the General Manager, Risk Management, The Port Authority of NY & NJ, Treasury Department, 225 Park Avenue South, 12th Floor, New York, N.Y. 10003. The policies under A and B above are subject to certain liability coverage exclusions, which include, but are not limited to, exclusions from liability from claims arising from pollution and exposure to asbestos.

The Contractor and subcontractors shall comply with all obligations of the insured under or in connection with all of the policies described in A through D above.

The Authority shall have the right at any time and from time to time at its option to procure insurance substituting in whole or in part for any or all of the policies described in A through D above or to require that the Contractor and the subcontractors themselves obtain insurance substituting in whole or part for that above referred to, provided always, however, that the Contractor and the subcontractors shall be afforded coverage as stipulated by the Authority and the Authority shall either pay the premiums on such substitute insurance or reimburse the Contractor and the subcontractors therefor.

Neither the procurement of the above insurance or any substitute insurance nor the extent of the coverage or the limits of liability thereunder shall be construed to be a limitation on the nature or extent of the Contractor's obligations, or to relieve the Contractor of any such obligations, and the procurement of the above insurance is only for the purpose of reducing the cost of the Contract without constituting any representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on the Contractor by law (except the applicable State Workers' Compensation Law) or by this or any other Contract.

Notwithstanding any provision of this clause, however, no subcontractor shall be or have the right to be covered under the policies of insurance above referred to until the subcontractor has been expressly approved in writing by the Engineer, as required under this Contract, and such approval may be withheld, among other reasons, until execution by the subcontractor of agreements affirming its obligations provided in this clause with respect to the above insurance.

The provisions of this numbered clause are not intended to create any rights for the Contractor other than rights which may be available to the Contractor under said policies themselves, whatever such rights may be. Moreover, the Authority makes no representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty or to offer any interpretation of or information on said policies. The Contractor warrants and represents that it has examined and is familiar with the above stated coverages and that in submitting its Proposal it has relied solely on its own interpretation thereof and not on any representations or statements, oral or written, of the Authority, its Commissioners, officers, agents, employees, consultants or contractors.

All negotiations and adjustments with any insurer concerning payment for any loss, the risk of which is borne by the Contractor under this Contract, shall be the responsibility of and shall be conducted by the Contractor unless the applicable policy provides otherwise. The Contractor shall, however, inform the Engineer of the progress of all such negotiations and notify the Engineer sufficiently in advance of all meetings thereon so that the Engineer or designated representatives may attend said negotiations if they so desire.

The Authority shall be entitled to all returned premiums, dividends and credits which may become payable at any time for any reason whatsoever in connection with the aforementioned insurance. The Contractor hereby assigns to the Authority all such returned premiums, dividends and credits and the subcontractors shall be deemed to have assigned to the Authority all such returned premiums, dividends and credits by becoming subcontractors under this Contract. The Contractor shall execute and cause the subcontractors to execute any instrument necessary or convenient to evidence the Authority's right to such returned premiums, dividends and credits.

Notwithstanding any payment by the Authority of any insurance premiums, the Authority shall not be deemed the employer of any employees hired by the Contractor or any subcontractor covered by such insurance nor shall it be liable for any of the obligations of such employer.

The Contractor and the subcontractors shall cooperate to the fullest extent with the Authority in all matters relating to the aforementioned insurance and shall comply with all requirements of all insurance policies procured by the Authority. They shall also at their own expense furnish the Engineer or a duly authorized representative with copies of all payrolls, correspondence, papers, records and other things necessary or convenient for dealing with or defending against any claims and for procuring or administering the aforementioned insurance including furnishing the name of any of their employees, officers, or agents whose presence or testimony is necessary or convenient in any negotiations or proceedings involving such insurance.

52. INSURANCE PROCURED BY CONTRACTOR

The Contractor, in its own name as insured, shall maintain and pay the premiums on the policy or policies of insurance for coverage(s) as hereinafter described, which shall cover its operations hereunder, shall be effective throughout the effective period of this contract, and shall afford coverage(s) in not less than the amounts set forth below:

- A. Commercial Automobile Liability Insurance covering "any" vehicles on the broadest commercially available form:
 - 1.) Combined single limit for bodily injury and property damage liability – \$5 Million each accident.

The Authority shall be named as an additional insured in the liability policy or policies and evidenced by the certificate(s) of insurance set forth above. The liability policy(ies) and the certificate(s) of insurance shall show coverage for cross-liability/severability of interests as provided under the standard ISO "separation of insureds" condition.

The Contractor shall deliver certified copies of the policy(ies) described above or certificate(s) of insurance evidencing the existence thereof to the Engineer at the location where the work will be performed, within ten (10) days after the acceptance of its Proposal. Such policy(ies) or certificate(s) shall state the contract number and shall contain a valid provision or endorsement that the policy(ies) may not be canceled, terminated, changed or modified without giving thirty (30) days written advance notice thereof to the Authority. Such policy(ies) and certificate(s) of insurance shall contain an additional endorsement providing that "the insurance carrier shall not, without obtaining express advance permission from the General Counsel of the Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Authority, raise any defense involving in any way the jurisdiction of the Authority, its Commissioners, officers, agents or employees, the governmental nature of the Authority or the provisions of any statute respecting suits against the Authority". Certified copies of all renewal policies or certificates evidencing their existence shall be delivered to the Engineer at the location where the work will be performed at least ten (10) days prior to the expiration date of each expiring policy. If at any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy. Upon request of the General Manager, Risk Management, the Contractor shall furnish the Authority with a certified copy of each policy stated above.

The requirements for insurance procured by the Contractor shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on them by law or by this or any other Contract.

CHAPTER VI

RIGHTS AND REMEDIES

53. RIGHTS AND REMEDIES OF AUTHORITY

The Authority shall have the following rights in the event the Chief Engineer shall deem the Contractor guilty of a breach of any term whatsoever of this Contract:

- A. The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through other contractors.
- B. The right to cancel this Contract as to any or all of the Work yet to be performed.
- C. The right to specific performance, an injunction or any other appropriate equitable remedy.
- D. The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the Contractor's failure to procure insurance satisfactory to the Authority within the time limit specified in the Clause hereof entitled "Insurance Procured By The Contractor" and the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Authority indicating that he cannot or will not perform any one or more of his obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any false certification at any time by the Contractor as to any material item certified pursuant to the clauses of the Information For Bidders entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee", , any false certification at any time by the Contractor or a subcontractor pursuant to the clause "Prevailing Rate of Wage Certification" set forth in the Information for Bidders, or the willful or fraudulent submission of any signed statement pursuant to such clauses which is false in any material respect; or the Contractor's incomplete or inaccurate representation of its status with respect to the circumstances provided for in such clauses.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Authority shall not be deemed to limit any other rights or remedies which the Authority would have in the absence of such enumeration; and no exercise by the Authority of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

54. RIGHTS AND REMEDIES OF CONTRACTOR

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Authority, the Contractor expressly agrees that no default, act or omission of the Authority shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the Engineer shall so direct) to suspend or abandon performance.

55. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR

In the exercise of its right to take over and complete Work as agent for the Contractor, for which provision is made in the clause hereof entitled "Rights and Remedies of Authority", the Authority shall have the right to take possession of and use or permit the use of any and all plant, materials, equipment and other facilities provided by the Contractor for the purpose of the Work and the Contractor shall not remove any of the same from the site of the Work without express permission. Unless expressly directed to discontinue the performance of all Work, the Contractor shall continue to perform the remainder thereof in such manner as in no way will hinder or interfere with the portions taken over by the Authority.

In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the Engineer will separately state the amount of Work performed by the Authority as agent for the Contractor, credit to the Authority the cost thereof, and credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Authority, or vice versa as the case may be. If such difference is in its favor, the Authority may deduct it from any moneys due the Contractor, and if such moneys be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall constitute part of the Final Payment.

The exercise by the Authority of its right to take over the Work shall not release the Contractor from any of its obligations or liabilities under this Contract.

56. NO ESTOPPEL OR WAIVER

The Authority shall not be precluded or estopped by any acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Engineer, or any officer, agent or employee of the Authority, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Authority shall not be precluded or estopped, notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on his part to comply strictly with this Contract, and any moneys which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Authority, the Engineer, or any officer, agent or employee of the Authority, nor any permission or direction to continue with the performance of Work, nor any performance by the Authority of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Authority in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Authority, its Commissioners, officers, agents or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Authority may be entitled because of any breach thereof, excepting only a resolution of its Commissioners, providing expressly for such waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any money damages to which the Authority may be entitled because of such breach. Moreover, no waiver by the Authority of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

CHAPTER VII

MISCELLANEOUS

57. SUBMISSION TO JURISDICTION

The Contractor hereby irrevocably submits himself to the jurisdiction of the Courts of the State of New York and to the jurisdiction of the Courts of the State of New Jersey in regard to any controversy arising out of, connected with, or in any way concerning the Proposal or this Contract. The Contractor agrees that service of process on the Contractor in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to the applicable office as provided for in the clause hereof entitled "Service of Notices on the Contractor", by registered or certified mail addressed to any office actually maintained by the Contractor or by actual personal delivery to the Contractor if the Contractor be an individual, to any partner if the Contractor be a partnership or to an officer, director or managing or general agent if the Contractor be a corporation.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

58. PROVISIONS OF LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

59. INVALID CLAUSES

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

60. NON-LIABILITY OF THE AUTHORITY REPRESENTATIVES

Neither the Commissioners of the Authority nor any officer, agent, or employee thereof shall be charged personally by the Contractor with any liability or held liable to him under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach hereof.

61. SERVICE OF NOTICES ON THE CONTRACTOR

Whenever provision is made in this Contract for the giving of any notice to the Contractor, its deposit in any post office or post office box, enclosed in a postpaid wrapper addressed to the Contractor at his office, or its delivery to his office, shall be sufficient service thereof as of the date of such deposit or delivery, except to the extent, if any, otherwise provided in the clause entitled "Submission to Jurisdiction". Until further notice to the Authority the Contractor's office will be that stated in his Proposal. Notices may also be served personally upon the Contractor; or if a corporation, upon any officer, director, or managing or general agent; or if a partnership upon any partner.

62. MODIFICATION OF CONTRACT

No change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or his duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Contract expressly provided for in this Contract shall be effective as so provided.

The authority of any person to order Extra Work or to alter the Contract Drawings and Specifications does not include the power to cancel, modify or waive any provision of the Form of Contract, and no officer or other representative of the Authority shall have the power so to do unless and until hereafter so authorized by or pursuant to a resolution of the Commissioners of the Authority or by or pursuant to a resolution of their appropriate Committee.

63. PUBLIC RELEASE OF INFORMATION

The Contractor and all his subcontractors shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Contract, without first obtaining the written approval of the Chief Engineer. Such approval may be withheld if for any reason the Chief Engineer believes that the publication of such information would be harmful to the public interest or is in any way undesirable. This provision shall survive termination or expiration of this Contract.

SPECIFICATIONS

DIVISION 1

GENERAL PROVISIONS

64. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS

These Specifications relate generally to performing storage tank upgrades, including tank markings, installation of signage, replacement of tank level monitoring and leak detection system with associated electrical work, inspection of internal lining of large tanks, replacement of corroded fuel supply and return pipes, associated civil work and related other Work at LaGuardia Airport and the vicinity thereof.

These Specifications require the doing of all things necessary or proper for or incidental to the matter referred to in the immediately preceding paragraph, as shown on the Contract Drawings in their present form. In addition, all things shown on the Contract Drawings even though not expressly mentioned in these Specifications, all things mentioned in these Specifications even though not shown on the Contract Drawings, and all things not specified either on the Contract Drawings, or in the Specifications but involved in carrying out their intent and in the complete and proper execution of the matter referred to in the immediately preceding paragraph are required by these Specifications; and the Contractor shall perform the same as though they were specifically delineated, described and mentioned.

In case of a conflict between a requirement of the Contract Drawings and a requirement in Division 1 of the Specifications, the requirement of Division 1 shall control. In case of a conflict between a requirement contained in other Divisions of the Specifications and a requirement of the Contract Drawings, the requirement of the Contract Drawings shall control.

Some Sections of the Specifications make cross references to construction specified in other Sections of the Specifications, including cross references intended to avoid duplication by the bidders in quoting prices and to point out some of the necessity for coordination. Such cross references are not intended to be complete or all inclusive, and the Contractor shall ascertain for himself both the nature and the extent of all construction which may be related to that under each Section of the Specifications whether or not expressly referred to.

Some Sections of the Specifications contain a general description of the construction under such Sections. Such description is merely a very general one and is not intended to outline the construction required by the Specifications and Contract Drawings. Accordingly, such description shall be construed as in aid of and supplemental to, but in no case limiting, impairing or decreasing, the requirements elsewhere set forth with respect to the construction to be performed.

The Contractor's compensation for all construction whatsoever referred to in the Specifications and Contract Drawings in their present form, even though the need for certain items of such construction may be contingent upon future occurrences or determinations or upon other circumstances, shall be deemed to be included in the price(s) quoted by the Contractor in the Form of Contract unless the Specifications or Contract Drawings expressly state that compensation in addition to such price shall be payable for such items of construction. The express statement in some cases to the effect that certain construction shall be without additional cost to the Authority shall not impair the application of this paragraph in other cases.

The distribution of various parts of the construction among the Divisions and Sections of the Specifications or among the Contract Drawings is not intended as a representation of the most effective or logical method of organizing, scheduling, or subcontracting the construction, and the Contractor shall ascertain for himself how to do so unless otherwise expressly prescribed in this Contract.

In all cases the provisions of the second paragraph of this numbered Section shall control.

65. AVAILABLE PROPERTY

Subject to the conditions elsewhere stated herein, those areas to be occupied by the permanent construction will be made available to the Contractor upon the commencement of his first operations at the construction site.

Any additional property which the Contractor desires for his operations shall be obtained by him at his own expense.

The Contractor will be permitted to use only so much of the aforesaid areas as is necessary for the performance of the Contract, and he must at all times so conduct his operations as not to encroach upon or block the portions used by others. The Engineer may at any time make joint or exclusive assignments of particular portions thereof, either to the Contractor or to others, and may take over and use for other purposes any portions which, in the opinion of Engineer, are not required for the performance of the Contract.

The Contractor shall daily clean up the areas made available to him so that they are free at all times of refuse, rubbish, scrap material or debris.

66. OPERATIONS OF OTHERS

During the time that the Contractor is performing the Contract, other persons will be engaged in other operations on or about the construction site including normal facility operations and maintenance, vehicular and pedestrian traffic all of which shall remain uninterrupted.

The Contractor shall so plan and conduct his operations as to work in harmony with others engaged at the construction site and not to delay, endanger or interfere with the operations of others (whether or not specifically mentioned above), all to the best interests of the Authority and the public and as may be directed by the Engineer.

67. LABOR ACTIONS

Whenever any labor strike, slowdown, work stoppage, picketing or other labor action which might interfere with the performance of the Contract, or of other Authority or PATH contracts or the operation of any Authority or PATH facility occurs at the construction site or at any other Authority or PATH facility as a result of the Contractor's (or its subcontractor's) utilization of particular means, methods or manpower to perform the Work required by the Contract, the Contractor shall pursue all remedies which are appropriate and available to him to avoid such interference.

68. CONTRACTOR'S MEETINGS

The Contractor shall conduct job progress and coordination meetings with subcontractors in his field office every two weeks, or as frequently as job conditions require or the Engineer may request. The Engineer shall be notified and, at his option, may attend these meetings. The Contractor shall prepare and distribute minutes to the Engineer and the subcontractors within forty-eight (48) hours of the day following the meetings.

The Contractor shall attend separate job progress and coordination meetings with the Engineer every two weeks, or at times otherwise requested by the Engineer.

69. CONTRACT DRAWINGS

The Contract Drawings which accompany and form a part of these Specifications bear the general title "The Port Authority of NY & NJ - LaGuardia Airport - Storage Tanks Upgrade for Regulatory Compliance - Contract LGA-743" and are separately numbered and entitled as follows:

G001	TITLE SHEET	General
G002	PROJECT VICINITY MAP, PROJECT LOCATIONS PLAN, INDEX OF DRAWINGS, LEGEND AND GENERAL NOTES	General
M001	BUILDINGS 81, 84 AND HANGAR 5 WORK PLANS	Mechanical
M002	CENTRAL HEATING AND REFRIGERATION PLANT WORK PLAN	Mechanical
M003	PIPING ACCESS VAULT REMOVAL AND INSTALLATION PLANS AND DETAILS	Mechanical
M004	CENTRAL HEATING AND REFRIGERATION PLANT REMOVAL INSTALLATION AND MISCELLANEOUS DETAILS	Mechanical
M005	MISCELLANEOUS DETAILS	Mechanical
E001	ABBREVIATIONS, LEGEND, SPECIFICATIONS, SIGNAGE AND GENERAL NOTES	Electrical
E002	CONCOURSES A AND B WORK PLANS AND BLOCK DIAGRAM	Electrical
E003	CONCOURSES C AND D WORK PLANS AND BLOCK DIAGRAM	Electrical
E004	BUILDINGS 20 AND 84 WORK PLANS AND BLOCK DIAGRAMS	Electrical
E005	CENTRAL HEATING AND REFRIGERATION PLANT WORK PLAN	Electrical
E006	BUILDING 30, PARKING LOTS 1 AND 2 WORK PLANS AND DETAIL	Electrical
E007	MISCELLANEOUS DETAILS	Electrical
LS001	PLANTING AND SALT SPLASH PLAN AND DETAILS	Landscape Architecture
MT001	MAINTENANCE OF TRAFFIC NOTES, LEGEND, ABBREVIATIONS, SIGN DATA TABLE AND DETOUR PLAN	Maintenance of Traffic
MT002	MAINTENANCE OF TRAFFIC DETAILS - 1	Maintenance of Traffic
MT003	MAINTENANCE OF TRAFFIC DETAILS - 2	Maintenance of Traffic

The Contract Drawings do not show all of the details of the Work and are intended only to illustrate the character and extent of the Work to be performed. Accordingly, they may be supplemented during the performance of the Work by the Engineer or by the Contractor subject to the approval of the Engineer, to the extent necessary to further illustrate the Work.

An indication on the Contract Drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials does not constitute a representation as to the conclusions to be drawn therefrom nor a representation that no others exist in addition to those shown, even in the same location; nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

After the Contract has been executed, the Contractor will be furnished six (6) copies of the Specifications and Contract Drawings without charge.

70. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES

The Contractor shall specifically prepare for this Contract all Shop Drawings which may be required in addition to the Contract Drawings or in addition to any other drawings which the Engineer may issue in supplementing the Contract Drawings.

The specific requirements elsewhere set forth in the Specifications for furnishing Shop Drawings, Catalog Cuts and samples for any particular portion of the Contract shall not limit the obligation of the Contractor to furnish Shop Drawings, Catalog Cuts and samples for any other portion when so required by the Engineer.

The Contractor shall submit a general "Submittal Schedule" for the Engineer's review and approval listing the planned transmittal date and estimated number in each specification section category of Shop Drawings, Catalog Cuts, pages of calculations and samples within 30 days after receipt by the Contractor of the acceptance of the Proposal. A more detailed schedule shall be submitted no less than 30 calendar days prior to the actual date of any submittal.

After checking and verifying all field measurements and after complying with applicable procedures specified hereunder, the Contractor shall submit to the Engineer for review and approval, in accordance with the approved schedule of Shop Drawing submissions, or for other action if so indicated by the Engineer, four copies and two reproducibles, unless otherwise requested, of all Shop Drawings which will bear a specific written indication that the Contractor has reviewed the submission for conformance to the requirements of the Contract Drawings and Specifications.

All submissions shall be identified as the Engineer may require. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, conformance to the specified performance and design criteria, materials, test results and similar information to enable the Engineer to review the submittal as required.

The Contractor shall also submit nine copies to the Engineer for review and approval pursuant to the approved submittal schedule, of all Catalog Cuts and samples for conformance to the requirements of the Contract Drawings and Specifications. All Catalog Cuts and samples shall have been reviewed by the Contractor and shall be accompanied by a specific written indication that the Contractor has reviewed the submittal for conformance with the Contract Drawings and Specifications and shall be identified clearly as to material, supplier, manufacturer's procedures and pertinent data such as catalog numbers and the use for which intended.

Before submission of each Shop Drawing, Catalog Cut and sample, the Contractor shall have determined and verified all quantities, dimensions, conformance to the specified performance and design criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed and coordinated each Shop Drawing or Catalog Cut with other Shop Drawings and Catalog Cuts and with other requirements of the Work.

At the time of each submission, the Contractor shall give the Engineer specific written notice of each variation in any Shop Drawing, Catalog Cut and sample from the requirements of the Contract Drawings or Specifications and, in addition, shall cause a specific notation of each such variation to be made on each submittal to the Engineer, for review and approval of each such variation.

The Engineer's review and approval of Shop Drawings, Catalog Cuts or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Drawings or Specifications unless the Contractor has in writing called the Engineer's attention to each such variation at the time of submission as required hereunder and the Chief Engineer has given written approval of each by an express specific written notation thereof incorporated in or accompanying the Shop Drawing, Catalog Cut or sample approval. Approval of Shop Drawings, Catalog Cuts and samples which are inconsistent with the requirements of the Contract Drawings and Specifications shall not be deemed to waive or change such requirements or to relieve the Contractor of his obligations to perform such requirements unless the Chief Engineer shall expressly and specifically state that he is waiving or changing such requirements, as stated above.

Where a Shop Drawing, Catalog Cut or sample is required no related Work shall be performed prior to the Engineer's review and approval of the submission.

In preparing the Shop Drawings, the Contractor may adopt a sheet of any reasonable size which best suits his needs, but having adopted such size, all sheets thereafter of a similar nature shall be of the same size as that adopted. Each drawing shall have a margin on the top, bottom and right-hand side of one-half inch and on the left hand side a margin of one and one-half inches.

Upon receipt of the submittal, the Engineer will review the Shop Drawing, Catalog Cut or sample for conformance to the design information and materials shown on the Contract Drawings and contained in the Specifications. Approval by the Engineer shall not constitute a complete review or approval of the means, methods, techniques, sequences or procedures of construction, except where a specific means, method, technique, sequence or procedure of construction is specifically delineated in or required by the Contract Drawings or Specifications, and the approval shall not constitute a review and approval in regard to safety precautions or programs incident thereto. The review and approval of a separate item will not in itself indicate approval of the assembly in which the item functions. Any design shown on the Shop Drawings and prepared by the Contractor, his subcontractors, their detailers, or their professional engineers is the complete responsibility of the Contractor.

Within the number of working days hereinafter specified after receipt of the Shop Drawing prints, the Engineer shall approve or not approve the same or require corrections or additions to be made thereon. When a shop drawing is not approved or if additions or corrections are required, the Engineer shall return within this period one of the four copies submitted and the Contractor shall make the revisions, corrections or additions shown thereon to be made. He shall resubmit four prints and one brownline (reproducible) showing the drawing corrected as required. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Engineer on the previous submittal. Each drawing shall be corrected as required until the approval of the Engineer is obtained. After each resubmission, the Engineer shall have the number of working days hereinafter specified in which to approve revisions or corrections.

The number of working days within which the Engineer shall advise the Contractor as to whether the Shop Drawings are approved, not approved, or require corrections or additions to be made thereto shall be as follows, except that 20 working days shall be required for the Engineer to review shop drawings submitted with design calculations.

No. of Dwgs. Submitted Within 5 Consecutive Working Days for Each Discipline(*)	No. of Working Days for Engineer To Review Shop Drawings
Up to 50	10
51 to 75	15
More than 75	20

* Disciplines shall be defined as follows: Structural, Architectural, Civil, Geotechnical, Mechanical, Electrical, Traffic and Environmental.

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of working days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

As soon as approval has been given to any Shop Drawing or Catalog Cut, the Contractor shall within five days send to the Engineer six prints, except that when the Engineer specifically so directs, nine prints shall be sent. After approval thereof, no change will be permitted thereon unless approved in writing by the Engineer.

Before final payment for the Work is made, the Contractor shall furnish to the Engineer one set of Shop Drawings, which have previously been prepared by the Contractor in accordance with requirements elsewhere specified in these Specifications, all clearly revised, completed and brought up to date showing the permanent construction as actually made. These drawings shall be in the form of Mylar reproducibles, from which clear prints can be made.

All drawings, data, calculations and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared in connection with this Contract and submitted to the Authority shall become the property of the Authority. The Authority shall have the non-exclusive right to use or permit the use of all such drawings, data and other papers and any ideas or methods represented thereby for any purpose and at any time without additional compensation. No such papers shall be deemed to have been given in confidence. Any statement or legend to the contrary in connection with such drawings, data or other papers and in conflict with the provisions of this paragraph shall be void and of no effect.

71. SUBSTITUTION

Where a proprietary item or make is specified or mentioned herein or called for or mentioned on the Contract Drawings and the phrases "similar and equal to" or "approved equal" are used in connection therewith, the utilization of any other item or make will be deemed a substitution. Substitution for the proprietary item or make specifically named may be made only in accordance with the Section hereof entitled "Workmanship and Materials" and in accordance with the following.

Whenever materials or equipment are specified or described in the Contract Drawings or Specifications by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of another supplier or manufacturer may be accepted by the Engineer if sufficient information and proof is submitted by the Contractor to permit the Engineer to determine that the material or equipment proposed is equivalent or equal to that named and the Engineer approves the substitution. The procedure for review by the Engineer will include the following. Requests for review of substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make a timely written application to the Engineer for approval thereof, certifying that the proposed substitution will perform at least the identical functions and achieve at least the identical results called for by the specified product and otherwise be equal to the specified product with regard to, but not limited to, durability, maintenance, strength, energy costs and record of proven performance. The application shall state that the evaluation and approval of the proposed substitution shall not delay the Contractor's completion of the Work as required by the Contract, whether or not approval of the substitution will require a change in the construction and, in no event will the Contractor be granted an extension of time for completion of any portion of the Work for reasons related directly or indirectly to the evaluation of the proposed substitution or to the proposed substitution itself. Any variations of the proposed substitution from that specified shall be identified in the application, and maintenance, repair and replacement services for the substitution shall be indicated. The Engineer may require the Contractor to furnish at the Contractor's expense additional laboratory test data concerning the proposed substitution.

Such submission to the Engineer shall be made only by including the requested substitution in the list of materials required to be submitted to the Engineer in accordance with the Section hereof entitled "Inspections and Rejections" within forty-five calendar days after the receipt of the acceptance of the Contractor's Proposal. After the approval of said list, no substitutions will be permitted, except that a brand or make named in the Specifications may be submitted for approval in lieu of a brand or make on said list. Any such submission shall not imply, or impose on the Engineer, any obligation whatsoever to discuss, disclose or justify the reasons for his opinion, approval, acceptance or rejection.

The Engineer shall be the sole judge of as to whether a proposed substitution will be approved, and no substitution shall be ordered or utilized without the Engineer's prior written approval. The Engineer may require Contractor to furnish at Contractor's expense a special performance guarantee or other assurance with respect to any approved substitution. Furthermore, the approval of any substitute proprietary item or make shall not in any way entitle the Contractor to additional compensation therefor.

Notwithstanding such approval, however, the Contractor assumes the risk that such approved substitute item or make is not equal to that shown or specified and if at any time the substitution shall appear not to be so equal he shall replace the substitution with that originally shown on the Contract Drawings or called for in the Specifications at his own cost and reimburse the Authority for any loss occurring on account of the substitution failing to be equal, notwithstanding that it had been previously approved for use by the Engineer.

The construction called for by the Contract Drawings and Specifications may be adapted for a particular proprietary item or make of material or equipment. Therefore, if any construction not required by the Contract Drawings or Specifications in their present form is necessary or desirable because of the use of substitute item or make of material or equipment (even though such other item or make is approved by the Engineer), such construction shall be furnished or performed by the Contractor at his expense and subject to the approval of the Engineer.

72. WORKMANSHIP AND MATERIALS

Workmanship and materials shall in every respect be free from defects of any kind and shall be in accordance with the best modern practice and whenever the Contract Drawings, Specifications or directions of the Engineer admit of a doubt as to what is permissible or fail to note the quality of any construction the interpretation which calls for the best quality is to be followed. Workmanship shall conform to applicable Specifications, manufacturer's instructions and recommendations for installation of products for the applications shown on the Contract Drawings, all of which shall be subject to the provisions of the Section of Division 1 GENERAL PROVISIONS entitled "Inspections and Rejections".

All items provided in this contract that use dates in the recording, storing or processing of information shall use such dates correctly at all times including using such dates correctly in the recording, storing or processing of information after January 1, 2000 (Year 2000 Compliant).

Materials and Equipment incorporated into the Work shall be new except as may be otherwise herein specifically required, and shall comply with make, size, type and quality specified, or as specifically approved in writing by the Chief Engineer in accordance with the Section of Division 1 GENERAL PROVISIONS entitled "Substitution".

Reference to standards of any society, institution, association, or governmental authority in the Specifications or on the Contract Drawings, whether specific or by implication, shall mean for such standards which are part of the building code in effect for Work of this Contract the edition date published in such code; and such references which are not part of the building code, shall mean the latest edition date in effect at the time of opening of Proposals upon the present Contract unless specifically stated otherwise.

If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment to be employed by the Contractor in performing the Work. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the approved instructions of the applicable supplier except as otherwise provided in the Contract Drawings or Specifications.

In case of a discrepancy between a description or requirement in the Contract Drawings and Specifications for any material or equipment and a catalog number or other designation for the same material or equipment (even though stated to be acceptable), the description or requirements shall control.

In various paragraphs of these Specifications, references may be made to certain standard or tentative specifications or requirements of various organizations. Unless otherwise stated, these references are to be construed as referring to the specifications and requirements in effect on the date set for opening bids upon the present Contract.

All inventions, ideas, designs and methods contained in the Specifications and Contract Drawings in which the Authority has or may acquire patent, copyright or other property rights are hereby expressly reserved for the exclusive use of the Authority. The Specifications and Contract Drawings contain confidential information which is disclosed only to enable this Contract to be performed. Said Specifications and Drawings must not be used for any purpose detrimental to the interest of the Authority and must not be produced or copied in whole or in part or used for furnishing information to others without the written consent of the Authority, provided, however, that the Contractor may, when the performance of the Contract so requires, furnish said information to others for the purpose of engaging or informing subcontractors and materialmen.

If, in accordance with this Contract, the Contractor furnishes research, development or consultative services in connection with the performance of the Contract and if in the course of such research, development or consultation patentable subject matter is produced by the Contractor, its officers, agents, employees, subcontractors or materialmen, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive, royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority. Promptly upon request by the Authority, the Contractor shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but as between the Contractor and the Authority the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter and shall not await formal exemplification in a written license agreement as provided for above. Such license may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority, but such license shall not be otherwise transferable.

The right to use all material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction required in connection with this Contract and to which a patent, copyright or other intellectual property right applies or may apply shall be obtained by the Contractor without separate or additional compensation whether the same is patented, copyrighted or otherwise protected as an intellectual property right before, during or after the performance of the Contract.

The Contractor shall indemnify the Authority against and save it harmless from all loss and expense incurred in the defense, settlement or satisfaction of any claims in the nature of patent, copyright or other intellectual property right infringement arising out of or in connection with the Authority use, in accordance with the preceding two paragraphs of this numbered clause, of such subject matter or material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction to which a patent, copyright or other intellectual property right applies or may apply. If requested by the Authority and if notified promptly in writing of any such claim, the Contractor shall conduct all negotiations with respect to and defend such claim without expense to the Authority. If the Authority be enjoined from using any of the facilities which form the subject matter of this Contract and as to which the Contractor is to indemnify the Authority against patent, copyright or other intellectual property right claims, the Authority may, at its option and without thereby limiting any other right it may have hereunder or at law or in equity, require the Contractor to supply, temporarily or permanently, facilities not subject to such injunction and not infringing any patent, copyright or other intellectual property right or to remove all such facilities and refund the cost thereof to the Authority or to take such steps as may be necessary to ensure compliance by the Authority with such injunction, all to the satisfaction of the Authority and all without cost or expense to the Authority.

73. INSPECTIONS AND REJECTIONS

All Work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the Engineer, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the Engineer or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture and methods of construction will or may be so inspected. The Engineer shall be the judge of the quality and suitability of the Work, construction, processes of manufacture and methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the Engineer.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the Engineer may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the Engineer may designate, the Contractor shall secure for the Engineer and his Inspectors free access to all parts of such factories or plants and shall furnish to the Engineer three copies of purchase orders, two copies of mill shipping statements and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days' notice to the Engineer of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the Engineer shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

In the case of materials to be inspected at the construction site, the Contractor shall submit a list of all such materials in triplicate to the Engineer for his approval prior to ordering same. The list shall be submitted within forty-five calendar days after receipt of the notice of acceptance and shall contain the following information:

A. Classification of submittal in accordance with the following:

Class I - A submittal for record of an expressly specified item.

Class II - A submittal of an item which conforms to an express generic specification or a submittal which is deemed by the Contractor to be identical to an expressly specified item.

Class III - A submittal which is deemed by the Contractor to be functionally equivalent but not identical to a specified item.

B. In the case of Class II and Class III, the Contractor shall supply adequate information to the Engineer to enable the Engineer to compare the specified item and the proposed substitution. Information shall include, but need not be limited to, technical specifications, Catalog Cuts, drawings, references to existing installations and test data, or any other data required by the Engineer.

- C. In the case of fabricated materials for which Shop Drawings are to be prepared, a brief description of the material and the statement "see Shop Drawings".
- D. In the case of materials or equipment listed in manufacturer's catalogs, the list shall contain the vendor's name, the manufacturer's name, brand name, style designation, catalog number and, where the Specifications require catalog cuts, the statement "see catalog cut".
- E. In the case of materials or equipment for which Shop Drawings are not to be prepared, and which are not listed in any catalog, the list shall contain a complete description of the material or equipment, which shall be in sufficient detail to describe completely the materials or equipment and quality therefor.

The Engineer shall advise the Contractor whether said list is approved or requires corrections or additions within the number of working days indicated in the chart below:

Type of Submittal	No. of Working Days for Engineer to Approve/Disapprove Items
Class I Material submittals	10
Portland Cement mix designs that require confirmation of the 28-day properties	35
Changes in asphalt mix designs that need to be confirmed with a batch mix at the plant	35
Class II Material submittals	20
Class III Material submittals	30

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

Within ten working days after receipt of said list, the Engineer shall notify the Contractor of which items are approved and which disapproved. Within two working days thereafter, the Contractor shall resubmit a new list covering those items which were disapproved. After each such re-submission the Engineer shall have a similar period of ten days in which to approve or disapprove.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

74. MANUFACTURERS' CERTIFICATION

Where materials and equipment are required by these Specifications to conform to certain standard or tentative specifications or requirements of any organizations, including American Society for Testing and Materials, American National Standards Institute, Association Rules for Grading Lumber, Federal Specifications, National Electrical Manufacturers Association, American Association of State Highway and Transportation Officials, American Water Works Association and the International Municipal Signal Association, the Contractor shall furnish to the Engineer the manufacturer's written certification that each of the materials or equipment conforms to the foregoing standard or tentative specifications. The certification shall be delivered to the Engineer prior to installation of the materials to which it refers. Such certifications shall not be binding or conclusive on the Authority and may be rejected at any time by the Engineer if incorrect, improper or otherwise unsatisfactory in his opinion.

75. NO RELEASE OF CONTRACTOR

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Authority not the Contractor. Any approval of such things shall be construed merely to mean that at that time the Engineer knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no such approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty, obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

76. ERRORS AND DISCREPANCIES

If, in the performance of the Contract, the Contractor discovers any errors or omissions in the Contract Drawings or Specifications, or in the marks, lines and elevations furnished by the Authority in the construction undertaken and executed by him, he shall immediately notify the Engineer and the Engineer shall promptly verify the same.

If with the knowledge of such error or omission and prior to the correction thereof, the Contractor proceeds with any construction affected thereby, he shall do so at his own risk and the construction so done shall not be considered as construction done under and in performance of this Contract unless and until approved and accepted.

77. ACCIDENTS AND FIRST AID PROVISIONS

The Contractor shall promptly report in writing to the Engineer and to the Authority Manager, Claims Administration all accidents whatsoever arising out of or in connection with the performance of the Contract, whether on or adjacent to the construction site, which result in death, injuries or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damage is caused, the accident shall be reported immediately by telephone to both of the said representatives of the Authority.

The Contractor shall provide at the construction site such equipment and medical facilities as are necessary to supply first aid service, in case of accident, to any who may be injured in the progress of the Contract. He shall have standing arrangements for the removal and hospital treatment of any person who may be injured while engaged in the performance of the Contract.

If any claim is made by any third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the aforementioned representatives of the Authority, giving full details of the claim.

78. SAFETY PROVISIONS

In the performance of the Contract, the Contractor shall exercise every precaution to prevent injury to workers and the public or damage to property.

He shall, at his own expense, provide temporary structures, place such watchmen, design and erect such barricades, fences and railings, give such warnings, display such lights, signals and signs, exercise such precaution against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper, or as may be directed.

The Contractor shall employ for Work of the Contract a competent person conforming to the requirements of the Code of Federal Regulations 29 CFR 1926.32(f) who shall be designated by the Contractor as authorized to perform the duties required by 29 CFR 1926 et seq. as applicable for Work of this Contract.

Obtain and submit to the Engineer one copy of material safety data sheet (MSDS) conforming to the requirements of 29 CFR 1910.1200(g) for each hazardous chemical utilized for permanent and consumable materials employed for Work of this Contract.

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss, including but not limited to:

- A. All employees on the Work, the public, and other persons and entities who may be affected thereby;
- B. All the Work, materials and equipment to be incorporated therein, whether in storage on or off the site; and
- C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and the Contractor has removed all workers, material and equipment from the construction site, or the issuance of the Certificate of Final Completion, whichever shall occur last.

Until fire protection needs are supplied by permanent facilities under this Contract, install and maintain temporary fire protection facilities. Comply with requirements of National Fire Protection Association NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alteration and Demolition Operations".

The Contractor shall employ only such men as are physically fit and are free from contagious or communicable diseases.

He shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyance to occupants of nearby property and the general public will be reduced to a minimum.

The bringing of intoxicating substances onto the construction site and the use or consumption of intoxicating substances at the construction site are prohibited. It shall be the responsibility of the Contractor to insure that all employees of the Contractor and of all subcontractors, materialmen and any other persons under contract to or under the control of the Contractor shall comply with the provisions of this paragraph.

The Contractor shall daily clean up all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. Before the Certificate of Final Completion of Work will be issued, the Contractor shall remove all surplus materials, falsework, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and shall put the construction site in a neat, orderly condition.

In the event the Contractor encounters at the construction site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material, the Contractor shall immediately stop Work in the area affected and report the condition in writing to the Engineer. Work in the affected area shall not thereafter be resumed by the Contractor except upon the issuance of a written order to that effect from the Engineer.

Within 15 days of the acceptance of his Proposal, the Contractor shall submit to the Engineer, for his review and approval, the Contractor's Safety Program which shall comply with all applicable federal, state, municipal and local and departmental laws and shall include, among other things, the designation by the Contractor of a qualified individual to administer such Safety Program.

79. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS

The Contractor shall furnish to the Engineer at the end of each day Work is performed at the construction site, a memorandum showing for that day (a) the construction performed, (b) the type of equipment used identifying each piece of equipment as owned by the Contractor or rented from others; (c) a statement of any unusual happening that occurred, and (d) the names and number of workers in each trade classification that were employed. Such memorandum shall not be deemed to be a substitute for the notices, time slips, memoranda or other data required under the clauses of the Form of Contract relating to compensation for Extra Work.

80. LAWS AND ORDINANCES

In order to effectuate the policy of the Authority, the Contractor shall comply with all provisions of federal, state, municipal, local and departmental laws, ordinances, rules, regulations and orders which would affect the Contract and the performance thereof and those engaged therein if said Contract were being performed for a private corporation, except where stricter requirements are contained in the Specifications or Contract Drawings, in which event the latter requirements shall apply. However, the Contractor shall not apply for any permits, licenses or variances in the name of or on behalf of the Authority, but shall do so in his own name where required by law, regulation or order or by the immediately preceding sentence. Nor shall the Contractor apply for any variance in his own name without first obtaining the approval of the Authority.

81. IDENTIFICATION

No person will be permitted on or about the construction site without a pass, permit or identification badge approved by the Engineer. The Contractor shall provide such passes, permits or identification badges for his employees, subcontractors and materialmen whenever necessary. Identification badges shall be worn in a conspicuous and clearly visible position by all employees of the Contractor whenever they are working at the construction site.

82. SIGNS

No advertisement or sign, other than the name and address of the Contractor, will be permitted on any fences, temporary structures or elsewhere on the construction site and such advertisement will be permitted only upon the condition that it is first approved by the Engineer. In any event, the advertisement shall not exceed six feet by eight feet in overall dimensions.

83. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE

At a readily accessible point on or near the construction site, the Contractor shall maintain a field office provided with a telephone.

During the performance of any Work at the construction site, the Contractor shall have a representative thereat who shall be authorized by the Contractor to receive and put into effect promptly all orders, directions and instructions from the Engineer. The Contractor's representative shall be provided, at all times, with a conformed copy of this Contract and a set of the Contract Drawings.

Orders and directions may be given orally by the Engineer and shall be received and promptly obeyed by the Contractor or his representative or any superintendent, foreman or other employee of the Contractor who may have charge of the particular part of the Work in relation to which the orders or directions are given. A confirmation in writing of such orders or directions will be given by the Engineer when so requested by the Contractor.

84. SURVEYS

The Engineer will establish a bench mark and a base line at or adjacent to the location of the Contractor's operations. The Contractor shall perform all surveys which may be required for the performance of the Contract. He shall carefully preserve any base line and bench mark which may be established by the Engineer.

The Contractor shall, in addition, furnish to the Engineer, without additional compensation therefor, any or all information and data regarding points, lines, grades, elevations and other survey information established by the Contractor during the performance of the Contract.

Surveys and measurements of quantities for purposes of computing Contractor's compensation shall be made by the Contractor as directed by and in the presence of, or jointly with, the Engineer, at the Engineer's option. Computations of quantities for payment shall be made by the Contractor and shall be subject to the approval of the Engineer.

85. TEMPORARY STRUCTURES

Unless otherwise provided in this Contract, the Contractor shall determine the need for and shall design, furnish and construct all barricades, fences, staging, falsework, formwork, shoring, scaffolding and other temporary structures required in the performance of the Contract, whether or not of the type enumerated in the Specifications or on the Contract Drawings, including those which would be required by law or regulation if this Contract were being performed for a private corporation. All such temporary structures shall be of adequate strength for the purposes for which they are constructed and shall be provided with graphics, warning signs and warning lights as required to inform personnel and the public of the hazards being protected against, and the Contractor shall maintain them in satisfactory condition. The design and drawings for such structures are to be prepared by the Contractor, and when requested by the Engineer they shall be submitted for his review before being used. Neither such approval, however, nor any requirements of the Engineer, the Specifications or the Contract Drawings shall relieve the Contractor of his responsibility for the design, construction and use of the temporary structures or from any obligations and risks imposed on him under this Contract, and any such approval or requirements shall be deemed merely to relate to minimum standards and not to indicate that the temporary structures are adequate or that they meet the Contractor's obligations under this Contract.

Temporary structures shall be painted with an approved dark color paint and shall be repainted whenever necessary during the period that the Contract is being performed. Upon completion of all Work under this Contract, the temporary structures shall be removed from the construction site.

86. PERMIT AND REQUIREMENTS FOR WELDING

Prior to the commencement of any cutting or welding operations at the construction site, the Contractor shall notify the Engineer and obtain an Authority cutting and welding permit. The Authority will issue this permit without payment of a fee, and application forms may be obtained from any Resident Engineer of the Authority, at his office at the facility. Unless otherwise approved by the Engineer, all cutting and welding operations shall be performed in accordance with the conditions which form a part of said permit. The permit application must be filled out and submitted in duplicate to the Engineer at least forty-eight hours prior to commencing welding or cutting operations at the construction site.

87. FINAL INSPECTION

When, in the opinion of the Contractor, the construction is completed and ready for final inspection, he shall so notify the Engineer in writing and the Engineer will give said construction (including any portions with respect to which Certificates of Partial Completion have been issued) a minute and thorough inspection. Before any Certificate of Final Completion will be issued, any defects or omissions noted on this inspection must be corrected by the Contractor.

88. WARRANTIES

The Specifications may provide for certain warranties of portions of the permanent construction. These warranties are intended for the greater assurance of the Authority and not as a substitute for rights which the Authority might otherwise have. Although such warranties shall be enforceable as provided, neither any requirement of this Contract with respect to warranties by the Contractor nor any guarantee or warranty given to the Contractor or the Authority by any manufacturer shall be deemed to be a limitation upon any rights which the Authority would have, either expressed or implied, in the absence of such guarantees or warranties.

89. UTILITY RECORD DRAWINGS

Prepare, on mylar sheets 22" x 34" or other size approved by the Engineer, drawings showing the exact locations and elevations of underground utility construction including manholes, catch basins, inlets, pipe lines and structures for carrying gases (including air) and fluids including water, storm drainage, sewage, oil, chemicals, electrical duct runs, cables and conduits, for new construction or extension of existing utilities installed underground under this Contract.

Submit to the Engineer, for verification and approval, tabulation of the data to be used in the preparation of the utility record drawings. Do not build-in, backfill or fill over or around or in any way cover underground structures, piping, conduit, cable or duct banks until such submitted data has been verified and approved by the Engineer.

Indicate the exact locations, including changes of direction and curves, by the use of offset distances from nearby permanent structures and, in addition, by the use of coordinates which shall be based on the system of coordinates used at the construction site, the origin of which is shown on the Contract Drawings. Base elevations on the datum used at the construction site as is shown on the Contract Drawings.

Submit prints of these drawings to the Engineer for verification, check of the accuracy, and for approval. Make indicated corrections and additions to the drawings, until the approval of the Engineer has been obtained. After these drawings have been approved by the Engineer, the original corrected mylar sheets shall be turned over to the Engineer before issuance of the Certificate of Final Completion, and such original drawings shall become the property of the Authority.

90. TEMPORARY UTILITY SERVICES

Operate and maintain temporary services and facilities in a safe and efficient manner. Modify as required throughout progress of the Contract, and remove from Authority property when no longer required, or replaced by the use of completed permanent facilities as approved by the Engineer.

Heat is not available at the construction site. Provide temporary heat as required to maintain environmental conditions to facilitate progress of the Work and to protect materials and finishes from damage due to temperature and humidity. Temporary heating units shall be vented self-contained units with individual space thermostatic control, shall be UL tested and approved for the fuel being consumed, shall be installed in accordance with ANSI A10.10 "Safety Requirements for Temporary and Portable Space Heating Devices and Equipment Used in the Construction Industry", and shall be approved by the Engineer. Use of gasoline burning space heaters, open flame, or salamander type heating units is prohibited. The Contractor shall pay costs of installation, maintenance, operation, removal and for fuel consumed.

Electricity is available at the construction site for the Contractor's use, subject to such conditions and precautions upon its use as may be imposed by the Engineer. The Authority will pay the cost of power used. Provide connections to existing facilities and size to provide service required for small tools and lighting. Install circuit and branch wiring with ground-fault protection, with area distribution boxes for plug-in connection of construction-type power cords. The Contractor shall pay all costs of installation, maintenance, operation and removal of temporary service connections.

Water for construction purposes is available at the construction site, subject to such conditions and precautions upon its use as may be imposed by the Engineer. The Authority will pay the cost for water used. Provide connections to existing facilities, and extend with branch piping, taps and hoses as required. Protect piping and fittings against freezing. The Contractor shall pay all costs of installation, maintenance, operation and removal for temporary service connections.

91. TEMPORARY SANITARY FACILITIES

Make arrangements for securing and pay all costs for temporary toilets, wash facilities and drinking water including toilet tissue, paper towels, paper cups and similar disposable materials for use by the Contractor, subcontractors, materialmen or other persons over whom the Contractor has control. Comply with regulations and health codes, which would be applicable if the Authority were a private corporation, for the type, number, location, operation and maintenance of fixtures and facilities. Install facilities where directed by the Engineer, and remove from Authority property when no longer required.

92. PROGRESS SCHEDULE

- A. Within fifteen calendar days after acceptance of the Contractor's Proposal, the Contractor shall prepare and submit a progress schedule for the approval of the Engineer. The progress schedule shall show the dates for the commencement and completion of the items of work of the Contract and all Contract Milestones. The Contractor shall revise and resubmit the progress schedule until approved by the Engineer.
- B. After the approval of such progress schedule, at least once a month or more frequently, as directed by the Engineer, the Contractor shall update the progress schedule showing for each such item of work of the Contract the actual start dates, physical percent complete, expected completion dates (for activities in progress), a brief narrative explaining how the planned completion will be achieved, and the actual completion dates. No logic or duration changes shall be made therein without the written approval of the Engineer.
- C. Approval of any progress schedule shall not relieve the Contractor of his obligation to complete the work by the time(s) required in the Contract and in accordance with all other Contract provisions, even though the schedule approved may be inconsistent with such completion.
- D. The Engineer shall have the right at any time, when in his judgment the Work is not proceeding in accordance with the approved progress schedule, or anytime it is likely that the Work may not be completed by the time(s) required in the Contract even though the Contractor is proceeding in accordance with the approved progress schedule, to order the Contractor, without additional compensation, to employ additional shifts, to increase the number of men employed, to use additional plant or equipment, or to take such other steps as may be required to ensure the completion of the various operations within the time(s) allotted therefore in the approved schedule or by the Contract completion time(s).
- E. In addition to the Authority's other rights, should the Contractor fail to comply with any provision of this Section, the Engineer shall have the right in its discretion to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as it deems necessary or desirable, all as more fully provided in the clause of the Form of Contract entitled "Withholding of Payments".

93. ANALYSIS OF BID

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a detailed analysis of bid on forms furnished by the Authority with all of the spaces filled in without exception, and containing such information as the Engineer may require for each of the items enumerated in such form.

94. AIRPORT OPERATIONS AND CONDITIONS

A. General:

- 1.) Place "Water" identification signs on all water vehicles or water tanks, which are to be used for the transportation or storage of water during the course of the Work at the airport.
- 2.) At least 7 days but not more than 10 days prior to performing excavation, call 1-800-272-4480 and provide the information required for excavation(s) in New York and call 1-800-272-1000 and provide the information required for excavation(s) in New Jersey
- 3.) Do not place temporary structures or store materials or equipment required in the performance of the Work within any of the buildings on the airport without specific prior approval of the Engineer.
- 4.) Do not store petroleum or combustible products, or any other flammable materials, within any buildings or in any part of the airport except as designated by the Engineer.
- 5.) Do not burn or bury debris of any type on Authority property, or wash waste materials down sewers or into waterways.
- 6.) Maintain haul routes in a satisfactory condition, and repair damage to such routes, resulting from the Contractor's operations. Unless otherwise approved by the Engineer, clean haul routes each work period and remove earth or other materials, which fall or are otherwise placed on such routes during the performance of Work.
- 7.) Do not park vehicles on any grass or unauthorized area. Free parking of vehicles in any of the airport parking lots will not be permitted.
- 8.) Protect against damaging existing lights, pavement, curbs and other fixed items that are to remain. Such items, which are damaged, either directly or indirectly, by the Contractor during the performance of the Contract, whether negligently or not, shall be restored to the condition that existed prior to such damage.
- 9.) Take all precautions necessary for protection of persons, traffic and property during dust or fragment generating operations, concrete mixing or placing, or other operations which may stain, soil or damage property or injure persons.
- 10.) Provide sound suppression devices on gasoline and diesel powered construction equipment and pneumatic tools as required to maintain noise exposures below the limits specified in the Code of Federal Regulations (CFR) 29 CFR 1926 U.S. Occupational Health and Safety Administration (OSHA). Maintain such sound suppression devices in proper operating condition throughout the time of their use, and adjust and repair as required to maintain noise within exposure levels stipulated in 29 CFR 1926.52, Table D-2.
- 11.) Remove on an on-going basis, and before the end of each work period, all paving materials left in the grass shoulder areas, in manholes, catch basins or handholes as a result of the cleaning of the Contractor's equipment.

- 12.) Food or food related debris shall not to be left on or disposed of on the construction site.
 - 13.) Equipment, vehicles and materials, not being utilized in the current work period shall be removed and stored in the area designated by the Engineer for such purpose, or if there is no such area designated then such items shall be removed from the airport.
- B. Not Used
- C. Construction Site Conditions Outside Airport Operations Areas:
- 1.) During the time the Contractor is performing the Work, it may at times be necessary because of emergency or abnormal traffic conditions to suspend the Contractor's operations, or to postpone the time at which traffic lanes, parking or other areas become available for performance of Work. Should the Contractor be specifically directed to suspend operations in traffic lanes, parking or other areas, and remove personnel, and obstructing plant, equipment and materials from such lanes or areas, or should such lanes or areas not be available by the times specified, and if solely because of such suspension of operations or late availability of traffic lanes, parking, or other areas the Contractor is necessarily kept idle at the construction site, the Contractor will be compensated as stipulated in the provisions of the Contract concerning compensation for emergency delays.
 - 2.) Limit the maximum height of construction equipment to 25-feet unless otherwise shown on the Contract Drawings or expressly approved by the Engineer, obstruction light in accordance with the paragraph herein entitled "Obstruction Marking and Lighting" and obstruction mark and light that portion of equipment which exceeds 25-feet in height in accordance with FAA Advisory Circular 70/7460-1K Change 1.
 - 3.) Perform such duties as the Engineer may direct and as may be necessary in the opinion of the Engineer for the rerouting of traffic in the performance of the Work.
 - 4.) Restrict smoking to areas designated by the Engineer for this purpose.
- D. Obstruction Marking and Lighting:
- 1.) Material, temporary construction and facilities for obstruction marking and lighting constitute temporary facilities that are and shall remain the property of the Contractor unless otherwise shown on the Contract Drawings or specifically directed by the Engineer to be turned over to the Port Authority.
 - 2.) Provide new materials, or undamaged previously used materials in serviceable condition conforming to the requirements specified herein.
 - 3.) In airport areas where obstructions occur within navigable airspace provide obstruction lights, Model UF-60-7-75A-PE-BI as manufactured by Julian A. McDermott Corp., Ridgewood, N.Y., or approved equal.
 - a. Unless otherwise shown on the Contract Drawings, mount an obstruction light on the highest point of construction equipment or obstruction.
 - b. Ensure that obstruction lights are maintained in proper operating condition throughout Work of this Contract, and operate at night seven (7) days a week and during IFR weather conditions.

- (i) "Night" means the time between the end of evening civil twilight, and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

E. Not Used

F. Night Illumination of Paving and Surfacing Operations:

- 1.) Paving and surfacing operations conducted at Night shall, in addition to the requirements of the paragraph entitled "Obstruction Marking and Lighting" hereof, conform to the following requirements:
 - a. Locate and shield night illumination to prevent interference with air traffic control or impairment of safe aeronautical operations.
 - b. Outside Air Operations Areas, locate and shield night illumination to prevent interference with motorists and pedestrians or impairment of traffic and pedestrian movement.
- 2.) Illumination of Area of Work: Provide and operate portable floodlight units similar and equal to "Maxi-Lite 695" as manufactured by Allmand Brothers Inc., Holdredge, NE.
- 3.) Equipment Illumination: Provide and operate electric beam lights with a capacity of not less than 3,000 watts affixed to paving machines, rollers, distribution trucks and other vehicles to provide not less than twenty foot candles of illumination on the following horizontal surfaces:
 - a. During operation of paving machines, an area 12-feet by 12-feet immediately behind the machine;
 - b. During operation of rolling equipment, an area 12-feet wide by 30-feet long immediately in front of and behind the machine; and
 - c. During application of tack coat, an area 12-feet by 12-feet on the area being coated.

G. Not Used

H. Subsurface Structures:

- 1.)

Ex. 4

- 2.) Apply to the Engineer in writing at least 24-hours in advance of the time of: a. entry into existing manholes, handholes, or other subsurface structure or, b. interruption or disruption of utility services. Perform interruptions of electrical services, and entry into subsurface structures in accordance with the provisions of the Section hereof entitled "PERMIT AND REQUIREMENTS FOR ELECTRICAL DISTRIBUTION WORK". Service shall not be cut off on existing installations until all operations have been completed except for connections or reconnections to power source of wiring to be installed under this Contract. Notice to the Engineer shall specifically state which utilities will be affected and the time and the duration of such interruption. Keep all such interruptions to a minimum. No interruption of utility services shall be made without approval of the Engineer whose decision in all cases shall be final.
 - 3.) Test each subsurface structure for combustible, toxic or otherwise harmful, gases or vapors in accordance with NFPA No. 328 "Recommended Practice for the Control of Flammable and Combustible Liquids and Gases in Manholes, Sewers and Similar Underground Structures" before permitting personnel to enter. If such gases or vapors are detected, ventilate the subsurface structure until the gases have dissipated to an acceptable level as determined by the OSHA Air Quality regulations prior to entry.
 - 4.) Manholes and other subsurface structures in which Work is to be performed under this Contract may contain water. Remove water encountered in such locations and keep the floors of such locations free of standing water at all times workers are in such locations.
 - 5.) Verify the exact locations of underground utilities and subsurface structures in the field, and assume all risks of whatever nature, if any, as to the locations of such utilities and structures.
- I. No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the Work and shall take such precautions as will accomplish such end, without undue interference with the public or the operations of the Authority.

95. PERMIT AND REQUIREMENTS FOR ELECTRICAL DISTRIBUTION WORK

- A. Notify the Engineer at least 24 hours prior to the commencement of operations at the construction site which in any way may affect existing electrical circuits or require entry into any electrical manhole at the airport, and obtain from the Engineer, Authority Form PA 2497A entitled, "Electrical Work Permit". Execute such form in triplicate each morning prior to commencement of Work on existing electrical circuits or entry into manholes. The Authority will issue this form to the Contractor without payment of a fee.

- B. Allow sufficient time for loads to be transferred to other circuits from the circuits upon which Work is to be performed and for lock out of circuits which are within existing load centers. Comply with other requirements contained on the back of the "Electrical Work Permit" insofar as they are applicable to the Work to be performed under this Contract. In any event, reconnect and place back in operation electrical circuits activating parking field, roadway, runway operations, apron and taxiway lights prior to the close of operations on each day, and in any event before sunset of each day. Overtime operations or premium time required to be paid by the Contractor for or in connection with this numbered Section shall be borne by the Contractor without separate or additional compensation therefor.

96. AIRPORT CONSTRUCTION SAFETY REQUIREMENTS

A. General Safety Requirements:

- 1.) The Contractor shall adhere to all safety precautions described in the current edition of the U. S. Department, Federal Aviation Administration Advisory Circular AC 150/5370-2, Operational Safety on Airports During Construction. The Contractor is to strictly conduct all activities as not to violate safety standards contained in said Advisory Circular.
- 2.) Throughout the construction period, the following safety and operational practices shall be followed:
 - a. Operational safety shall be a standing agenda item during work progress meetings throughout the duration of the Contract.
 - b. The Contractor shall perform onsite inspections of the construction site throughout the duration of the Contract, with immediate remedy of any safety deficiencies.
 - c. The Contractor, employees of the Contractor, subcontractors, materialmen or any other support workers over whom the Contractor has control, who are required to enter the Aircraft Operations Area will be required to wear a reflective safety vest, day or night.
 - d. Construction that is within the safety area of an active runway, taxiway, or apron must be performed when the runway, taxiway, or apron is closed or use-restricted and initiated only with prior permission from the Engineer.
 - e. The Engineer may order the Contractor to suspend operations and move personnel, equipment, and materials to a safe location at any time he deems it necessary.

B. Maintenance of Construction Site:

- 1.) Inspect all construction and storage areas as often as necessary to be aware of conditions.
- 2.) Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.
- 3.) Provide continuous clean-up operations including a mechanical sweeper for all haul operations or other related traffic to and from the construction site.

- 4.) The Contractor, at the direction of the Engineer, may be required to provide and maintain an emergency response route through the work area, for Airport Emergency Vehicles. Construction vehicles accessing this road will give way to emergency vehicles at all times. Parking or staging of any construction equipment or stockpiling of materials blocking the road or access to the road will not be permitted.
- C. Approach Clearance to Runways:
- 1.) Runway thresholds must provide an unobstructed approach surface over equipment and materials. (Refer to Contract Drawings for construction clearance surfaces.)
 - 2.) Ensure all personnel, materials, and/or equipment are clear of the applicable runway end slope criteria (Refer to Contract Drawings for construction clearance surfaces.)
- D. Runway and Taxiway Safety Area (RSA and TSA):
- 1.) Limit construction to outside of the approved RSA and TSA, as defined elsewhere in this section—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA that is equal to the RSA available during construction.
 - 2.) Procedures for Protecting Runway Edges:
 - a. Limit construction to no closer than 250 feet from the runway centerline—unless the runway is closed to aircraft operations.
 - b. Personnel, material, and/or equipment shall not penetrate the Obstacle Free Zone (OFZ) as defined in the U. S. Department, Federal Aviation Administration Advisory Circular AC 150/5300-13 Airport Design, Paragraph 306, "Obstacle Free Zone"
 - (i) "Obstacle Free Zone" means the airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual Nav aids that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches.
 - 3.) Procedures for Protecting Runway Ends.
 - a. Maintain the RSA as it existed before construction activity—unless the runway is closed to aircraft operations.
 - b. Prevent personnel, material, and/or equipment, from penetrating the OFZ.
- E. Closed Runways:
- 1.) For work that necessitates the closure of a runway or runways, the Contractor shall furnish and install and subsequently remove or relocate a lighted "X" as per FAA Advisory Circular 150/5345-55 "Lighted Visual Aid to Indicate Temporary Runway Closure", at each end of the closed runway on or near each of the runway designation numbers as directed by the Engineer. The Contractor shall be responsible for the storage, mobilization, and demobilization of the lighted "X's" for each runway closure period and they remain the property of the Contractor unless otherwise noted on the Contract Drawings.

- 2.) The lighted "X's" shall be the Sweepster Lighted Runway Closure Marker Model LXD06, or approved equal conforming to NTSB Safety Recommendation A-03-05 and 06.

F. Barricades

- 1.) Use barricades to indicate construction locations in non-movement areas, which no part of an aircraft may enter. Barricades may be of different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels and shall be marked with diagonal, alternating orange and white stripes. During reduced visibility or night hours, supplement the barricades with red lights, flashing or steady burning, meeting the luminance requirements of the State Highway Department.
 - a. "Non-movement areas" are areas within the AOA not controlled by the Air Traffic Control Tower or Ground Control. These areas are typically aircraft ramp and parking areas as well as vehicular service roads.
- 2.) Indicate construction locations in movement areas in which aircraft may enter with orange traffic cones, red lights (either flashing or steady burning), and collapsible barricades marked with diagonal, alternating orange and white stripes. All barricades, temporary markers, and other objects left in the safety area associated with the open runway, taxiway, and taxi lanes must be as low as possible to the ground, of low mass and easily collapsible upon contact with an aircraft or any of its components. The barricade shall be properly weighted or attached to the surface to prevent displacement by prop wash, jet blast, wing vortex or other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, not to exceed 3-inches in height. Barricades shall be either Neubert Aero Corp., Model NACPC2410 or Model NACPVC2310, or Multi-Barrier Safety Barricade Corp., Model AR-10X96 or an approved equal.
- 3.) Barricades shall be spaced no greater than 10' apart.

G. Temporary Lighting and Markings

- 1.) The Contractor will be required to provide and maintain temporary pavement markings, remove existing markings and remove temporary markings, all in accordance with the Contract Drawings and Specifications.

H. Airport Air Operations Area Access and Control

- 1.) The Contractor, staff, employees, sub-contractors, delivery and haul operators, or anyone required to enter the Air Operations Area related to the contract work, is required to produce valid government issued photo identification.
- 2.) The Contractor is required to supply daily lists of all workers as well as list of all planned or anticipated deliveries. All vehicle operators must have, in their possession and produce on request, a valid drivers license.
- 3.) Individual Contractor Identification is required for each worker. Identification badges are to be displayed on their outermost garment at all times. The Contractor Identification Badge shall be a minimum of 2" x 2" in size and include the following:
 - a. Minimum 1" x 1" current color photo of the individual

- b. Laminated
- c. Company name (and/or subcontractor where applicable)
- d. Person's name
- e. Unique badge number
- f. Expiration date in accordance with the Contract

I. Vehicle Operation Marking and Control

- 1.) All Contractor vehicles (including equipment, sub-contractors, delivery vehicles, etc) that must enter the Air Operations Area for the required work of the Contract, must be escorted and properly identified. To operate during daylight hours, construction equipment must have a 3' x 3' orange and white "Airfield Vehicle" identification flag (ANNIN & Co. NYL-GLO #319733 or approved equivalent) or flashing beacon. Any vehicle operating on the movement areas during hours of darkness or reduced visibility must be equipped with a flashing amber beacon light. In addition, vehicles must display permanently affixed company identification media acceptable to the Authority.
- 2.) Neither the Contractor nor any construction support personnel will be permitted access to the AOA or work site in a private or personal vehicle. There is no employee parking on the Air Operations Areas.
- 3.) At Air Operations Areas provide obstruction marking flags equipped with approved stiffeners as follows:
 - a. For Marking of Equipment, Material and Debris: 3-feet by 3-feet colored orange and white in a checkerboard pattern, mounted on a staff of not less than 8-feet in length. Maintain flag in a vertical position at all times and display on each fixed obstruction, truck or other piece of equipment, and at each separate group of workers and material or debris stack.

J. Navigational Aids

- 1.) The Contractor shall not conduct any construction activity within navigational aid critical areas or affect the visual signal, transmitted signal or power supply of any navigational aid. Navigational aid restricted areas affected by the area of work are depicted on Contract Drawings. Work in these restricted areas is subject to availability based on runway configuration and weather conditions at the time, and may be cancelled by the Engineer without advance warning based on the aforementioned conditions. If the Contractor is specifically directed by the Engineer to suspend his operations in these areas, the Contractor will be compensated as stipulated in the provisions of the Contract concerning compensation for emergency delays.
- 2.) Navigational aids include instrument landing system components and very high-frequency omni-directional range, airport surveillance radar.
- 3.)

Ex. 4

K. Limitations on Construction

- 1.) The Contractor shall obtain Authority permits for open-flame welding or torch cutting operations and electrical power shut-downs prior to start of the work.
- 2.) All site storage of supplies and equipment requires approval by the Engineer. All site storage must be in containers and must have company name and 24 hour contact telephone number clearly displayed.

L. Radio Communications

- 1.) The Contractor is not required to have two-way radio communications with the Engineer.
- 2.) The Contractor is prohibited from having any communications, including two-way radio, with the Airport Air Traffic Control Tower. All movements within the AOA shall be escorted by the Facility Staff.

97. HOURS OF WORK

A. Hours of Work

- 1.) Except as directed in the next paragraph, the Contractor will be permitted to perform the Work of this Contract without restrictions as to Work hours.
 - a. The Contractor will be permitted to perform the Work which requires the closure of the Taxi Stack, as shown on Contract Drawing MT001, only from 1:00 AM through 7:00 AM each day, Sunday through Saturday.
- 2.) The Contractor shall submit to the Engineer, at least two weeks in advance, his scheduled hours of Work for each week.
- 3.) Do not perform Work at the construction site on a Federal legal holiday or a holiday of the state of New York, unless otherwise permitted by the Engineer.
- 4.) Because of the arrivals and departures of aircraft, the Authority makes no representation as to the periods of time when conditions at or near the runways or elsewhere at the airport will be such as to permit the Work to be performed without interruption, or as to when any Work can be performed or completed. Arrivals and departures of aircraft are under the control of the FAA Control Tower operator and emergencies and operating conditions may necessitate sudden changes, both in airport operations and in the operations of the Contractor.

98. MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION

A. DEFINITIONS

As used in this numbered Section, and this Section only, the terms used herein shall have the following meaning:

- 1.) The terms "Traffic Lane", "Lane", "Active Roadway", "Street", and "Roadway" shall mean, in addition to the normally traveled pavement areas, other areas including but not limited to ramp terminal gore areas, roadway shoulders, and all other areas that may foreseeably be occupied by moving vehicles.
- 2.) "Flashing Arrow Sign Unit" (FASU) shall mean an engine/generator-, solar-, or battery-powered flashing light sign with lights displayed in the shape of an arrow.
- 3.) "Variable Message Sign Unit" (VMSU) shall mean an engine/generator-, solar-, or battery-powered variable text sign using a matrix composed of elements such as fluorescent flip-disc, fiberoptic, light-emitting diode (LED), or incandescent bulb elements.
- 4.) "Nighttime Hours" shall mean the local time period between 1/2 hour after sunset to 1/2 hour before sunrise.
- 5.) "Slow-Moving Vehicles" shall mean vehicles or equipment that travel at or under a speed corresponding to 15 mph less than the posted speed limit.
- 6.) "Work Area" shall mean the area immediately surrounding the Work in progress, typically where workers are afoot, and/or the space within a Roadway where Work on the Roadway is being done by the Contractor.

B. GENERAL REQUIREMENTS

Conform to requirements of this numbered Section, the Contract Drawings and the following:

- 1.) Portions of the latest editions, including all amendments thereto, of the Federal Highway Administration (FHWA): "Manual on Uniform Traffic Control Devices" (MUTCD) Part VI as hereinafter specified and applicable portions of the companion "Traffic Control Devices Handbook" (TCDH); "Standard Highway Signs"; "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects"; and, the "Standard Color Tolerance Charts".
- 2.) American Association of State Highway and Transportation Officials (AASHTO): "Roadside Design Guide", Chapter 9: Safety Appurtenances for Work Zones; and "Standard Specifications for Highway Bridges", as hereinafter specified.
- 3.) The requirements of the Americans with Disabilities Act (ADA) laws in all respects as specified in the "ADA Accessibility Guidelines for Buildings and Facilities" (ADAAG).
- 4.) American Traffic Safety Service Associations (ATSSA): "Guidelines for the Use of Portable Changeable Message Signs".

- 5.) Maintenance of traffic and Work area protection features included herein and as shown on Contract Drawings and/or sketches to be furnished to the Contractor.
- 6.) In the event of a technical conflict between a requirement in the publications referenced herein and the Contract documents, the requirements of the Contract documents shall control, unless otherwise directed by the Engineer.
- 7.) There may be more than one Work Area within the confines of a closed Roadway or Traffic lane. Each Work Area shall be individually protected as specified herein.

C. CONTRACTOR-FURNISHED MATERIALS AND EQUIPMENT

- 1.) Provide and maintain in good working order all materials, equipment, temporary construction signs and facilities required for proper maintenance of traffic and Work Area protection, as specified herein and/or shown on the Contract Drawings. All said equipment/devices shall remain the property of the Contractor unless otherwise shown on the Contract Drawings.
- 2.) All items provided under paragraph C.1 shall be new or undamaged previously used materials in serviceable condition conforming to requirements specified herein.
- 3.) Provide and maintain in serviceable condition the following as shown on the Contract Drawings:
 - a. Plastic Delineator Drums: as specified on the Contract Drawings;
 - b. Type III Barricades: as specified on the Contract Drawings;
 - c. Temporary Signs: Conform to requirements of Specification Section 02850 "Plywood Sign Panels and Wood Sign Posts" and/or Specification Section 02851 "Aluminum Sign Panels" hereof. Plywood signs shall be Type 1 unless otherwise shown on the Contract Drawings.
 - (i) Temporary sign supports: Wood conforming to requirements of Specification Section 02850.
 - (ii) Portable sign supports: "Windmaster" as manufactured by Marketing Displays, Inc., Farmington Hills, MI.; or approved equal;
 - d. Temporary Roadway Plates: Steel Plates, sized to cover roadway excavations with thickness and edge support adequate to accommodate HS-20-44 loading per Figure 3.7.6B and 3.7.7A in the AASHTO "Standard Specifications for Highway Bridges".
 - e. When required by paragraph E.6 or utilized by the Contractor in paragraph E.7, herein, provide bituminous premixed asphalt concrete cold patch material.
- 4.) Submit the following to the Engineer in accordance with Division 1 - GENERAL PROVISIONS entitled "Shop Drawings, Catalog Cuts and Samples":
 - a. Catalog Cuts and Data Sheets: Complete manufacturer's data for all equipment and materials.

D. SPARE MATERIALS AND EQUIPMENT

- 1.) Initially furnish and subsequently maintain the quantities of spare materials and equipment, as scheduled on the Contract Drawings, at the construction site or at another nearby location approved by the Engineer.

E. GENERAL WORK AREA PROTECTION

- 1.) Contractor shall establish a Traffic Maintenance Crew, properly trained, supplied, staffed and equipped to deploy and remove the Maintenance of Traffic and Work Area Protection elements required for each of the Contractor's construction activities, as described on the Contract Drawings, and/or paragraph E.3 herein. The Contractor shall identify and maintain one individual, per work shift, as the central or key contact for the Traffic Maintenance Crew and their associated activities.
- 2.) Contractor's Traffic Maintenance training shall be specifically developed from this section. The contents of Contractor's Training programs shall specifically include the Contract Drawings Traffic Standard Details and all other requirements included on the Contract Drawings.
- 3.) Prior to commencement of each day's Work, furnish and install, and periodically inspect, maintain, relocate, replace, cover, remove, or reconstruct, the traffic control delineations, guiding devices, signals, signs, and pedestrian protection, roadway plates, barricades, and barriers, if any, as required throughout the progress of construction operations. Maintain safe control of traffic flow and demarcate areas of Work at all times.
 - a. Ensure that construction material and equipment not removed from areas of Work during non-working periods are protected in such a manner that they shall not constitute a traffic hazard.
 - b. Do not park any vehicles other than construction vehicles required for construction operations within the demarcated protected areas of Work.
 - c. Promptly remove traffic control delineations, guiding devices, signals, signs, pedestrian protection, Roadway plates, barricades, and barriers and whenever operations under this Contract no longer require said Work area protection.
 - d. All existing permanent and temporary pavement markings and traffic guides that conflict with markings and traffic guides to be installed shall be concurrently removed prior to placement of new pavement markings and traffic guides as follows:
 - (i) On wearing surfaces that will be subsequently replaced, resurfaced or abandoned during the Work of this Contract, remove obsolete temporary marking tape and remove or obliterate obsolete thermoplastic or paint markings in a manner approved by the Engineer so as to completely obscure all obsolete markings for the duration of the Work.
 - (ii) On finished wearing surfaces, completely remove temporary marking tape and completely remove obsolete permanent markings in a manner approved by the Engineer. Use of blackout paint or other coating material on any finished wearing surface is prohibited.
 - (iii) Grind or chip off all adhesive residue resulting from removed or relocated traffic guides.

- e. Prior to the end of each work shift and not less than twice a day on non-work days, the Contractor's Traffic Maintenance crew shall visually inspect and maintain all elements of the Maintenance of Traffic and Work Area Protection installations.
- 4.) Throughout progress of Work of this numbered Section:
- a. Maintain visual and physical accessibility to fire hydrants. Provide 24 hour advance notice to the Engineer in the event of hydrant obstruction.
 - b. Conduct Work area protection operations so that Traffic Lane ingress and egress to intersecting Roadways, adjacent structures or property, and bus and taxi stops, if any, can be maintained. Obtain the approval of the Engineer and provide 24 hours advance notice to the Engineer in the event that Work area protection operations obstruct access to work areas.
- 5.) Placement and Removal of Temporary Signs and Traffic Control Devices:
- a. Do not locate signs or other traffic delineations, guiding devices and signs in a manner that would: obstruct or interfere with motorists view of approaching, merging or intersecting traffic; obstruct other permanent signs or route markers; or mislead or misdirect the motorist.
 - b. Do not place traffic control signs under an overpass or elevated building, or within overpass or building shadow areas, unless otherwise shown on the Contract Drawings, or as directed by the Engineer.
 - c. On Roadways passing below an overpass or elevated building, do not begin or end traffic cone or other delineation and guiding devices under or less than 100 feet from an overpass or building. Extend delineation and guiding devices as required to comply with this requirement.
 - d. Unless otherwise shown on the Contract Drawings, or when otherwise directed by the Engineer, the Work of installing and removing temporary signs, traffic control devices and pavement marking shall be protected, as a minimum, in accordance with Contract Drawing Standard Traffic Details and/or the MUTCD Part 6, as applicable.
- 6.) At excavations within Traffic Lanes which will be open to Roadway traffic prior to completion of construction, provide, install and maintain temporary Roadway plates supported on all edges, and maintain the surface condition of the active Roadway and Roadway plates so that it is consistent with the posted speed limit. Secure plates against displacement by use of suitable steel pins or as directed by the Engineer.
- a. Secure plate against displacement and bed in well-tamped pre-mixed cold patch material ramped 1:24 at exposed edges, or
 - b. Cut a recess in the Roadway surface sized to snugly fit the plate and evenly support the plate around its perimeter. Locate the top of the plate flush with or less than one inch below the adjacent Roadway surface. Secure the plate in the recess in a manner approved by the Engineer.

- 7.) At excavations within pedestrian walkways including Traffic Lane Crosswalks which will be open to walkway pedestrian traffic prior to completion of construction, provide appropriate pedestrian railings and steel plate, wood plank or plywood covers surfaced with an approved heavy duty non-skid paint coating containing a grit additive. Temporary walkway covers over excavations shall be a minimum of 4 ft. wide, designed and constructed to carry a minimum of 150 psf. Railings shall be approximately 3'-6" above the walkway cover and consist of a 2" x 4" wood top rail, 1" x 4" intermediate rail and a toeboard 5-1/2 inches high all securely fastened to 2" x 4" wood posts spaced not more than 8 feet apart. Securely fasten wood walkway covers and posts to wood sleepers spanning excavation trench. Chamfer or asphalt ramp exposed edges and secure against displacement. Contractor's installations shall meet the requirements of the Americans with Disabilities Act (ADA) laws in all respects.
 - 8.) Use temporary Vehicle-strong barriers at all times when the Work Area contains open excavations or when materials and/or equipment are left in the Work Area without the presence of workers, unless otherwise shown on the Contract Drawings, or when otherwise directed by the Engineer. Flare exposed ends of the barriers away from the active Roadway by extending the barriers beyond the roadside recovery area and terminate the barriers with a tapered end section. Where proper flaring of the barriers cannot be obtained, protect the barrier end with Inertial Sand-Filled Barriers or Portable Impact Attenuators. Where Inertial Sand-Filled Barriers or Portable Impact Attenuators are used do not install tapered barrier end section.
 - 9.) Each Work Area not protected by Vehicle-strong Barriers shall be protected by a back-up truck when workers are present, unless otherwise shown on the Contract Drawings.
 - 10.) Vehicles used by the Contractor during performance of Work shall be considered as equipment vehicles and when not protected by a Vehicle-strong barrier, said vehicle shall be protected by a back-up truck, unless otherwise shown on the Contract Drawings.
 - 11.) Slow-moving Vehicles traveling on a Roadway outside of demarcated protected Work Areas shall be followed (approximately 50 feet behind) by a vehicle displaying the same flashing hazard signal lights and sealed beam rotating yellow warning light as required for back-up trucks.
- F. Notwithstanding provisions herein requiring or permitting the Authority to approve or disapprove of any traffic control or delineation and guiding device provided by the Contractor, the Contractor shall be responsible for the suitability and performance of all such traffic control devices such that inconvenience to the traveling public is held to an absolute minimum.

DIVISION 2

SECTION 02073

CUTTING, PATCHING AND REMOVAL

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for cutting, patching and removal of existing construction.

1.02 QUALITY ASSURANCE

- A. Cutting, patching and removal shall be performed by workers skilled in the specific trades involved.
- B. Job Conditions
 - 1. Remove and dispose of all portions of the existing construction and appurtenant structures shown on the Contract Drawings to be removed and not be relocated or salvaged.
 - 2. All other materials unless otherwise directed by the Engineer, shall be disposed of away from the Authority property.
 - 3. Prior to start of work, make an inspection accompanied by the Engineer to determine physical condition of adjacent construction that is to remain.
 - 4. Protect all existing and new construction including utilities, finishes and equipment from water, damage, weakening or other disturbance.

1.03 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

All materials required for patching shall be new. Patching materials shall match in every respect adjacent portions of the existing construction.

PART 3. EXECUTION

3.01 CUTTING, PATCHING AND REMOVAL

- A. Perform all cutting, patching and removal as shown on the Contract Drawings. Work shall be performed in accordance with the approved methods using approved materials.
- B. Do not cut or remove more than is necessary to accommodate the new construction or alteration.
- C. Maintain the integrity of all construction at all times.
- D. Protect finished surfaces at all times and repair or replace, if damaged, to match existing construction to the satisfaction of the Engineer.
- E. Do not allow removed materials and debris to accumulate at the site; remove them daily. All areas adjacent to, and leading to and from the site, shall be kept free of removed materials and debris.

END OF SECTION

SECTION 02073

CUTTING, PATCHING AND REMOVAL

APPENDIX "A"

SUBMITTALS

- A. Submit materials to be used for patching of: concrete pavement and curb, and splash block pavement.
- B. Submit plans, methods, equipment and procedures as applicable for cutting, patching and removal of: concrete pavement and splash block pavements.

END OF APPENDIX "A"

DIVISION 2
SECTION 02222

EXCAVATION, BACKFILLING AND FILLING (NARROWSCOPE)

PART 1. GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for excavation, backfilling and filling.
- B. Definitions
 - 1. As used herein, excavation shall mean the removal of existing pavement, concrete foundations and all materials other than bedrock (ledge rock) encountered within the limits of excavation that are not specified to be removed under the Section entitled "CUTTING, PATCHING AND REMOVAL".
 - 2. As used herein, backfilling shall mean the filling of excavations made for construction purposes and shall extend only to existing grades, or design grades, which-ever are lower.
 - 3. As used herein, filling shall mean the placement of fill material in conformance with requirements of this Section at or above existing grades.

1.02 REFERENCES

- American Society For Testing and Materials (ASTM)
- ASTM D 422 Standard Test Method for Particle - Size Analysis of Soils
 - ASTM D 1557 Standard Test Methods for Laboratory
Compaction Characteristics of Soils Using Modified Effort
(56,000 ft-lbf/ft (2,700 kN-m/m³))
 - ASTM D 4318 Standard Test Method for Liquid Limit, Plastic Limit and
Plasticity Index of Soils

- New Jersey Interagency Engineering Committee (NJIEC)
- Standard Soil Aggregate Gradations

1.03 JOB CONDITIONS

- A. Protect excavations as follows:
 - 1. Prevent water from entering excavated areas.
 - 2. Dispose of water in a manner not to cause injury to the public health or damage to public or private property.
 - 3. If underlying soil is weakened or disturbed, remove the disturbed soil and replace it in conformance with 3.01 A.5.
 - 4. Sheet excavation, as necessary and as approved by the Engineer, to secure sides against movement.

1.04 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Fill and Backfill

1. Unless otherwise shown on the Contract Drawings, fill and backfill shall consist of clean sand and gravel containing no organic matter, and conforming to the following NJIEC Standard Soil Aggregate Gradations:

<u>Sieve Sizes</u>	<u>Total Percent Passing by Weight</u>	
	<u>NJIEC Designation</u>	
	<u>I-10</u>	<u>I-12</u>
4 inch	100	100
2 inch	80-100	
1 inch		
3/4 inch	60-100	70-100
1/2 inch		
No. 4	40-100	
No. 8		
No. 16	20-70	
No. 50	5-40	0-75
No. 100	0-30	
No. 200	0-20	0-5

2. Unless otherwise shown on the Contract Drawings, material shall conform to the requirements for I-12 designation, subject to 2.01A.3 below.
3. Where the entire fill or backfill is above the water table, material conforming to the requirements for I-10 designation may be used in lieu of I-12 designation except under foundations, aircraft pavement and utilities.
4. Use material excavated at construction site if it satisfies above requirements, or as noted on Contract Drawings.

PART 3. EXECUTION

3.01 EXCAVATION

A. General

1. Excavation shall consist of the removal of materials as defined in 1.01 B.1 and the removed materials shall be segregated as suitable and unsuitable and stockpiled as shown on the Contract Drawings.
2. When excavation of bedrock (ledge rock) is required as shown on the Contract Drawings the provisions for removal are specified in the Section entitled "ROCK EXCAVATION."
3. Excavate to elevations required for installation of permanent construction in such manner as not to disturb the subgrade below such elevations.
4. Where existing foundations or other existing construction are encountered which may cause hard spots, remove them to a minimum of two feet below subgrade for pavement or structures.

5. Should bottom of excavation be weakened, disturbed or carried below required depth:
 - a. Under footings - compact bottom, as specified in 3.02 below and replace over-excavation with concrete of the same Class and Type as that specified for the footing or foundation.
 - b. Elsewhere - Compact bottom as approved by the Engineer and refill with material conforming to I-12 designation defined 2.01 A.
6. Perform excavation around and adjacent to existing structures, pipes and conduits which are to remain in place, without damage to or movement of existing construction. When excavation is to be performed under such structures, pipes and conduits, support them in a manner as approved by the Engineer to ensure uninterrupted operation of the supported items.
7. All debris and all material either unsuitable for or in excess of that required for backfill or fill, shall be disposed of away from the construction site.

3.02 PLACEMENT AND COMPACTION

A. Equipment

1. Steel vibratory rollers shall have provision for regulation of vibration frequency. The Engineer shall be informed of the type and size of equipment to be used before the start of any compaction efforts.
2. Placement and spreading equipment shall be approved by the Engineer.
3. Unless otherwise shown on the Contract Drawings, pneumatic-tired rollers shall have minimum weight of 20 tons and a tire pressure of between 60 and 150 psi.
4. When mechanical tampers are to be used, the Engineer shall be informed of the type and size for approval before compaction efforts with this equipment begin.

B. Compaction Requirements

Backfill and fill shall be compacted to achieve a density of 95 percent of the maximum density as determined by Procedure C of ASTM D 1557, except where alternate density requirements are approved by the Engineer or shown on the Contract Drawings.

C. Subgrade, Excavated and Existing Surfaces

Compaction of subgrade, excavated and existing surfaces will consist of a proof-rolling operation performed as follows

1. Compact surface with a minimum of six passes of an approved vibratory steel roller operated at a speed not to exceed three miles per hour and at the optimum operating frequency recommended by the manufacturer.
2. In areas where surface consists of a fine grained soil, compact with a minimum of six passes of an approved pneumatic-tired roller.
3. Overlap passes of roller a minimum of six inches.
4. In area where use of a roller is impractical, compact surface while at or near optimum moisture content with mechanical tampers.

D. Backfill and Fill

1. Moisture content of backfill and fill material shall be within a range of plus or minus two percent of optimum, as determined by Procedure C of ASTM D 1557.

2. Backfill and fill shall be placed in 14-inch, loose layers and compacted with a minimum of six passes of an approved vibratory roller operated at a speed not to exceed three miles per hour.
3. Passes shall be overlapped a minimum of six inches.
4. In areas where a 14-inch layer over existing material is not adequate to support the construction equipment, increase thickness of first lift as approved by the Engineer.
5. In areas where use of a roller is impractical, place fill in maximum 8-inch, loose layers and compact with approved mechanical tampers to specified density.
6. In areas adjacent to structures and utilities as shown on Contract Drawings, compaction equipment shall be restricted as directed by the engineer.
7. Compact backfill as specified in 3.02 D.5 above for fill. In pipe trenches, each layer of backfill shall be not more than eight inches in thickness before compaction. Backfill shall be placed on both sides of the pipe, simultaneously.
8. The surface of filled or backfilled areas, which are to receive pavement or on which a structure is to be placed, shall be within plus or minus 1/2 inch of the elevations shown on the Contract Drawings and shall be free of depressions or projections greater than 1/2 inch when tested with a 16-foot straight edge.
9. The surface of filled areas at other locations shall be within plus or minus one inch of elevations shown on the Contract Drawings unless a closer tolerance is necessary to meet requirements of other Sections of the Specifications or the Contract Drawings.

3.03 FIELD TESTS

A. Inspection and Testing

1. The Engineer will perform Quality Assurance testing on delivered field samples of material submitted from each source, for conformance with 2.01. Gradation and maximum density will be determined in accordance with ASTM D 422 and Procedure C of ASTM D 1557, respectively. If deemed appropriate by the Engineer, Atterberg Limits will be determined on fine-grained soils in accordance with ASTM D 4318.
2. If the sample from a source is approved, and if the Engineer requests, conduct the Engineer's representative to that source. Additional samples will be selected and tested.
3. The Engineer will notify the Contractor of approval of material source within seven days after receiving samples. Approval of a source of backfill or fill material shall be subject to material continuing to meet the requirements of 2.01.
4. When performing Quality Assurance testing, the Engineer will determine the density of compacted fill or backfill by in-place density tests or from undisturbed samples cut from the compacted fill or backfill as required. Notify the Engineer 24 hours prior to start of any filling or backfilling to allow the Engineer time to make provisions for such testing.
5. To evaluate whether material has been compacted to specified density the Engineer will compare results of in-place density tests with results of control tests on material of the same designation using Procedure C of ASTM D 1557.
6. If fill or backfill have not been sufficiently compacted as determined by in-place density tests, the compaction effort shall be continued and moisture content shall be adjusted as necessary until the specified compaction is obtained.

7. The Engineer will check conformance to elevations shown on the Contract Drawings and required tolerance for surface straightness.
8. Provide labor and equipment to take samples as directed and to assist the Engineer in other tasks.

END OF SECTION

SECTION 02222

EXCAVATION, BACKFILLING AND FILLING

APPENDIX "A"

SUBMITTALS

- A. Submit to the Manager, Materials Engineering Division, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, N.J. 07310-1397, proposed material suppliers and sources for each designation of fill or backfill to be used under this contract. The submittal document must contain, as minimum information, the Contract location, title and number; designation of intended material use; source and supplier of material being submitted. Sample submittal paperwork must be received by the Manager of Materials as least three weeks prior to delivery of material to site. Do not delivery any material until the Engineer has checked and approved material supplier and source. Delivered material must receive on-site approval as per Section 3.04, Paragraph A, prior to use.
- B. The Contractor shall be responsible for Quality Control procedures. Before the actual start of earth work, the Contractor must submit a Quality Control Plan for review and approval by the Engineer.

END OF APPENDIX "A"

DIVISION 2

SECTION 02574

ABRASIVE BLASTING OF PAVEMENTS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for abrasive blasting of the following pavement items:

- A. Existing concrete to which new concrete is to be bonded.
- B. Concrete surfaces to which waterproofing, coatings and other finishes are to be applied
- C. Steel surfaces, including corroded reinforcement, to which concrete or joint material is to be applied

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

Steel Structures Painting Council (SSPC)

SP6 Commercial Blast Cleaning

1.03 JOB CONDITIONS

- A. Do not conduct abrasive blasting operations if U.S. Weather Bureau forecasts precipitation within the 24-hour period following proposed operations.
- B. Do not conduct abrasive blasting operations unless the application of new materials is to follow the abrasive blasting within the same work period.

PART 2. PRODUCTS

2.01 MATERIALS

Abrasive grit shall be "Black Beauty" as manufactured by Reed Minerals, a division of Harsco Corp., South Kearny, NJ, or approved equal.

PART 3. EXECUTION

3.01 PREPARATION

- A. Clear surfaces to be abrasive blasted of equipment and debris.
- B. Erect curtains or temporary partitions or otherwise protect work area to safeguard persons, traffic, adjacent structures, properties, waterbodies, and vehicles from abrasive blasting operations and prevent excessive airborne debris, all to the satisfaction of the Engineer.

3.02 ABRASIVE BLASTING

- A. Abrasive grit nozzle blasting equipment shall be the following, or approved equal:
 - 1. "Clemco" manufactured by Clementina, Oakland, CA;
 - 2. "Pauli and Griffin" manufactured by Pauli Griffin, Vacaville, CA;
 - 3. "Sandstorm" manufactured by Bowen Tools, Inc., Houston, TX.
- B. Where relatively smooth, horizontal concrete surfaces require abrasive blasting, whether in enclosed areas or elsewhere, and where dust would be a problem, use the self-contained steel shot system in lieu of abrasive grit blasting.

Self-contained steel shot blasting equipment shall be the following, or approved equal:

- 1. "Blastrac" manufactured by Wheelabrator-Frye, Mishawaka, Indiana;
 - 2. "Portable Power Blast Equipment" manufactured by Goff Corporation, Seminole, Oklahoma.
- C. Abrasive blast surfaces of concrete or steel to remove all dirt, grease, oil, asphalt, rubber, laitance formed on concrete, curing compounds, and all other deleterious material.
 - D. For concrete surfaces, remove a thin layer of mortar to expose the aggregate.
 - E. For steel surfaces, abrasive blast in conformance with SSPC-SP6, except where stricter requirements are specified elsewhere in the Specifications or shown on the Contract Drawings.
 - F. Clean blasted surfaces of dust and loose residue, and properly dispose of same away from Authority property

END OF SECTION

DIVISION 2

SECTION 02580

THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for thermoplastic reflectORIZED pavement markings.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T 250 Thermoplastic Traffic Line Material

AASHTO M 247 Glass Beads Used in Traffic Paint

American Society for Testing and Materials (ASTM)

ASTM D 1155 Test Method for Roundness of Glass Spheres

ASTM D 1213 Test Method for Crushing Resistance of Glass Spheres

ASTM D 1214 Test Method for Sieve Analysis of Glass Spheres

ASTM D 1535 Method for Specifying Color by the Munsell System

ASTM E 28 Test Method for Softening Point by Ring-and-Ball Apparatus

Federal Highway Administration (FHWA)

Manual on Uniform Traffic Control Devices

National Board of Fire Underwriters

1.03 QUALITY ASSURANCE

- A. The quality and workmanship of the completed marking installation shall conform to 3.02 C.4 of this Section.
- B. The completed marking installation shall be warranted to the Authority, from the date of issuance of the Certificate of Final Completion, against peeling, chipping, flaking, delamination, and shoving for a period of one year.

1.04 SUBMITTALS

For Submittal Requirements, see Appendix "A".

PART 2. PRODUCTS

2.01 MATERIALS

A. White and Yellow Reflectorized Thermoplastic

1. Composition Requirements

The thermoplastic material composition shall be specifically formulated for application at temperatures greater than 400 degrees F true* and shall show no significant breakdown, or deterioration at a true temperature of 475 degrees F.

* True temperature as referenced in 2.01 is measured with high precision, laboratory grade equipment.

- a. The binder component shall be formulated as hydrocarbon resin or formulated as alkaloid base product as shown on the Contract Drawings. The pigment, beads, and filler shall be uniformly dispersed in the binder resin.
- b. The thermoplastic material shall be free from all skins, dirt and foreign objects and shall comply with the following requirements:

<u>Component</u>	<u>% by Weight</u>	
	<u>White</u>	<u>Yellow</u>
Binder	17.0 Min	17.0 Min.
Titanium Dioxide	10.0 Min.	---
Glass Beads	20.0 Min	20.0 Min.
Calcium Carbonate & Inert Fillers	49.0 Min.	**
Yellow Pigments	---	**

**Amount and type of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacturer, providing the other composition requirements of this specification are met.

2. Physical Properties of Composition

a. Colors

White thermoplastic composition, as placed, shall be white, free from dirt or tint. Yellow thermoplastic composition, as placed, shall be yellow, free from dirt or tint, and shall be a reasonable visual match to Munsell book notation 10YR8/14 in accordance with ASTM D 1535.

b. Drying Time

When installed on pavement at an air temperature of 70 degrees F true, and in a thickness between 1/8 inch and 3/16 inch, the thermoplastic material shall be completely solid and shall show no damaging effect from traffic after 10 minutes.

c. Color Retention

The thermoplastic material shall not change color during the warranty period.

d. Yellowness Index

White thermoplastic material shall not exceed a yellowness index of 0.12 when tested in accordance with AASHTO T 250.

e. Softening Point

The thermoplastic material shall have a softening point of not less than 194 degrees F true when tested in accordance with ASTM E 28.

f. Specific Gravity

The specific gravity of the thermoplastic material as determined by a water displacement method at 25 degrees C shall be between 1.8 and 2.2 (referred to water at 25 degrees Celsius true).

g. Fumes

The thermoplastic material shall not exude fumes which are toxic, obnoxious and/or injurious to persons or property when it is heated during application.

B. Reflective Glass Spheres (Pre-Mix and Drop-On)

Reflective glass spheres for use in the composition and for drop-on shall conform to the following requirements:

1. The glass spheres shall be colorless; clean; transparent; free from milkiness or excessive air bubbles, and essentially clean from surface scarring or scratching. They shall be spherical in shape and at least 70 percent of the glass beads shall be true spheres when tested in accordance with ASTM D 1155.
2. The refractive index of the spheres shall be a minimum of 1.50 as determined by the liquid immersion method at 25 Degrees C true.
3. The silica content of the glass spheres shall not be less than 60 percent.
4. The crushing resistance of the spheres shall be the average resistance when tested in accordance with ASTM D 1213 for a 40-lb. dead weight for 20 to 30 mesh spheres.
5. The glass spheres shall have the following grading when tested in accordance with ASTM D 1214.

<u>U.S. Standard Sieve</u>	<u>Mass % Passing</u>
No. 20	100
No. 30	79-95
No. 50	15-60
No. 80	0-15

6. Glass spheres for drop-on shall be treated with a moisture-proof coating meeting the flow requirements of AASHTO M 247 Section 4.4.2, shall not absorb moisture during storage, shall remain free from clusters, and shall flow freely from dispensing equipment.

C. Primer

Type III primer for use on both bituminous and Portland cement concretes shall be of the type recommended by the manufacturer of the thermoplastic material and shall be designed to dry track-free in under 5 minutes.

2.02 DELIVERY, STORAGE, AND HANDLING

- A. The thermoplastic material shall be manufactured in block form and packaged in suitable corrugated containers to which it will not adhere during shipment or storage. Each container shall weigh approximately 50 pounds and shall consist of blocks approximately 14 inches x 28 inches x 2 1/4 inch in size. Each container shall be sealed at the point of manufacture and plainly marked with the color, basic resin type (either hydrocarbon or alkaloid), manufacturer's name, batch number and date of manufacture, and a statement stating the contents meet the requirements of this Section. Each batch manufactured shall have its own separate number. The label shall warn the user that the material shall not be heated in excess of 440 degrees F gauge.
- B. The reflective glass spheres for drop-on application shall be shipped in strong moisture resistant bags containing approximately 50 lbs. Each bag shall be marked with the name and address of the manufacturer, and the name and weight of the material, a statement stating the contents meet the requirements of this Section, date of manufacture and batch number.
- C. Type III primer shall be shipped in pails, drums or other strong substantial containers. Each container shall be plainly marked with the brand name of the product, the name and address of the manufacturer, the date of manufacture, the quantity of material, the date of expiration or shelf life, and appropriate hazard warnings. Type III primers shall be shipped to the construction site with instructions for use affixed to each container.

2.03 BASIS OF ACCEPTANCE

- A. Thermoplastic material shall be accepted on the basis of sampling and inspection at the place of manufacture or in warehouse lots as determined by the Engineer. In addition, all samples shall be accompanied with the manufacturer's certified identification of the binder formulation (e.g. "formulated as a hydrocarbon resin"). Any unauthorized tampering, opening, or breaking of seals on the containers between the time of sampling and delivery to the construction site shall be cause for rejection of the material.
- B. The minimum batch size of thermoplastic material when tested shall not be less than 3000 lbs., unless the total order is less than that amount.
- C. Reflective glass spheres may be approved at the construction site on the basis of the manufacturer's certification.
- D. Type III primers will be subject to approval by the Engineer prior to use. Requests for approval shall be accompanied with technical data including brand name, instructions for use, hazard warnings, and 1 qt. sample of the primer material.
- E. Type III primer previously approved by the Engineer may be accepted at the construction site on the basis of the brand name labeled on the container.

- F. Any rejected materials shall be immediately replaced with materials meeting the requirements of this Section.

PART 3. EXECUTION

3.01 APPLICATION EQUIPMENT

A. General

Thermoplastic application equipment shall be approved by the Engineer prior to the start of application.

1. The equipment used for the placement of thermoplastic pavement markings shall be of two general types: Mobile applicator and portable applicator.
2. Unless otherwise approved by the Engineer, all longitudinal pavement marking lines shall be striped using only mobile applicator equipment. Longitudinal pavement marking lines include broken lines (skipline), edge lines, barrier lines, and solid lines as defined by the FHWA Manual on Uniform Traffic Control Devices.
 - a. Portable applicator equipment will be acceptable for placing all other markings; and for longitudinal marking where use of mobile applicator equipment is impractical, as approved by the Engineer.
3. Thermoplastic material shall be applied to the primed pavement surface by the extrusion method, wherein one side of the shaping die is the pavement and the other three sides are contained by, or are part of, suitable equipment for maintaining the temperature and controlling the flow of material.
4. Applicators shall be equipped and constructed in such a manner as to satisfy the requirements of the National Board of Fire Underwriters.
5. For heating the thermoplastic material, the applicator equipment shall include melting kettle(s) of such capacity as to allow for continuous marking operations. The melting kettle(s) may be mounted on a separate "supply" vehicle or included as part of the application equipment. The kettle(s) shall be capable of automatically heating the thermoplastic material to, and maintaining it at an indicated gauge temperature of 420 degrees F to 430 degrees F. The heating mechanism shall be by means of thermostatically controlled indirect heat transfer medium. Direct heating of the melting kettle by flame will not be permitted.
6. Thermoplastic material temperature gauges accurate to plus or minus 15 degrees F shall be provided at both ends of each kettle and reservoir, and in each extrusion shoe, in such a manner as to be visible and capable of monitoring the thermoplastic material temperature throughout the marking operation.
7. Applicator equipment including separate "supply" kettles shall be constructed to provide continuous mixing and agitation of the thermoplastic material. Conveying parts of the equipment between the main material reservoir and the extrusion shoe(s) shall be so constructed as to prevent accumulation and clogging. All parts of the equipment which come into contact with material shall be so constructed as to be easily accessible and exposable for cleaning and maintenance. The equipment shall be constructed so that mixing and conveying parts, up to and including the extrusion shoe(s), maintain the material at the required application temperature.

8. The applicator equipment shall be so constructed as to:
 - a. Insure continuous uniformity in the dimensions of the stripe;
 - b. Provide a means for cleanly cutting off stripe ends squarely;
 - c. Provide a method of applying "skip" lines; and
 - d. Be capable of applying various widths of traffic markings from 3 to 12 inches wide.
9. The applicator equipment shall be equipped with a drop-on type bead dispenser capable of uniformly dispensing reflective glass spheres at controlled rates of flow up to 10 lbs. per 100 sq. ft. of thermoplastic material. The bead dispenser shall be automatically operated in such a manner that it will only dispense beads while the thermoplastic material is being applied.
10. Applicator equipment shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.

B. Mobile Applicator Equipment

1. The mobile applicator shall be defined as a truck mounted, self-contained pavement marking machine that is capable of applying hot thermoplastic material by the extrusion method. The unit shall be equipped to maintain and apply the thermoplastic material at an indicated gauge temperature of 420 degrees F and at the widths and thicknesses specified in this Section. The mobile unit shall be capable of operating continuously and of installing a minimum of 20,000 linear feet of longitudinal markings in 8 hours.
2. The mobile applicator shall be equipped with melting kettle(s) or materials storage reservoir(s) and a glass bead hopper of such capacity as to allow for continuous marking operations. The kettle(s) or reservoir(s) shall be capable of heating and/or holding the thermoplastic material at an indicated gauge temperature of 420 degrees F.
3. The mobile applicator shall be equipped with an extrusion shoe(s), and shall be capable of marking edge-line and centerline stripes. The extrusion shoe(s) shall be:
 - a. Closed, heat jacketed, or suitably insulated units;
 - b. Apply the molten thermoplastic at an indicated gauge temperature greater than 415 degrees F; and
 - c. Capable of extruding a uniform line pre-set at 3 to 12 inches wide at a thickness of not less than 1/8 inch nor more than 3/16 inch.
4. The mobile applicator shall be equipped with an electronic and programmable line pattern control system, or mechanical control system, so as to be capable of applying skip or solid lines in any sequence, and through any extrusion shoe in any cycle length.

C. Portable Applicator Equipment

1. The portable applicator shall be defined as hand operated equipment, specifically designed for placing hot extruded thermoplastic installations such as crosswalks; stop bars; legends; arrows; and short lengths of lane, edge, and centerlines. The portable applicator reservoir shall be loaded with hot thermoplastic material from the supply vehicle melting kettle(s).

2. The portable applicator shall be equipped with all the necessary components, including the material storage reservoir, glass bead hopper, temperature gauges, bead dispenser, extrusion shoe, and heating accessories, so as to be capable of holding and applying the molten thermoplastic at indicated gauge temperatures greater than 415 degrees F; of extruding a line of generally uniform cross-section, pre-set at 3 to 12 inches in width, and at a thickness of not less than 1/8 inch nor more than 3/16 inch.

3.02 INSTALLATION

A. General

1. Pavement markings shall be applied at the locations and in accordance with the patterns and dimensions shown on the Contract Drawings and the FHWA Manual on Uniform Traffic Control Devices.
2. Before any pavement marking Work is begun, a schedule of operations shall be submitted to the Engineer for approval.
3. When pavement markings are applied under traffic conditions, the Contractor shall provide all necessary qualified personnel, flags, markers, signs, etc. to maintain and protect traffic, and to protect marking operations and the new markings until thoroughly set. Short duration lane and work area closures shall be performed in accordance with the requirements of "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.
4. The application of pavement markings shall be performed in the general direction of traffic. Striping against the direction of traffic flow will not be permitted.
5. The Contractor shall be responsible for removing, to the satisfaction of the Engineer, all tracking marks, spilled thermoplastic, and thermoplastic applied in unauthorized areas.
6. When necessary, the Contractor shall establish marking alignment points at 25 ft. intervals throughout the length of the marking area or as otherwise approved by the Engineer.
7. Thermoplastic pavement markings shall be placed upon dry pavement surfaces. At the time of installation the pavement surface temperature shall be a minimum of 55 degrees F and the ambient temperature shall be a minimum of 49 degrees F and rising.

B. Surface Cleaning and Preparation of Pavement

1. The Contractor shall clean the pavement surfaces to be marked to the satisfaction of the Engineer immediately prior to priming and marking application. Surface cleaning and preparation shall be performed only in the area of the thermoplastic markings application.
2. At the time of application of the thermoplastic material, all pavement surfaces shall be dry, free of oil, dirt, dust, grease and similar foreign materials and the primer shall be tack free.

C. Application

1. All pavement surfaces (new and existing) to be marked shall be primed with Type III primer applied to bituminous concrete and/or Portland Cement concrete pavements at the rates and in accordance with the recommendations of the manufacturer of the thermoplastic material. The primer shall dry tack-free in less than 5 minutes.
2. The thermoplastic material shall be applied at an indicated gauge temperature no lower than 415 degrees F at the point of deposition. As used in this Section, the point of deposition shall be defined as within the extrusion shoe.
3. Immediately following application, reflective glass spheres shall be dropped onto the molten thermoplastic marking at the rate of 5 lbs. per 100 sq. ft. of composition.
4. Upon cooling to ambient pavement temperature, the resultant marking shall be an adherent reflectorized strip of a thickness not less than 1/18 inch nor more than 3/16 inch, and of the width and dimensions shown on the Contract Drawings, capable of resisting deformation by traffic. The exposed marking surface shall be smooth, with no pockmarks, blisters, or other surface blemishes evidencing improper application, temperature or equipment malfunction. The pavement markings shall show a smooth alignment with continuous uniformity of the required dimensions and widths.

END OF SECTION

SECTION 02580

**THERMOPLASTIC REFLECTORIZED
PAVEMENT MARKINGS**

APPENDIX "A"

SUBMITTALS

Submit detailed catalog cuts, manufacturer's specifications and test data of products proposed for use demonstrating conformance to the requirements of this Section, in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS.

END OF APPENDIX "A"

DIVISION 2

SECTION 02588

TRAFFIC PAINT PAVEMENT MARKINGS

PART 1. GENERAL

1.01 SUMMARY

This section specifies requirements for the installation of new painted pavement markings and the removal of any related or conflicting pavement markings. The Contractor shall furnish and apply pavement marking paints, including glass beads thereto, at the locations and in accordance with patterns indicated on the Contract Drawings or as instructed by the Engineer, and in conformance with these Specifications.

1.02 REFERENCES

The following is a listing of the publications and specifications referenced in this Section:

Federal Highway Administration (FHWA)

Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)

American Society for Testing and Materials (ASTM)

ASTM D 1155	Test Method for Roundness of Glass Spheres
ASTM D 1213	Test Method for Crushing Resistance of Glass Spheres
ASTM D 1214	Test Method for Sieve Analysis of Glass Spheres
ASTM D 1535	Method for Specifying Color by the Munsell System

- A. Federal Specification - (Reference specification for testing procedures only. See Part 2 of this Section for complete specification requirements.)

1. TT-P-85e, September 15, 1977
2. Federal Test Method Standard 141b, dated February 1, 1979 (or more recent) Paint, Vanish, Lacquer, and related materials.
3. Current ASTM tests.

1.03 QUALITY ASSURANCE

- A. Warranty

The pavement markings shall be warranted by the Contractor against abrasion, bleeding, blistering, chipping, cracking, fading, flaking, loss of adhesion, peeling, softening, or other deterioration for a period of 6 months from the date of installation or until the markings are normally worn away by traffic.

- B. Tolerances

1. Width of Lines: Minus zero, plus 1/8 inch.

2. Length of skip or lane lines and unpainted surface between the skip lines shall be plus or minus 3 inches.
3. Location of Directional Arrows, Messages, and Stripes Within 2 inches of locations shown on the Contract Drawings.
4. Size of Letters and Arrows: Plus or minus 2 inches.

1.04 SUBMITTALS

For Submittal Requirements, see Appendix "A".

PART 2. PRODUCTS

2.01 MATERIALS

- A. Formulation and Manufacturing - The paint shall be formulated and manufactured from first grade raw materials and shall be free from defects and imperfections that might adversely affect the serviceability of the finished product. The materials shall show no hard settling or gelling upon storage in the sealed containers as received that will affect the performance of the product. The paint shall be furnished ready for use. No additional thinner shall be added. Total volatile organic substances (VOC's) in the paint shall not exceed 2.08 lbs/gal. (250 grams/liter). The paint shall contain less than .06% lead or chromium in final composition.
- B. Directional Reflectance - The daylight directional reflectance of the white paint (without glass spheres) shall not be less than 84% and not less than 54% for yellow (relative to magnesium oxide), when tested in accordance with ASTM E-97. Furthermore, the yellow shall substantially match the "Light Limit V +" chip on the Highway Yellow Color Tolerance Chart (PR Color #1, June 1965). Yellow shall conform to the Federal Standard 595a No. 33538.
- C. Flexibility - The paint shall show no cracking or flaking when tested in accordance with Federal Specification TT-P-85e, Section 3.4.6.
- D. Bleeding - The paint shall have a minimum, bleeding ratio of 0.94 when tested in accordance with Federal Specification TT-P-85e, Section 4.4.8. The asphalt-saturated felt shall conform to Federal Specification HH-R-590.
- E. Weight/Gallon - The paint shall have a minimum weight per gallon of 14.5 yellow; 15.1 white.
- F. Viscosity - The consistency of the paint shall be not less than 75 or more than 100 Krebs Units at 25 C, when tested in accordance with ASTM D-562.
- G. Dry Opacity - ASTM D-2805, The film shall be applied with a .005 inch Bird Applicator. The minimum Contract Ratio of the white and yellow paint shall be 0.96.
- H. Water Resistance - The paint shall conform to Federal Specification TT-P-85e, Section 3.4.7. There shall be no blistering or appreciable loss of adhesion, softening or other deterioration after examination.

- I. Field Drying Time - The paint, when applied at 11 mils +/- 1 mil wet film thickness and 160 F at the gun and with a glass spheres at the rate of six pounds per gallon of paint, shall dry to no pickup under 1 minute when tested by simulated passing with a passenger car. A line showing no visual deposition of the paint to the pavement surface when viewed from a distance of fifty feet shall be considered non-tracking and conforming to the requirement of the field drying time.
- J. Lab No Pickup - The paint when tested by Federal Specification TT-P-85e, Section 4.4.6 shall not be greater than 30 min.
- K. Fineness of Grind - The paint shall have a minimum fineness of grind of 3 Hegman.
- L. Total Non-Volatile - The paint shall have a total non-volatile content of not less than 85% by weight.
- M. Abrasion Resistance - No less than 35 Liters of sand shall be required for removal of the baked paint film. The abrasion resistance test shall be in accordance with TT-P-85e, Section 3.5.2.1 (10 Liters per mil of dried paint).
- N. Shelf Life - The paint shall have a usable shelf life of not less than 6 months. The paint shall have no hard settling, caking or separation. The paint shall be able to be mixed easily by means of mechanical stirrer. Paint is to be stored in inside structures at normal room temperature.
- O. The paint shall be lead and chromium-free (less than .06%).
- P. The dried paint shall match Federal Color Standards -- White 595a and Yellow 33538.
- Q. Appropriate cleaning solvents are to be prescribed. These solvents are to be environmentally safe per NY & NJ Regulations.
- R. Material Safety Data Sheets (MSDS) are to be part of every shipment and test sample of paint and cleaning solvent.
- S. The beads for reflectorizing the paint shall be glass of a composition designed to be highly resistant to traffic wear and to the effects of weathering. The beads shall be colorless; clean, transparent, free from milkiness or excessive air bubbles, and essentially free from surface scarring or scratching. They shall be spherical in shape and at least 70% of the glass beads shall be true spheres.
 - 1. The silica content of the glass beads shall not be less than 60%.
 - 2. The beads shall have a refractive index between 1.50 and 1.65 when tested by the liquid immersion method at 25 C.

3. The spheres shall meet the following gradation:

<u>U.S. Standard Sieve</u>	<u>Min.</u>	<u>Max.</u>
Passing No. 20; Retained No. 30	5%	20%
Passing No. 30; Retained No. 50	30%	75%
Passing No. 50; Retained No. 80	9%	32%
Passing No. 80	0%	10%

4. The beads shall show no tendency to absorb moisture in storage and shall remain free of clusters and hard lumps. They shall flow freely, and to the satisfaction of the Engineer, from the dispensing equipment at any time when surface and atmospheric conditions are satisfactory for painting.
5. The glass beads shall be packed in waterproof, plastic lined burlap or plastic lined paper bags. Each bag shall be marked with the name and address of the manufacturer and the name and net weight of the material.

- T. Testing of Glass Beads - The properties indicated above shall be determined in accordance with the following methods of test:

1. Sphericity - Irregularly shaped particles (out-of-round) shall be tested in accordance with ASTM D1155.
2. Gradation - Tested in accordance with ASTM D1214.
3. Moisture Resistance - The spheres shall pass the following moisture resistance test:

Place two pounds of spheres in a washed cotton bag, having a thread count of 50 per square inch (warp and woof) and immerse the bag in a container of water for 30 seconds. Remove the bag and force excess water from the sample by squeezing the bag. Suspend and allow to drain for two hours at room temperature (70-72 F). Then, mix the sample in the bag by shaking thoroughly. Transfer sample slowly to a clean, dry glass funnel having a stem 4" in length, with 3/8" inside diameter stem entrance opening and a minimum exit opening of 1/4". The entire sample shall flow freely through the funnel without stoppage. When first introduced into the funnel, if the spheres clog, it is permissible to lightly tap the funnel to initiate the flow.

PART 3. EXECUTION

3.01 INSTALLATION

A. General

1. All final, interim and temporary pavement markings and patterns shall be placed as shown on the Contract Drawings and in accordance with the Federal MUTCD.
2. Before any final pavement marking work is begun, a schedule of operations shall be submitted to the Engineer for approval. A schedule for temporary markings and patterns for detours and other temporary traffic controls shall also be submitted to the Engineer for approval prior to placement. At least 48 hours advance notice must be given to the Engineer before performing any pavement marking work.

3. When pavement markings are applied under traffic the Contractor shall provide all necessary flaggers, signs, and other traffic control devices to maintain and control traffic, and to protect the marking operation and the new markings until thoroughly dry. The application of pavement markings shall be done in the general direction of traffic; striping against traffic shall not be allowed. Short duration lane and work area closures shall be in accordance with the requirements of "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.
 4. The Contractor shall be responsible for cleaning the pavement to the satisfaction of the Engineer, of dust, dirt and other foreign material that may be detrimental to the adhesion of the paint film.
 5. Detour and other temporary or conflicting markings shall be removed as soon as practicable as directed by and to the satisfaction of the Engineer. If darkness or inclement weather interferes with the removal operations, such operations shall be accomplished during the next daylight period or as soon thereafter as weather permits.
 6. The method of removal is subject to the approval of the Engineer. Painting out pavement markings is generally not permitted, and if approved will only be permitted for very short-term use. Grinding, scraping, sandblasting, etc., must be conducted in such a manner that the finished pavement surface is not damaged or left in a pattern that will mislead or misdirect the motorist.
 7. When necessary, the Contractor shall establish marking line points at 30 foot intervals throughout the length of the pavement, or as directed by the Engineer.
 8. The paint shall be applied in strict accordance with the manufacturer's recommendations for use. Further, at the time of application pavement surfaces shall be thoroughly dry.
- B. Application of Pavement Markings
1. Except as noted herein painted pavement markings shall be applied with atomizing spray type striping machines. The striping equipment may be either truck mounted or hand operated. All equipment shall be compatible with and suitable for the application of the type of paint being used.
 2. Applied markings shall have clean-cut edges, true and smooth alignment and a minimum uniform wet film thickness of 15 mils. Glass beads shall be applied uniformly over and into the wet paint film at the rate of 6 lbs. per gallon of paint. Glass bead dispensers shall be of a type that will mechanically and automatically give such performance.
 3. Upon approval by the Engineer, paint rollers or brushes may be used for marking cross-hatched and solid painted gore areas, letters, symbols, stop bars, short temporary detours or other such areas as directed by the Engineer. When rollers and brushes are allowed, glass beads shall be applied to the wet paint film at the specified rate and in a manner suitable to the Engineer.
 4. The Contractor shall repaint, or remove and reapply, any pavement markings that fail to satisfy the requirements specified in this Section, at no cost to the Authority.
 5. The Contractor shall continuously monitor, maintain, and repair all installed pavement markings until completion of the Contract.

END OF SECTION

SECTION 02588

TRAFFIC PAINT PAVEMENT MARKINGS

APPENDIX "A"

SUBMITTALS

- A. Submit detailed catalog cuts, manufacturer's specifications and test data of products proposed for use demonstrating conformance to the requirements of this Section, in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS.
- B. A schedule of pavement marking to be performed.
- C. Submit proposed means of cleaning, removing, or obliterating existing or unsatisfactory markings to the Engineer for approval prior to commencing corrective work.

END OF APPENDIX "A"

DIVISION 2

SECTION 02841

W-BEAM AND THRIE-BEAM GUIDE RAIL

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for W-beam and Thrie-beam guide rail.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M 30	Zinc-Coated Steel Wire Rope and Fittings for Highway Guardrail
AASHTO M 102	Steel Forgings, Carbon and Alloy, for General Industrial Use
AASHTO M 133	Preservatives and Pressure Treatment Process for Timber
AASHTO M 180	Corrugated Sheet Steel Beams for Highway Guardrail

American Society for Testing and Materials (ASTM)

ASTM A 36	Structural Steel
ASTM A 123	Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars and Strip
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 563	Carbon and Alloy Steel Nuts

1.03 QUALITY ASSURANCE

- A. Guide rails and appurtenances may, at the option of the Engineer, be inspected at the place of manufacture.
- B. Furnish certificate for each type material specified in 2.01, certifying that such material complies with the applicable specified requirements.
- C. Guide rails and appurtenances will be visually inspected when delivered to the construction site. Any such material that does not meet requirements of this Section or is damaged, shall be removed from the construction site and replaced with satisfactory material.

- D. All stages of installation will be inspected by the Engineer for compliance with the provisions hereof and conformance to required line and grade. Any failures to comply shall be immediately corrected to the satisfaction of the Engineer.

1.04 SUBMITTALS

Refer to Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Steel Guide Rail and Terminal Sections
AASHTO M 180, CLASS B, TYPE 2, for W-Beam or Thrie-Beam, as shown on the Contract Drawings.
- B. Posts, Spacers, Plates, Rub Rail and Anchorage Units
ASTM A 36 of type and size shown on the Contract Drawings, galvanized in accordance with ASTM A 123. No punching, drilling, cutting or welding will be permitted after galvanizing. When shown on the Contract Drawings, provide rub rail.
- C. Bolts and Nuts
Conform to AASHTO M 180.
- D. Miscellaneous Hardware for End Treatments
When end treatments are shown on the Contract Drawings, conform to AASHTO M 180 except as follows:
 - 1. Guide rail end treatment cables shall conform to AASHTO M 30, Type 1 with Class A coating. Swaged fittings shall be fabricated from forged steel conforming to AASHTO M 102.
 - 2. Nuts for guide rail end treatment shall conform to ASTM A 563, Grade A.
 - 3. Plates and rods for guide rail end treatment shall be structural steel conforming to ASTM A 36 and galvanized in accordance with ASTM A 123.
- E. Timber Posts for Breakaway Cable Terminals
Where shown on the Contract Drawings, provide timber posts having a stress grade of 1200 pounds per square inch or more as tested in accordance with requirements of West Coast Lumber Inspection Bureau, Southern Pine Inspection Bureau or other appropriate Timber Association. Posts may be rough sawn or dressed and shall be treated with a preservative conforming to AASHTO M 133 with retention property of six pounds of creosote per cubic foot of timber, minimum.

PART 3. EXECUTION

3.01 INSTALLATION

- A. Posts shall be set to the required depth. Posts shall be plumb, properly spaced and to the prescribed line and grade as shown on the Contract Drawings.
- B. Prior to driving the posts or excavating for concrete footings, the exact location of underground utilities that may conflict with the posts shall be determined. Post spacing may be adjusted by six inches or double spacers may be used, as approved by the Engineer, to eliminate such conflicts.
- C. Damage to utilities due to the performance of the Work shall be located and repaired at no additional cost to the Authority.
- D. The rail elements shall be erected with the top edge in a straight line or smooth curve, parallel or concentric to the roadway. Where a vertical transition is required, the top edge of rail elements shall form the chords of a smooth vertical curve. No punching, drilling, reaming, cutting or welding of the rail elements will be permitted in the field.
- E. Where earth is of a type that cannot be drilled using a mechanical earth auger, obtain approval from the Engineer for an alternate method of installing posts.
- F. If concrete Footings are required, support posts at proper line and grade as shown on the Contract Drawings in such a manner so that they will not be displaced during concreting operations.
- G. Use erectors trained by manufacturer.
- H. Touch up all damage to the zinc coating with an approved type paint.
- I. Paint portions of posts to be imbedded in concrete with two heavy coats of an approved bitumastic paint.

3.02 STAGING FOR INSTALLATION ADJACENT TO EXISTING ROADWAYS

Install W-beam and Thrie-beam guide rail in the following sequence:

- A. Approach terminal end shall be the first section installed.
- B. Posts and rails shall be constructed in the direction of traffic.
- C. At the end of a work period, all posts that have been installed shall have the rail elements attached.
- D. New guide rail shall be installed prior to the removal of an existing system, if any, unless otherwise shown on the Contract Drawings.

END OF SECTION

SECTION 02841

W-BEAM AND THRIE-BEAM GUIDE RAIL

APPENDIX "A"

SUBMITTALS

Submit Detailed shop drawings of all components of the guide rail installation in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 – GENERAL PROVISIONS.

END OF APPENDIX "A"

DIVISION 2

SECTION 02842

TEMPORARY TRAFFIC BARRIERS

PART 1. GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for temporary traffic barriers.
- B. Coordinate the Work of this Section with the requirements of "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.
- C. Materials and constructions of this Section constitute temporary facilities that are and shall remain the property of the Contractor unless otherwise shown on the Contract Drawings.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

<u>American Society for Testing and Materials (ASTM)</u>	
ASTM A 36	Structural Steel
ASTM A 123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 307	Carbon Steel Externally Threaded Standard Fasteners
ASTM D 1751	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
<u>West Coast Lumber Inspection Bureau (WCLIB)</u>	
	Standard Grading Rules

1.03 SUBMITTALS

Refer to Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. General

Provide new materials or, if acceptable to the Engineer, undamaged previously used materials in serviceable condition conforming to requirements specified in this Section. Provide materials suitable for the use intended.

Ex. 4

PART 3. EXECUTION

3.01 PREPARATION

Provide and place temporary traffic control devices in accordance with the requirements of "Maintenance of Traffic and Work Area Protection" of Division 1.

Ex. 4

SECTION 02842

TEMPORARY TRAFFIC BARRIERS

APPENDIX "A"

SUBMITTALS

Submit shop drawings of concrete barriers, including details of vertical joint connections, and details of proposed method of relocating concrete barriers in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 – GENERAL PROVISIONS.

END OF APPENDIX "A"

DIVISION 2

SECTION 02850

PLYWOOD SIGN PANELS AND WOOD SIGN POSTS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for the following:

- A. Plywood sign panels for use in the construction of temporary (TYPE 1) and permanent (TYPE 2) guide, warning and regulatory roadway signs. Sign type usage, TYPE 1 or TYPE 2, shall be identified on the Contract Drawings for each required sign.
- B. Wood sign posts and footings for both TYPE 1 and TYPE 2 sign panel side-of-road installations.

1.02 REFERENCES

The following is a listing of organizations and publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals (LTS-2).

Manual for Signing and Pavement Markings of the National System for Interstate and Defense Highways (MUTCD)

AASHTO M 168 Wood Products

American Society for Testing and Materials (ASTM)

ASTM A 153 Zinc Coating (Hot Dip) on Iron and Steel Hardware

ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate

ASTM B 211 Aluminum-Alloy Bar, Rod and Wire

ASTM B 221 Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes

ASTM D 245 Methods for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber

ASTM A 307 Carbon Steel Externally Threaded Standard Fasteners

ASTM A 325 Quenched and Tempered-Steel Bolts and Studs with suitable Nuts and Plain Washers

ASTM D 2555 Methods for Establishing Clear Wood Strength Values

American Wood Preservers Association (AWPA)

AWPA C 1 Timber Products - Preservative Treatment by Pressure Processes

AWPA C 14 Wood for Highway Construction, Pressure Treatment

Douglas Fir Plywood Association

Federal Highway Administration (FHWA)

Manual on Uniform Traffic Control Devices for Streets and Highway (MUTCD)

Standard Alphabets for Highway Signs

Standard Lower-case Alphabets for Highways

United States Department of Commerce (USDC)

Product Standard PS-1 Soft Plywood, Construction and Industrial

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Design of signs and sign structure shall provide sufficient strength to withstand a wind loading of 80 miles per hour as per AASHTO LTS-2.
- B. Sign supports and framing shall be designed to meet the required wind loading. Posts shall be designed for direct embedment in the soil by excavation and back fill, or by driving with hand or mechanical equipment.

1.04 QUALITY ASSURANCE

Each plywood sheet shall be grade marked and certified in accordance with the standards adopted by the Douglas Fir Plywood Association.

1.05 DELIVERY, STORAGE AND HANDLING

All sign components and materials shall be transported and handled in a manner that shall cause no permanent deformation, injury or damage. Sign components and materials to be stored shall be stored above ground.

1.06 SUBMITTALS

Refer to Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Plywood Sign Panels

- 1. Plywood sign panels shall conform to the requirements set forth in USDC Product Standard PS-1 for Douglas Fir Plywood.
- 2. The plywood panels for TYPE 1 signs shall be exterior-type plywood, 5-ply and A-C grade or better.
- 3. The plywood panels for TYPE 2 signs shall be high-density overlay, exterior marine-type plywood, 5 ply and B-B grade or better. Inner plies for TYPE 2 panels shall be B grade veneers or better.
- 4. The thickness of plywood sign panels and plywood battens shall be not less than 1/2 inch for TYPE 1 panels and not less than 3/4 inch for TYPE 2 signs.

5. The overlay surface for TYPE 2 plywood sign panels shall consist of a cellulose-fibre or sheet, in which not less than 40 percent by weight of the laminate shall be a thermo-setting resin of the phenol or melamine type. The resin-impregnated material shall be not less than 0.009 inches thick and shall weigh at least 60 lbs per 1000 square feet of single face, including both resin and fiber. The resin impregnation shall be sufficient to attach the surfacing material to the plywood. The bond shall be equal in performance to the glue lines between the sheets of veneer that make up the plywood.
6. The face of the cellulose-fibre overlay surface for TYPE 2 panels shall be hard, smooth, and of such quality that further finishing by paint or varnish is not required to fabricate the sign as specified in 2.03 of this Section.

B. Panel Sheeting and Screen Printing

1. Reflectorized Sheeting

Shall be Scotchlite Brand Engineer Grade Series 2200 (heat activated adhesive) or Series 3200 (pressure sensitive adhesive) as manufactured by the Traffic Control Materials Division of the 3M Co., 223-3N 3M Center, St. Paul, Minnesota 55144, or approved equal.

2. Non-Reflectorized Sheeting

Shall be Scotchcal Brand film Series 650 (heat activated adhesive) or Series 3600 (pressure sensitive adhesive) as manufactured by the Traffic Control Materials Division of the 3M Co., or approved equal.

3. Screen Printing Inks, Thinners and Toners

- a. Scotchlite Brand Process Colors Series 700 for use on Reflectorized Sheeting.
 - b. Scotchcal Brand Process Colors Series 3900 and 4100 for use on Non-Reflectorized Sheeting.
 - c. Approved equals for use on approved reflective and non-reflective sheetings.
4. Panel sheeting (reflective or non-reflective) and screen printing usage shall be shown on the Contract Drawing.

C. Wood Sign Posts

1. Wood sign posts shall be dry, No. 1 grade, S4S, Douglas Fir, Southern or Ponderosa Pine, Hemlock, Spruce or Western Larch conforming to the applicable requirements of AASHTO M 168. The posts shall be straight and true, free of splits, knots and warps or, of steel or aluminum components.
2. All the posts shall be pressure-treated with CCA in accordance with the applicable requirements of A WPA C1 and A WPA C 14.
3. Posts shall be surfaced four sides, have a uniform cross-section, and shall be sized not less than 4 inches by 4 inches. The post shall be graded for the following stress grades in accordance with the grading rules developed from ASTM D 245 for the selected stress grades. Using the clean wood properties of ASTM D 2555, the bending stress of the post in a TYPE 1 panel installation shall be not less than 1200 psi, and not less than 4000 psi for a TYPE 2 panel installation.

D. Stiffeners, Brackets and Miscellaneous Hardware

1. Horizontal and vertical sign panel stiffeners (Z bars) and panel brackets shall be fabricated of aluminum alloy 6061-T6 conforming to ASTM B 221.
2. Other miscellaneous aluminum hardware including bolts, nuts, washers, screws, rivets, pull-type lockbolts and serrated or knob stem blind rivets shall be fabricated to meet the requirements of ASTM B 209 and ASTM B 211 for Alloy 2024-T4. Component designated as Alloy 2024-T4 shall be given a chromated sealed anodic coating.
3. High strength steel bolts, nuts and washers shall conform to ASTM A 325. High-strength bolts, nuts and washers shall be galvanized in accordance with ASTM A 153.

E. Footings

1. Soil bearing plates shall be attached at the bottom of the post as required in 1.03 of this Section, or as shown on the Contract Drawings.
2. Breakaway post, if required, shall be as shown on the Contract Drawings. Breakaway post and footings shall be designed in accordance with the requirements of 1.03 of this Section.
3. Concrete footings, if required by 1.03 of this Section, shall be Class "B" concrete conforming to the Section entitled "Concrete."
4. Portable sign supports shall be as described in "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.

2.02 CONSTRUCTION FEATURES

- A. Sign face text, symbol, and border layouts shall be in accordance with "Maintenance of Traffic and Work Area Protection", of Division 1 - GENERAL PROVISIONS, or the Contract Drawings conforming to the requirements of:
1. The AASHTO Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways.
 2. The FHWA MUTCD.
 3. The FHWA Standard Alphabets for Highway Signs.
 4. The FHWA Standard Lower-case Alphabets for Highways.
- B. Sign characters shall be as shown on the Contract Drawings and shall include letters, numerals, symbols and borders.
- C. Sign corner and border radii shall be approximately one-eighth of the height of the sign but shall not exceed 12 inches. Sign borders shall be of the same type character as the legend and shall be approximately the same width as the stroke width of the major lettering or the sign.

2.03 FABRICATION

- A. Holes shall be drilled; cut edges shall be smooth and true, and free from burrs or ragged breaks. All fabrication except for cutting the lower ends of embedded posts shall be done in the shop. The plywood panels shall be clean, dry, and free from oils, dust, grit, or any other contaminants that would adversely affect the adhesion of the Reflectorized and Non-Reflectorized sheeting.
- B. In preparing TYPE 1 panels for Reflectorized and Non-Reflectorized Sheeting, the entire Grade A surface to be covered shall be wiped down with a tack cloth to remove all saw dust and sanding residue.
- C. In preparing TYPE 2 panels for Reflectorized and Non-Reflectorized Sheeting, the entire portion of the overlay surface to be covered, shall first be given a light, firm abrasion with steel wool (medium to fine grade) saturated with xydol, V.M.&P. Naphtha or similar commercial solvent. The surface shall then be wiped clean and dry. An alternate method of panel pre-treatment that consists of a solvent wipe, immediately followed by vapor degreasing (tri-chloroethylene) for a minimum period of 6 minutes may be used.
- D. All panel and batten surfaces to be glued shall be slightly roughened and then glued with waterproof adhesive prior to assembly.
- E. After panel preparation, the edges and back or rear surface of all TYPE 2 panels and battens shall be painted with two coats of approved white exterior paint.

PART 3. EXECUTION

3.01 INSTALLATION

- A. The Contractor shall erect and remove signs as shown on the Contract Drawings, or as ordered by the Engineer, and in such a manner that the traveling public is informed and protected at all times.
- B. Side-of-road ground mounted signs shall normally be erected so that the sign face is truly vertical to the profile line and the intersection angle measured between the sign face and the centerline of the travel lane, which the sign serves shall be 93 degrees. Where lanes divide or on curves, sign faces shall be oriented so as to be most effective both day and night, and to avoid the possibility of specular reflection.
- C. The wood sign posts for side-of-road mounting shall be embedded in the soil to the depth required by the design specified in 1.03 of this Section. The hole for the embedment shall be excavated using a manual post-hole digger or appropriate size power driven auger. After the hole has been excavated, the post shall be aligned to the sign face direction, held vertical in the hole and suitable excavated material shall be tamped in the annular space. Holes resulting from sign post removals shall be filled by the Contractor to restore the area to its original state as directed by the Engineer.
- D. All signs shall be securely fastened to their supports with bolts, nuts and washers of aluminum (2024-T4 alloy) or hot-dip galvanized steel conforming to 2.01 D of this Section, as required by the design specified in 1.03 of this Section.

- E. Plywood battens and aluminum panel stiffeners shall be utilized as required by 1.03 of this Section and shall conforming to the applicable requirement of 2.01 of this Section.
- F. Horizontal and vertical sign clearances shall be as shown on the Contract Drawings.
- G. Other non-wood post mounting of plywood signs, such as overhead sign installations shall be as shown in the Contract Drawings.
- H. Concrete footings, if required by 1.03 of this Section, shall be placed in accordance with the requirements of the Section of these Specifications entitled "Concrete," and shall not extend more than 4 inches above grade.

3.02 FIELD INSPECTION

- A. Immediately prior to erection, all material shall be inspected by the Engineer for damage.
- B. The Engineer will inspect each completely erected sign for proper location, line and grade of signs, vertical post alignment, condition, appearance, reflectorization and visibility.
- C. As the Work progresses, the location, position and condition of all signs shall be monitored by the Contractor in accordance with "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.

END OF SECTION

SECTION 02850

PLYWOOD SIGN PANELS AND WOOD SIGN POSTS

APPENDIX "A"

SUBMITTALS

- A. Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 – GENERAL PROVISIONS:
1. Detailed sign face layout for all TYPE 2 sign panels showing letter height, width, brush stroke, spacing between letters, words, symbols and lines, border width, symbols details, and overall dimensions of the sign panels. Detailed sign face layouts are not required for TYPE 1 sign panels.
 2. Shop drawings of sign panel and posts showing the sizes of the members and their connection details. The shop drawings shall also show the total length of the posts for each sign and give an elevation view of each of the completely erected signs with vertical clearance below the lowest sign panel to adjacent roadway, and other relevant dimensions.
 3. Catalog cuts of all the materials to be used for sign faces.
- B. Prior to fabrication, submit computations for the design of the sign panels and supports, as required in 1.03 of this Section, signed by a Professional Engineer licensed to practice in the State where the Work is to be performed.

END OF APPENDIX "A"

DIVISION 2

SECTION 02851

ALUMINUM SIGN PANELS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for the following:

- A. Aluminum sign panels for use in the construction of directional, guide, warning and regulatory roadway signs.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Association of State Highway and Transportation Officials (AASHTO)

Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals (LTS-2)

Manual for Signing and Pavement Markings of the National System for Interstate and Defense Highways

American Society for Testing and Materials (ASTM)

- ASTM A 153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A 193 Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
- ASTM A 194 Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service
- ASTM A 325 High-Strength Bolts for Structural Steel Joints
- ASTM A 325 High-Strength Bolts for Structural Steel Joints
- ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate
- ASTM B 211 Aluminum-Alloy Bar, Rod and Wire
- ASTM B 221 Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes

American Welding Society (AWS)

- AWS D 1.2 Structural Welding Code - Aluminum

Federal Highway Administration (FHWA)

Manual on Uniform Traffic Control Devices for Streets and Highway (MUTCD)

- Standard Alphabets for Highway Signs
- Standard Lower-case Alphabets for Highways
- Standard Traffic Signs

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Design of signs, supports and framing shall provide sufficient strength to withstand a wind loading of 80 miles per hour as per AASHTO LTS-2.

1.04 DELIVERY, STORAGE, AND HANDLING

All sign components and materials shall be transported and handled in a manner that shall cause no permanent deformation, injury or damage. Sign components and materials to be stored shall be stored above ground.

1.05 SUBMITTALS

Refer to Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Aluminum Sign Panels

1. Aluminum sheets and plates shall conform to ASTM B 209, alloy 6061-T6.
2. Fabricate panels from standard sheet widths. The thickness for panel sizes of 30 inches by 30 inches or smaller shall be 0.080 inch and the thickness of larger panels shall be 0.125 inch unless otherwise shown on the Contract Drawings.
3. The panel blanks shall be free from laminations, blisters, open seams, pits, holes, or defects that may affect their strength, appearance or use. The thickness shall be uniform and the blanks shall be commercially flat.

B. Panel Sheeting and Screen Printing

1. Reflectorized Sheeting

Scotchlite Brand High Intensity Grade Series 2800 (heat activated adhesive) or Series 3800 (pressure sensitive adhesive) as manufactured by the Traffic Control Materials Division of the 3M Co., 223-3N 3M Center, St. Paul, Minnesota 55144, or approved equal, and shall meet or exceed the reflecting requirements associated with High Intensity Grade, sheetings.

2. Non-Reflectorized Sheeting

Scotchcal Brand film Series 650 (heat activated adhesive) or Series 3600 (pressure sensitive adhesive) as manufactured by the Traffic Control Materials Division of the 3M Co., or approved equal.

3. Screen Printing Inks, Thinners and Toners

- a. Scotchlite Brand Process Colors Series 700 for use on Reflectorized Sheeting, or approved equal
- b. Scotchcal Brand Process Colors Series 3900 and 4100 for use on Non-Reflectorized Sheeting, or approved equal.

4. Panel sheeting (reflective or non-reflective) and screen printing usage shall be as shown on the Contract Drawings.
- C. Stiffeners, Brackets and Miscellaneous Hardware
1. Horizontal and vertical sign panel stiffeners (Z bars) and panel brackets shall be fabricated of aluminum alloy 6061-T6 conforming to ASTM B 221.
 2. Other miscellaneous aluminum hardware including bolts, nuts, washers, screws, rivets, pull-type lockbolts and serrated or knob stem blind rivets shall be fabricated to meet the requirements of ASTM B 209 and B 211 for Alloy 2024-T4. Component designated as Alloy 2024-T4 shall be given a chromated sealed anodic coating.
 3. High strength steel bolts, nuts and washers shall conform to ASTM A 325. High-strength bolts, nuts and washers shall be galvanized in accordance with ASTM A 153.
 4. Stainless steel nuts shall conform to ASTM A 194, Grade 8F, except that the nuts shall be lock nuts with semifinished hex nuts equivalent to American Standard Heavy Series. Stainless steel bolts, washers, and screws shall conform to ASTM A 193, austenitic steel.

2.02 CONSTRUCTION FEATURES

- A. Sign face text, symbol, and border layouts shall be in accordance with the Contract Drawings and conform to the following requirements of:
1. The AASHTO Manual for Signing and Pavement Marking of the National System for Interstate and Defense Highways.
 2. The FHWA Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).
 3. The FHWA Standard Alphabets for Highway Signs.
 4. The FHWA Standard Lower-case Alphabets for Highways.
- B. Sign characters shall be as shown on the Contract Drawings.
- C. Sign corner and border radii shall be approximately one-eighth (1/8) of the height of the sign but shall not exceed 12 inches; or as shown in the FHWA Standard Traffic Sign. Sign borders shall be of the same type character as the legend and shall be approximately the same width as the stroke width of the major lettering or the sign, or as shown in the FHWA Standard Traffic Sign.

2.03 FABRICATION

- A. All shearing, cutting and punching shall be performed prior to preparing the blanks for application of reflective material. All edges and corners shall be filed or ground smooth, leaving the entire sign blank free from sharp edges and burrs.

- B. The blanks shall be cleaned, degreased, and chromated or otherwise properly prepared in accordance with the sheeting manufacturer's recommendations. After treatment, clean cotton gloves shall be used in handling the sign blank until the reflective sheeting is applied. All fabrication except for cutting the lower ends of embedded posts shall be done in the shop. The aluminum panels shall be clean, dry, and free from oils, dust, grit, or any other contaminants that would adversely affect the adhesion of the Reflectorized and Non-Reflectorized sheeting.
- C. Welding of aluminum shall consist of inert gas shielded metal arc welding with consumable electrodes. All welding of aluminum shall be performed in the shop. No field welding or aluminum shall be permitted. All welders shall be qualified in accordance with the qualification procedures of AWS D 1.2.
- D. Necessary drilling of holes required for shop and field assembly after sheeting is applied shall be done such that the drill bit does not snag, rip, or damage the sheeting outside of the drill hole. Holes shall be deburred prior to assembly.
- E. Exposed bolt heads on the face of the assembly sign shall be touched up with enamel paint of the same color as the sheeting surrounding the bolts.

PART 3. EXECUTION

3.01 INSTALLATION

- A. Erect, cover, and remove signs as shown on the Contract Drawings.
- B. Side-of-road ground mounted signs shall be erected so that the sign face is truly vertical to the profile line and the intersection angle measured between the sign face and the centerline of the travel lane, which the sign serves shall be 93 degrees. Where lanes divide or curve, sign faces shall be oriented so as to be most effective both day and night, and to avoid the possibility of specular reflection.
- C. All sign panels shall be securely fastened to their supports with bolts, nuts and washers of aluminum (2024-T4 alloy), hot-dip galvanized steel, or stainless steel conforming to 2.01 D, and 1.03 of this Section.
- D. Horizontal and vertical sign clearances shall be as shown on the Contract Drawings.

3.02 FIELD INSPECTION

- A. Immediately prior to erection, all material will be inspected by the Engineer for damage that is attributable to improper transportation, handling or storage procedures.
- B. An inspection of each completely erected sign shall be made in the daylight for proper location, line and grade of signs, vertical post alignment, condition, appearance and visibility. The completely erected signs may also be inspected at night by the Engineer.
- C. As the Work progresses, the location, position and condition of all signs shall be monitored by the Contractor in accordance with the requirements of "Maintenance of Traffic and Work Area Protection" of Division 1 - GENERAL PROVISIONS.
- D. Any deviation from the above-indicated procedure shall be approved by the Engineer.

END OF SECTION

SECTION 02851

ALUMINUM SIGN PANELS

APPENDIX "A"

SUBMITTALS

- A. Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 – GENERAL PROVISIONS:
 - 1. Detailed sign face layout for all sign panels showing letter height, width, brush stroke, spacing between letters, words, symbols and lines, border width, symbols details, and overall dimensions of the sign panels.
 - 2. Shop drawings of sign panels showing the sizes of the members and their connection details including joining and anchorage, stiffening, and bracing.
 - 3. Catalog cuts of all the materials to be used for sign faces.
- B. Prior to fabrication, submit computations for the design of the sign panels and supports, as required in 1.03 of this Section, signed by a Professional Engineer licensed to practice in the State where the Work is to be performed.

END OF APPENDIX "A"

DIVISION 2
SECTION 02920
SCREENED TOPSOIL

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for subgrade preparation for and the supplying and spreading of screened topsoil.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Base standards for weather conditions on reports on the weather radio band of the National Oceanic and Atmospheric Administration, Washington Science Center, Rockville, MD 20852, and on its publication entitled "Local Climatological Data With Comparative Data", published 12 times a year as a monthly and once a year as an annual.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Perform operations only during the following weather conditions:
 - 1. There shall be no frost in the ground and the topsoil temperature shall be above 32 degrees F.
 - 2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.

1.04 QUALITY ASSURANCE

- A. Qualifications
 - 1. The laboratory performing the laboratory testing of this Section shall be a certified testing laboratory in either the State of New Jersey or New York and shall have experience in top soil testing and shall perform all tests as specified in 2.01 and as outlined on Appendix B of this Section.
 - 2. The entity and its workers performing the Work of this Section shall be experienced in landscaping and have been engaged in work of a complexity similar to that required under this Section for a period of at least three years.
- B. Test Requirements
 - 1. Prior to delivery to the construction site, submit a representative sample of screened topsoil for analysis to a certified independent laboratory to ensure conformance to requirements specified in 2.01. No substitutions for testing parameters shall be permitted. Submit test results to the Engineer of Materials, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, New Jersey 07310-1397, in accordance to 2.01 and Appendix B of this section.

2. Any analysis, where by the date of testing by the certified independent laboratory is in excess of one month prior to the actual date of delivery to the construction site shall not be accepted.
3. Prior to construction site delivery, advise the Engineer of Materials of the location of the source of the screened topsoil and submit a two pound sample to the Engineer of Materials.
4. Do not deliver screened topsoil to the construction site until the Engineer of Materials has approved the submittal in writing.
5. After delivery of screened topsoil to the construction site, submit a representative sample for analysis to a certified, independent laboratory to ensure conformance to requirements specified in 2.01. Submit test results to the Engineer of Materials for approval. In the event that the delivered sample is not consistent with the sample approved prior to delivery, remove the delivered screened topsoil from the construction site and replace it with material that does conform, all at the expense of the Contractor.

C. Certification

Prior to delivery of screened topsoil to the construction site, furnish the Engineer of Materials with a written statement from the topsoil supplier giving depth of stripped topsoil and certification that topsoil has never been treated with herbicides.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver the screened topsoil to the construction site until the Engineer of Materials has approved in writing the test results for the representative sample.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Screened Topsoil

Fertile, friable, natural loam topsoil, free of subsoil, taken from a depth of no more than 1 foot, or less if subsoil is encountered, supplier-certified as having been obtained from an area which has never been treated with herbicide and conforming to the following:

1. Screened topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, glass or any other undesirable material.
2. Screened topsoil shall contain a minimum of 5 percent organic matter and a maximum of 7 percent organic matter as determined by loss on ignition of moisture-free samples.
3. pH range shall be 5.0 to 7.0, inclusive.

4. The range of soluble salts shall be equal to or less than 500 micromhos per centimeter.

5. Screened topsoil shall be graded as follows:

PASSING	RETAINED ON	PERCENTAGE
1" screen		100%
1" screen	2 mm (No. 10) Sieve	Not more than 40%*

*The portion retained shall be no larger than 3/8" in size and composed of homogeneous clods and/or stones.

6. The portion of screened topsoil passing the 2 mm sieve, based on the mechanical analysis of the soil as determined by the Bouyoucos Hydrometer method, shall consist of the following, based on dry weight of sample:

- a. Sand 40% - 60%, inclusive;
- b. Silt 30% - 40%, inclusive;
- c. Clay 10% - 20%, inclusive.

PART 3. EXECUTION

3.01 PREPARATION

A. Areas of Changed Grades

Verify that areas of changed grades shown on the Contract Drawing have a smooth, uniform surface.

- 1. Loosen subgrade to a minimum four-inch depth.
- 2. Remove stones over two inches in any dimension, roots, rubbish and other extraneous materials. Dispose of such material away from Authority property.
- 3. Rake and drag to remove high areas and fill depressions.
- 4. Limit preparation to areas which will be planted promptly after preparation.

B. Unaltered Areas

Prepare subgrade areas shown on the Contract Drawings as unaltered or undisturbed by excavation, grading or stripping operations as follows:

- 1. Remove existing vegetation and turf. Dispose of such materials away from Authority property.
- 2. Till to a depth of not less than six inches to produce a homogenous mixture of fine texture, free of clods, stones, roots and other extraneous materials. Dispose of such materials away from Authority property.
- 3. Rake and drag to remove high areas and fill depressions.
- 4. Limit preparation to areas which will be planted promptly after preparation.

3.02 APPLICATION

- A. Place and spread screened topsoil over prepared subgrade in a uniform layer of such thickness that after compaction it shall be of the thickness and shall meet grades and elevations, all as shown on the Contract Drawings.
- B. After spreading, rake and dispose of stiff clods, hard lumps, rocks, roots, litter and other extraneous materials away from Authority property.
- C. Fine grade to smooth, even surface.

END OF SECTION

SECTION 02920
SCREENED TOPSOIL
APPENDIX "A"
SUBMITTALS

Submit the following in accordance with the requirements of "Inspections and Rejections" of Division 1 - GENERAL PROVISION:

- A. Qualifications
 - 1. Submit qualifications of the entity performing the laboratory testing of this Section to the Engineer in accordance with 1.04 A. Include the name, address and telephone number of the Testing laboratory performing the Work of this Section.
 - 2. Submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.04 A. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.
- B. Products
 - 1. Submit in accordance with the requirements of "Inspections and Rejections" of Division 1 -GENERAL PROVISIONS, a complete "Product List", listing the product to be used under this Section.
 - 2. Submit the location of the source of the screened topsoil and a two pound representative sample of screened topsoil (as many as required) to the Engineer of Materials in accordance with 1.04 B.
- C. Test Reports

Submit laboratory analyses of screened topsoil to the Engineer of Materials Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397, in accordance to 1.04 B and Appendix B.
- D. Certification

Submit to the Engineer of Materials certification required by 1.04 C.

END OF APPENDIX "A"

SECTION 02920

SCREENED TOPSOIL

APPENDIX "B"

The following is a sample testing form to be used by the Contractor:

Material: Screened Topsoil

Specification: Section 02920 - Screened Topsoil

Source of Sample:

Contract or P.O.#:

Quality Characteristics:	Spec.		
Visual Examination:	No hard clods, etc.		
Organic Matter: (Loss of Ignition)	Min. 5% Max. 7%		
Soluble Salts: - Micromhos/Cm - PPM	Max. 500 Max. 300		
pH:	5.0 - 7.0		
Mechanical Analysis: Passing - 1"	100%		
Passing - 1" Retain 2 mm (#10)	Max. 40% The portion retained shall be no larger than 3/8" in size and be composed of homogeneous clods and/or stones		
Passing 2mm (#10) Retain Pan	Min. 60%		
Bouyoucous Hydrometer Test of Material:			
Passing 2 mm (#10) Percent - Sand	40%-60%		
Percent - Silt	30%-40%		
Percent - Clay	10% - 20%		

END OF APPENDIX "B"

DIVISION 2

SECTION 02930

SEEDING

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for seeding and the application of flexible growth medium and dust retardant.

1.02 DEFINITIONS

- A. The term "label" refers to statements written or imprinted on the product and seed container itself or on a tag or label securely attached to it as specified in the label requirements for product and grass seed in the state of New Jersey (or New York).
- B. The term "mixture" means seeds consisting of more than one kind or variety present to the extent of 5% or more of the total weight of the mixture.

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Use product testing methods adopted and published by the Association of Official Analytical Chemists, 1111 19th Street Suite 210, Arlington, VA 22209.
- B. Fertilizers shall conform to current standards as established by the Association of American Plant Food Control Officials, Inc., Division of Regulatory Services, University of Kentucky, Lexington, KY 40546.
- C. Base standards for weather conditions on reports on the weather radio band of the National Oceanic and Atmospheric Administration, Washington Science Center, Rockville, MD 20852, and on its publication entitled "Local Climatological Data With Comparative Data", published 12 times a year as a monthly and once a year as an annual.
- D. Grass seed shall have attached thereto or in a conspicuous place on the exterior of the container a plainly printed label in the English language, in legible type specifying:
 - 1. The name and address of the person who labeled said seed, or who sells, offers for sale within this State.
 - 2. The commonly accepted name of the kind or kind and variety, or both, of each agricultural seed component in excess of 5.0% of the whole and the percentage by weight of pure seed of each.
 - 3. Percentage by weight of all agricultural seed except those required to be named on the label and which shall be designated "crop seed". If the mixture contains no other crop seed, the following statement may be used on the label "Contains No Other Crop Seed".

4. Percentage by weight of all weed seeds. Maximum weed seed content shall not exceed 1% by weight.
 5. Lot number or other lot identification.
 6. The percentage of germination, exclusive of hard seed; hard seed, if present, and the calendar month and year that the germination test was completed. If a single test date is used, it shall be that of the oldest tested component.
 7. Any bag of seed with a seed label identifying that the germination test was completed nine months prior to the time the seed was delivered to the construction site shall be rejected by the Engineer and the Contractor shall immediately remove it from the construction site and replace with seed that complies with these specifications.
- E. Pest control for turfgrass shall be in accordance with the "2006 Pest Management Guidelines for Commercial Turfgrass", published by Cornell University, Ithaca, NY. This publication is available from The Resource Center, Cornell University, Ithaca, NY 14853. Telephone (607) 255-9946.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Perform operations only during the following weather conditions:
1. There shall be no frost in the ground and the soil temperature at each planting area shall be above 32 degrees F.
 2. There shall be no form of precipitation falling or forecast to fall within the next two hours. Following a period of precipitation, resume operations only after the soil has drained.
 3. Apply chemicals only when wind velocity is below 5 mph, drift hazard is negligible, the air temperature is above 40 degrees F and below 70 degrees F.
 4. Do not perform any product application if precipitation has fallen within two hours prior to the planned application time or is forecast during the next 12-hour period.
- B. Seeding Calendar Limitations
Seeding shall be performed as per Appendix B of this Section.

1.05 QUALITY ASSURANCE

- A. Qualifications
1. The entity and its workers performing the Work of this Section shall be experienced in landscaping and have been engaged in work of a complexity similar to that required under this Section for a period of at least three years.
 2. The entity performing pesticide applications shall have a valid license as a commercial applicator by the state in which the Work is being performed.
 3. The entity performing the Work shall have a Brillion Turfmaker II Seeder, Hydromulcher and a water truck with a minimum capacity of 2500 gallons.
 4. The entity performing the Work shall submit a list of contracts where work of a similar scope using similar construction methods, products and equipment were performed in the last three years.

B. General Requirements for Operations and Products

1. The Contractor shall submit to the Engineer a list of Products listed in PART 2 – PRODUCTS including manufacturer’s catalog cuts, product labels and installation instructions which shall be approved in writing by the Engineer prior to delivery to the construction site.
2. After delivery to the construction site, the Engineer may, at his discretion, take for analysis representative samples of any item listed in PART 2 - PRODUCTS.
3. Seed
 - a. Provide all the information specified in 1.03 D 1 – 6 to the Engineer for approval prior to delivery to the construction site.
4. Pesticide
 - a. Select to act on identified pest and use the manufacturer's recommended formula, application rate and safety instructions at all times.
 - b. Keep all records, which are or may be required by Federal, State or Local laws. Submit copies of these records to the Engineer within 5 days when so requested.
 - c. Not less than forty-eight hours prior to a proposed spray operation, submit to the Engineer for his approval, a tabulated list indicating the target to be treated, the chemical trade name and quantity of mix being prepared.

C. Reseeding

1. Replace unsatisfactory seeded areas for a period of six months from the date on which the Certificate of Final Completion is issued. Reseed all areas, which are dead or have weed and/or pest infestations.
2. Perform replacement of unsatisfactory seeded areas with products and by operations, which comply with all requirements of these Specifications, and on such date(s) as ordered by the Engineer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all products in the manufacturer's unopened containers bearing the trade name, manufacturer's name, weight and analysis.
- B. Store products away from moisture and extreme temperatures and in such a manner that their effectiveness will not be impaired.
- C. Formulation, Application, and Equipment
 1. Use the manufacturer's recommended formula, application rate and safety instructions at all times.
 2. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate only in an area designated by the Engineer.
 3. Dispose of spilled materials and surplus products away from Authority property.

1.07 SUBMITTALS

See Appendix "A" for submittals requirements.

PART 2. PRODUCTS

2.01 MATERIALS

Ex. 4

Ex. 4

PART 3. EXECUTION

3.01 PREPARATION

A. Areas of Changed Grades

Verify that areas of changed grades which are to be seeded as shown on the Contract Drawings, are in conformance with the grading plans and have a smooth, uniform surface. Loosen subgrade to a minimum six (6) inch depth, remove stones over two inches in any dimension and roots, rubbish and other extraneous materials. Dispose of such materials away from Authority property. Limit preparation to areas, which will be seeded promptly after preparation.

B. Unaltered Areas

Where seeding is to be performed within areas that have not been altered or disturbed by excavation, grading or stripping operations, as shown on the Contract Drawings, prepare subgrade as follows:

1. Remove existing vegetation and turf. Where applicable, apply glyphosate as per manufacturers instructions, at least ten days prior to seeding. Dispose of such materials away from Authority property.
2. Till to a depth of not less than six inches to produce a homogenous mixture of fine texture, free of clods, stones, roots and other extraneous materials. Dispose of such materials away from Authority property.
3. Follow the requirements of Section 02960 – Adding Compost.
4. Rake and drag to remove high areas and fill depressions.
5. Limit preparation to areas, which will be seeded promptly after preparation.

3.02 INSTALLATION

Ex. 4

Ex. 4

02930 - 7

Ex. 4

END OF SECTION

02930 - 8

SECTION 02930

SEEDING

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of 'Inspections and Rejections' of Division 1 - General Provisions.

- A. Qualifications
 - 1. Submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.04 A. Include names of clients, telephone numbers, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section and evidence of valid license of the pesticide applicator.
 - 2. Submit list of equipment owned by the entity.
 - 3. Submit list of contracts or similar scope including contracts using similar construction methods, products and equipment.

- B. Products
 - 1. Submit in accordance with the requirements of "Inspections and Rejections" of Division 1 -GENERAL PROVISIONS, a complete "Product List", listing all products to be used under this Section.
 - 2. Submit for approval to the Engineer the seed label in accordance with 1.03D, 1 – 6.
 - 3. Submit for approval by the Engineer, that the entity performing the seeding has a Brillion Turfmaker II Seeder, hydromulcher and a water truck with a minimum capacity of 2500 gallons.
 - 4. Submit certification from the manufacturer for Flexible Growth Medium that the installation meets or exceeds the required product preparation and application rate.

- C. Submit to the Engineer one copy of U.S. Department of Labor Material Safety Data Sheets (MSDS) and product labels for all hazardous chemicals utilized during the Work of this Section.

END OF APPENDIX "A"

APPENDIX "B"

SECTION 02930

SEEDING

A. SEED MIX C

Permanent Seeding for Soil Erosion and Sedimentation Control - Screened Topsoil

1. Seed Mixture shall be as distributed by Lesco, Inc., Mountainside, NJ 07092 (908) 317-0509, National Seed, New Brunswick, NJ 08901 (800) 828-5856, Jonathan Green, Farmingdale, NJ, (732) 938-7007 or approved equal and as follows:

Kind of Seed	% Mix:	% Min. Purity:	% Min. Germ:	% Min. Endophyte Infection:
Bravo, Stetson or Titan Tall Fescue	85	97	90	>90
Alkali Grass	15	99	85	

2. Seeding rate shall be 5 pounds per 1000 square feet.
3. Seeding shall be performed only during the following periods:
April 1 - May 31 or
August 16 - October 15
4. Provide full care upon completion of seeding. Full care shall include irrigation when weekly rainfall does not exceed one (1) inch of rainfall per week at the construction site and a weed-free installation at all times and as per Section 02971 – Maintenance of Permanent Planting Appendix D.
5. Successful seeding shall be defined as 85% survival of the Seed Mix at the end of the Full care period as determined solely by the Engineer.

END OF APPENDIX "B"

DIVISION 2

SECTION 02940

**SHRUBS
IN GROUND
(NEW YORK)**

PART 1. GENERAL.

1.01 SUMMARY

This Section specifies requirements for shrubs (hereinafter sometimes referred to as "plants") using topsoil mix.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

- A. For botanical names of trees, shrubs and ground cover, refer to the names listed in "Hortus III: A Concise Dictionary of Plants Cultivated in the United States and Canada" published by MacMillan Publishing Co., New York, NY 10022.
- B. To determine caliper, size, height, width and root spread of plants, use the "American Standard for Nursery Stock" (ANSI) ANSI Z 60.1, published by the American Association of Nurserymen, 1250 "I" Street, NW, Suite 500, Washington, D.C. 20005.

Ex. 4

- D. Pruning methods shall be in accordance with the 'Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance, - Standard Practices,' ANSI - A 300, as published by National Arborist Association, The Meeting Place Mall, Route 101, P.O. Box 1094, Amherst, NH 3031-1094.
- E. Base standards for weather conditions on reports on the weather radio band of the National Oceanic and Atmospheric Administration, Washington Science Center, Rockville, MD 20852, and on its publication entitled "Local Climatological Data With Comparative Data", published 12 times a year as a monthly and once a year as an annual.
- F. Mulch shall conform to current standards established by National Bark Producers Association, 13542 Union Village Circle, Clifton, VA 22024.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Perform operations only during the following weather conditions:
 - 1. There shall be no frost in the ground and the soil and backfill materials temperature at each planting area shall be above 32 degrees Fahrenheit.

2. Perform planting and soil related operations only when no form of precipitation is falling or forecast to fall within the next 2 hours. Following a period of precipitation, resume operations only after the soil has drained.

B. Planting Calendar Limitations

Planting shall be performed only during the following periods:

Deciduous Plants:	March 1 - May 1 and October 15 - December 1
Evergreen Plants:	April 1 - May 15 and September 1 - October 15
Perennials:	April 1 - June 1 and August 15 - September 30

1.04 QUALITY ASSURANCE

A. Qualifications

1. The entity and its workers performing the Work of this Section shall be experienced in landscaping and have been engaged in work of a complexity similar to that required under this Section for a period of at least five years.
2. The entity performing pesticide applications shall be certified in accordance with 6 NYCRR Part 326.2 Restricted Pesticides, under New York State Department of Environmental Conservation (NYS DEC) Division of Solid and Hazardous Materials.
3. The entity performing pruning, planting, inspections and maintenance of this Section shall be a current member of the International Society of Arboriculture (ISA) and State Chapter where they are residing.
4. The ISA Certified Arborist shall possess a minimum of the following:
 - a. Associate's Degree in Horticulture from a recognized college.
 - b. A total of five (5) years of work experience.
 - c. A current member of the International Society of Arboriculture (ISA) and State Chapter where they are residing.
 - d. Qualified by the International Society of Arboriculture during the year(s) this individual is working on this Contract.
 - e. Quality Assurance.

- (1) Qualifications: The entity performing the Work of this Contract shall utilize the services of an ISA Certified Arborist who shall act as superintendent for the installation and all maintenance of plantings for this Contract and shall be on site at all times including but not limited to: plant material deliveries, maintenance of plants at the site after delivery and prior to installation, verifying the trunk flare and the presence of girdling roots on all plant material prior to planting, planting, mulching, pest management, application of bio-stimulants to all plant materials, and notifying the Engineer of any discrepancies or non-compliance to the Contract Specifications and Drawings.

5. The laboratory performing the laboratory testing of this Section shall be a certified testing laboratory in either the State of New Jersey or New York and shall have experience in top soil testing and shall perform all tests as specified in 2.01 A, 2.01 B and as outlined in Appendix B and Appendix C of this Section.

B. General Requirements for Operations and Products

1. Products listed in PART 2 - PRODUCTS shall be approved in writing by the Engineer prior to delivery to the construction site.
2. After delivery to the construction site, the Engineer, at his discretion, may take representative samples of any item listed in Part 2 – Products PRODUCTS for analysis. Products which fail to comply with these specifications shall be immediately removed from the construction site and replaced with products which comply. No Work will be permitted until the non-complying product is removed from the construction site and replaced with one which complies with these Specifications.
3. The Contractor shall obtain, retain, and make available for on-site inspection at all times, U.S. Department of Labor, Material Safety Data Sheets for all toxic substances and hazardous materials to be used in this Contract. One copy of said sheets shall be given to the Engineer for review and approval prior to introduction of material to the construction site.
4. All plant materials shall be grown in nurseries located within the L.M.I.S. (Landscape Materials Information Service) region. The L.M.I.S. region consists of the following states: Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin.
5. All plant material shall be 'Nursery Grown.' Nursery Grown shall mean that the fields, where the plants are to be obtained, are from active and working nurseries where the following horticultural practices have been aggressively performed:
 - a. IPM Program - Integrated Pest Management Program
 - b. Cultivation - Including weed suppression
 - c. Fertilization
 - d. Pruning
 - e. IrrigationAny plant material from a field where the above horticultural practices have not been consistently practiced in the last twelve (12) months shall be rejected.
6. Pesticide
 - a. Select to act on identified pest and use the manufacturer's recommended formula, application rate and safety instructions at all times.
 - b. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate at the construction site only in a work area designated by the Engineer.
 - c. Dispose of spills and surplus products in a legal manner.

- d. Keep all records that are or may be required by Federal, State or Local laws. Submit copies of these records to the Engineer within 5 days when so requested.
- e. Not less than forty-eight hours prior to a proposed spray operation, submit to the Engineer for his approval, a tabulated list indicating the target to be treated, the chemical trade name and quantity of mix being prepared.
- f. All pesticide/herbicide applications shall be subject to inspections by the Engineer. The Engineer may at any time, suspend and reschedule a pesticide/herbicide application when, in his determination, the weather conditions are unfavorable, facility operations would be hampered or the Contractor's methods or materials fail to comply with these Specifications.

7. Asian Longhorned Beetle

- a. The Contractor shall be aware of the possibility of encountering the Asian Longhorned Beetle. If beetles are observed or suspected of being present, the Contractor shall immediately notify the Engineer and is requested to contact : N.Y.S. Department of Agriculture and Markets Division of Plant Industry, 4 Stewart Avenue, West Hampton Beach, NY 11878 (631) 288-1751 or (800) 554-4501 ext. 72087.

C. Specific Requirements for Operations and Products

1. Shrubs

- a. Coordinate all arrangements and accompany the Engineer on all inspections of plants at the nursery. Provide a minimum of 48 hours prior notice to the Engineer. Do not dig or remove any plant prior to inspection by the Engineer.
- b. All plants inspected by the Engineer at the nursery will be sealed with Authority seals, or at the discretion of the Engineer, typical representative numbers samples of such plants may be sealed.
- c. Deliver to the construction site plants which were sealed and whose seal numbers conform to the Engineer's nursery inspection records.
- d. Unsealed plants that, in the sole opinion of the Engineer, are not equal in quality to the sealed samples will be rejected.
- e. Each shipment shall be certified by Federal and State authorities to be free of insects and diseases. Inspection certificates to this effect that would be required by law, if the Authority were a private corporation, shall accompany each shipment invoice and shall be delivered to the Engineer.
- f. All plants, sealed or unsealed, shall be subject to tailgate inspection upon arrival at the construction site. All plants failing to meet the requirements of this Section will be rejected by the Engineer. Such rejected plants shall be removed from the construction site and replaced at no additional cost to the Authority.
- g. At the discretion of the Engineer, typical representative numbers samples of plants may be removed from their growing containers for inspection.

2. Drive/Walk Through Site Inspections

- a. During the landscape installation period (prior to rendition of a Certificate of Final Completion), the Contractor's ISA Certified Arborist (NY) and the Contractor shall perform weekly drive and walk through site inspections of the construction site, accompanied by the Engineer to address the following:
 - (1) Identify the status/progress of Work.
 - (2) Issues or problems requiring immediate action by the Contractor.
 - (3) Items affecting the Contractor's schedule for completion of Work.
- b. Within 48 hours of each site inspection, the Contractor's ISA Certified Arborist (NY) shall submit a report stating the following:
 - (1) Site Inspection Attendees.
 - (2) Agenda and items discussed.
 - (3) Description of the issues/problems.
 - (4) Solutions to be implemented by the Contractor with a schedule designating dates when the Contractor will implement said Work.

3. Screened Topsoil

- a. Prior to delivery to the construction site, submit a representative sample of screened topsoil for analysis to a certified independent laboratory to ensure conformance to requirements specified in 2.01 A. No substitution for testing parameters shall be permitted. Submit test results to the Engineer of Materials, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397, in accordance to 2.01 A and Appendix B of this Section.
- b. Any analysis, where by the date of testing by the certified independent laboratory is in excess of one month prior to the actual date of delivery to the construction site shall not be accepted.
- c. Prior to delivery to the construction site, advise the Engineer of Materials of the location of the source of the screened topsoil and submit a two pound sample to the Engineer of Materials.
- d. Do not deliver screened topsoil to the construction site until the Engineer of Materials has approved the submittal in writing.
- e. After delivery of screened topsoil to the construction site, submit a representative sample for analysis to a certified, independent laboratory to ensure conformance to requirements specified in 2.01.A. Submit test results to the Engineer of Materials for approval. In the event that the delivered sample is not consistent with the sample approved prior to delivery, remove the delivered screened topsoil from the construction site and replace it with material that does conform. All at the expense of the Contractor.

4. Topsoil Mix

- a. Do not combine topsoil mix components until components have been approved in writing by the Engineer of Materials.

- b. After topsoil mixing operations have been completed and prior to delivery to the construction site, submit a representative sample of the topsoil mix to a certified independent laboratory to ensure conformance to requirements specified in 2.01 B. No substitutions for testing parameters shall be permitted. Submit test results to the Engineer of Materials, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397, in accordance to 2.01 B and Appendix C of this Section.
- c. Any analysis, where by the date of testing by the certified independent laboratory is in excess of one month prior to the actual date of delivery to the construction site shall not be accepted.
- d. Prior to delivery to the construction site, advise the Engineer of Materials of the location of the source of topsoil mix and submit a two pound sample to the Engineer of Materials.
- e. Do not deliver topsoil mix to the construction site until the Engineer of Materials has approved the submittal in writing.
- f. After delivery of topsoil mix to the construction site, submit a representative sample for analysis to a certified, independent laboratory to ensure conformance to requirements specified in 2.01 B. Submit test results to the Engineer of Materials for approval. In the event that the delivered sample is not consistent with the sample approved prior to delivery, remove the delivered topsoil mix from the construction site and replace it with material that does conform. All at the expense of the Contractor.

D. Certification

Prior to delivery of screened topsoil and/or topsoil mix to the construction site, furnish the Engineer of Materials with a written statement from the topsoil supplier giving the depth of stripped topsoil and certification that topsoil has never been treated with herbicides.

E. Replacement

- 1. Replace unsatisfactory furnished and installed trees, shrubs and ground cover which, in the sole opinion of the Engineer, die or otherwise become unsatisfactory.
- 2. Replace unsatisfactory plants with products and by operations that comply with all requirements of these Specifications, and on such date(s) as ordered by the Engineer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver all products in the manufacturer's unopened containers bearing the trade name, manufacturer's name, weight and analysis.
- B. Store products away from moisture and extreme temperatures and in such a manner that their effectiveness will not be impaired.
- C. Formulation, Application, and Equipment
 - 1. Use the manufacturer's recommended formula, application rate and safety instructions at all times.

2. Mix and agitate products and use equipment according to the manufacturer's directions. Mix and agitate only in an area designated by the Engineer.
3. Dispose of spilled materials and surplus products in a legal manner.

D. Specific Requirements

1. Topsoil and Topsoil Mix

Conform to requirements of 1.04 C.3 and 1.04 C.4.

2. Shrubs

Conform to requirements of 1.04 C.1 and as follows:

- a. Transport plants in covered trucks only. Plants transported on open trucks from the nursery will be rejected by the Engineer.
- b. Handle balled and burlapped trees on the ground using the method shown on the Contract Drawings.
- c. Carry plants by the ball or container and not by stems.
- d. Do not drop plants.
- e. Protect all delivered plants from drying out by providing shade and water. Do not allow plants to become dry or wilted.
- f. After plants have been set on the ground, apply water as needed, and cover balls with plastic sheeting.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MATERIALS

A. Screened Topsoil

Fertile, friable, natural loam topsoil, free of subsoil, taken from a depth of no more than 1 foot, or less if subsoil is encountered, supplier-certified as having been obtained from an area which has never been treated with herbicide and conforming to the following:

1. Screened topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, glass or any other undesirable material.
2. Screened topsoil shall contain a minimum of 5 percent organic matter and maximum of 7 percent organic matter as determined by loss of ignition of moisture-free samples.
3. pH range shall be 5.0 to 7.0, inclusive.
4. The range of soluble salts shall be equal to or less than 500 micromhos per centimeter.

5. Screened topsoil shall be graded as follows:

<u>Passing</u>	<u>Retained On</u>	<u>Percentage</u>
1" screen		100%
1" screen	2mm (No.10) Sieve	Not more than 40%*

*The portion retained shall be no larger than 3/8" in size and composed of homogeneous clods and/or stones.

6. The portion of screened topsoil passing the 2mm sieve, based on the mechanical analysis of the soil as determined by the Buoyoucou Hydrometer method, shall consist of the following based on dry weight of sample:

- a. Sand 40% - 60%, inclusive
- b. Silt 30% - 40%, inclusive
- c. Clay 10% - 20%, inclusive

B. Topsoil Mixes

Composed of screened topsoil, various soil amendments and nutrient control materials conforming to the following:

- 1. Topsoil mix shall contain a minimum of 7% and a maximum of 15% organic matter as determined by loss on ignition of moisture free samples, and the pH range of 5.0 to 7.0, inclusive, with 60% passing a 1" screen.
- 2. The range of soluble salts shall be equal to or less than 1250 micromhos per centimeter.
- 3. Each 5 cubic yards of topsoil mix shall contain:
 - a. 3 3/4 cubic yards of screened topsoil;
 - b. 1 1/4 cubic yards of compost
 - c. 17 lbs. of Hydrogel
- 4. Topsoil mix shall be loose, friable and not frozen or saturated at the time of mixing.

Ex. 4

Ex. 4

D. Weed Control

1. Pre-emergent Herbicide

"Treflan 5G" as manufactured by Elanco Products Co., Indianapolis, IN 46285 or approved equal.

2. Post-emergent Herbicide/Glyphosate.

"Roundup Pro" as manufactured by Monsanto, St. Louis, MO 63167 or approved equal.

E. Hydrogel

"Viterra Gelscape" shall be as manufactured by Amereq. Inc., New City, N.Y. 10956 or an approved equal and shall conform to the following:

99.5% Potassium Propenoate - Propenamide Copolymer
0.5% Inert Ingredients

F. Nursery Stock

1. Furnish shrubs in the quantity, species, and meeting the size, height and width requirements as shown on the Contract Drawings.

2. Furnished plants shall conform to the following:

a. Measure plant size as it stands in its natural position.

b. Conform to shrub sizes, heights and widths as shown on Contract Drawings.

c. For container grown plants, if used, conform to the dimensions for height, width, number of canes and container size as shown on the Contract Drawings.

d. Plants furnished shall be an average of the minimum and maximum sizes shown on the Contract Drawings.

e. Do not use large plants cut back to sizes specified.

f. Plants shall be sound, healthy, vigorous growing specimens.

g. Plants shall exhibit uniform growth and a form characteristic of their species.

h. With respect to their canes, trunks, stems, and branches, shrubs shall:

(1) Have normal, well-developed canes and branches.

(2) Be free from any infestations or defects, including but not limited to decay, disfiguring, knots, frost and sun-scald injuries, abrasions of the bark, girdled trunk or branches, head malformed from overcrowding, damage due to machinery operation, improper pruning and blasted buds.

- i. Plants' foliage shall be free from chlorosis, yellowing, blemishes or damaged parts.
- j. Plants shall have vigorous, fibrous root systems.
- k. Container grown plants, if used, shall have been grown in the container long enough to develop new fibrous roots so that the root mass will retain its shape and hold together when removed from the container. Do not use recently potted or root-bound plants.

(2) Bareroot plants shall be prohibited.

3. Instructions for digging and balling plants are as follows:

- a. Dig immediately before moving.
- b. Dig to retain as many fibrous roots as possible.
- c. Do not use loose, broken or manufactured balls.
- d. Wrap and tie balled and burlapped plants with untreated burlap and sisal or jute twine. Do not ball and tie with treated (or "no rot") material.

G. Soil pH Adjustment

1. Iron Sulphate

Commercial iron sulphate as manufactured by Faesy & Besthuff, Inc., 143 River Road, Edgewater, NJ 07020, or approved equal.

2. Granulated Dolomitic Limestone

As manufactured by Southdown, Inc., Lee, MA 01238, or approved equal conforming to the following:

- a. Total carbonates not less than 86% of 48.2% calcium oxide equivalent. For purposes of calculation, total carbonates shall be considered as calcium oxide. Magnesium oxide content shall be between 15-22%.
- b. A dust-free, homogenous, granular material.

Ex. 4

Ex. 4

Ex. 4

PART 3. EXECUTION

3.01 EXAMINATION

- A. Verify that final grades have been established prior to start of planting operations.
- B. Inspect shrubs for injury, wilting, pest infestation, location of the root flare in comparison to top of root ball or container, girdling roots and improper pruning. Do not plant until deficiencies are corrected, or plants are replaced.

3.02 PREPARATION

- A. Protection Measures

1. No vehicles or mechanized equipment, may be used within the Primary Root Zone (PRZ) areas, as shown on the Contract Drawings during landscape operations unless approved by the Engineer.
 2. Demarcate PRZ area(s) with Plastic Safety Fence and Posts as shown on the Contract Drawings.
- B. All planting areas as shown on Contract Drawings.
- C. Prior to planting operations, stake shrub locations and outline planting beds and layout ground cover plants for approval by the Engineer.
- D. Do not begin excavation until locations are approved by the Engineer.

3.03 INSTALLATION

A. Excavation of Plant Pits

1. For balled and burlapped plants (B&B) and container grown plants, excavate soil from plant pits to conform to the following:

<u>Size of Ball or Container</u>	<u>Diameter of Hole</u>	<u>Depth Below Bottom of Ball or Container</u>
Less than 4 feet diameter	2 x diameter of ball or container	6 inches
4 to 5 feet diameter	1-3/4 x diameter of ball or container	8 inches
Over 5 feet diameter	1-1/2 x diameter of ball or container	8 inches

2. Prior to planting, excavated plant pits shall be approved by the Engineer.
3. At no time shall excavated material be stockpiled on site. Remove excavated material immediately from the construction site and dispose of in a legal manner.

B. Planting Operations

Plant only in the presence of the Engineer, and as follows:

1. Planting B & B and Container Grown Plants
 - a. Handle plants so that the root ball will not be loosened. Do not handle shrubs by their stems when transplanting or shifting plants.
 - b. Set plants plumb.
 - c. Set plant material so that root ball is level with the finished grade after settlement.
 - d. For container grown plants, carefully remove the container and cut edge-roots with knife on three sides, taking care not to damage the roots.

- e. For B & B plants, after the topsoil mix has been thoroughly firmed under and around the ball, cut and remove burlap away from the collar and from the upper half of the ball and adjust the remaining burlap to prevent the formation of air pockets. Remove wire baskets from root balls entirely. Where directed by the Engineer, remove burlap entirely. Prune and remove girdling roots and perform all necessary tree pruning under the supervision of the Contractor's ISA Certified Arborist and the Engineer.
- f. Avoid bruising or breaking roots when tamping soil.
- g. Firm topsoil mix at 6- to 8-inch intervals and thoroughly settle it with water.
- i. After planting, thoroughly saturate the soil around each plant with water.

Ex. 4

2. Install Erosion Control Mat after preparing the area, but prior to planting operations.
3. Secure Erosion Control Mat at the top of the slope by toeing mat in six (6) inches deep. Reinforce with a row of staples as per the manufacturer's directions and cover with soil.
4. Roll Erosion Control Mat down the slope.
5. Place staples 18" – 24" apart through to secure the matting to the ground. All staples must be driven flush to the soil surface.
6. Overlap edges of adjoining mat 6"-8". At the end of each roll, fold back 6"-8" of the matting and overlap the start of the next roll. Securely staple the two layers to the soil surface.
7. Upon completion of the installation of Erosion Control Mat, make an opening in the matting by cutting an 'X' and then planting shrubs.
8. Upon completion of planting in areas using Erosion Control Mat, remove all excess soil from planting pit excavations from the top surface of the Erosion Control Mat. Dispose of excavated materials away from the Work Area in a legal manner. Securely staple all Erosion Control Mat where cut at the plant opening, cover and staple any exposed soil surface with Erosion Control Mat.
9. Correct any evidence of bunching of Erosion Control Mat to provide a smooth, consistent, finish elevation.
10. Upon completion of planting operations, apply a 2" maximum depth of shredded hardwood bark mulch.

C. Edging of Planting Areas

1. Establish a neat edge where planting areas meet turf areas as shown on the Contract Drawings.
2. Edge with a spade or edging tool immediately after planting and seeding is completed.

D. Mulching

1. Cultivate and rake planted areas and leave in an orderly condition.
2. On level ground or slight slopes, leave a shallow basin a little larger than the diameter of the plant pit as shown on the Contract Drawings. Place a minimum of 2 inches of shredded hardwood bark mulch in the plant basin. Depth of mulch should never exceed 3 inches.
3. Wherever shrubs and ground covers have been planted in a continuous bed, apply a minimum of 2 inches of shredded hardwood bark mulch over the entire planting bed. Depth of mulch should never exceed 3 inches. Exposed bare soil shall not be acceptable.

E. Irrigation

F. Rodent Control

1. Apply a minimum of two (2) rodent control applications to all plants installed under this Contract, between November 1st and December 15th, as per the manufacturer's directions and as supervised by the Contractor's Certified Arborist (NY) and the Engineer.

G. Arborist's Site Inspections/Reports

1. During the installation period (prior to rendition of a Certificate of Final Completion), the Contractor's ISA Certified Arborist (NY) accompanied by the Contractor shall be available to perform drive and walk through site inspections of the construction site, accompanied by the Engineer, identifying the status of the installation work, issues or problems requiring immediate action by the Contractor or items affecting the Contractor's work schedule.
2. Within 48 hours of each site inspection, the Contractor's ISA Certified Arborist (NY) shall submit a 'Site Inspection Report', to include but not be limited to: list of inspection attendees, the item(s) discussed, a brief description of the issues or problems found and recommendations for solutions to be implemented by the Contractor and a schedule designating dates when the Contractor will implement said Work.

END OF SECTION

SECTION 02940

SHRUBS IN GROUND

SUBMITTALS

APPENDIX "A"

Submit the following in accordance with the requirements of 'Inspections and Rejections' of Division 1 - General Provisions.

A. Qualifications

1. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit qualifications of the entity performing the laboratory testing of this Section to the Engineer in accordance with 1.04 A. Include the name, address and telephone number of the Testing laboratory performing the work of this Section.
2. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit evidence of the Entity's membership to the International Society of Arboriculture and State Chapter where they are residing.
3. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit qualifications in writing for approval by the Engineer of the ISA Certified Arborist performing the Work in accordance with 1.04 A.4. Include the name of the arborist, resume, and a description and contract amounts for work performed in the last two years.
4. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit qualifications of the entity and its workers performing the Work of this Section to the Engineer in accordance with 1.04 A. Include names of clients, telephone number, and contract amounts for work performed in the last three years and experience records of workers performing the Work of this Section.
5. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit evidence of pesticide applicators license, valid in the state in which Work is to be performed.

B. Products

1. Within fifteen (15) days of receipt by the Contractor of the acceptance of his proposal, submit the following in accordance with the requirements of "Inspections and Rejections" of Division 1 - GENERAL PROVISIONS:
 - a. A complete "Products List", listing all products to be used under this Section including: Product name, manufacturer, catalog cuts, details, samples, manufacturer's specifications and certified test data/analysis of each product.
 - b. Material Data Safety Sheets for all toxic or hazardous materials to be used under this Section.
 - c. A complete "Plant List", listing all greenhouse and nursery sources for all trees, shrubs, ground cover and seasonal display (perennial) plantings.

d. Submit catalog cut and sample of Erosion Control Mat to the Engineer for approval. Erosion Control Mat shall not be installed without receipt of approval in writing by the Engineer.

2. Submit the location of the source of the screened topsoil, topsoil mix and a two-pound representative sample of screened topsoil and topsoil mix (as many as required) to the Engineer of Materials in accordance with 1.04 C.3. and 1.04C.4.

C. Test Reports

Submit laboratory analyses of screened topsoil and topsoil mix to the Engineer of Materials, Engineering Materials Laboratory, Port Authority Technical Center, 241 Erie Street, Jersey City, NJ 07310-1397, in accordance to 1.04 C 3, 1.04 C 4, Appendix B and Appendix C.

D. Certifications

1. Submit plant inspection certificates, in accordance with requirements of 1.04 C.1.e.
2. Submit to the Engineer of Materials, certification required by 1.04 D.

E. Arborist's Site Inspection Reports

1. Within 48 hours of each site inspection, the Contractor's ISA Certified Arborist (NY) shall submit a 'Site Inspection Report' in accordance with the requirements of 1.04.C.2.

END OF APPENDIX "A"

SECTION 02940

**SHRUBS
IN GROUND**

APPENDIX "B"

Material: Screened Topsoil
Specification: Section 02920 – Screened Topsoil
Source of Sample:
Contract or P.O. No.:

Quality Characteristics:	Spec.		
Visual Examination:	No hard clods, etc.		
Organic Matter: (Loss on Ignition)	Min. 5% Max. 7%		
Soluble Salts: Micromhos/Cm PPM	Max. 500 Max. 300		
pH:	5.0 - 7.0		
Mechanical Analysis:			
Passing - 1"	100%		
Passing - 1" Retain 2mm (#10)	Max. 40.0% The portion retained shall be no larger than 3/8" in size and composed of homogeneous clods and/or stones.		
Passing 2mm (#10) Retain Pan	Min. 60.0%		
Buoyoucus Hydrometer Test of Material:			
Passing 2mm (#10) Percent – Sand	40% - 60%		
Percent – Silt	30% - 40%		
Percent - Clay	10% - 20%		

END OF APPENDIX "B"

SECTION 02940

**SHRUBS
IN GROUND**

APPENDIX "C"

Material: Topsoil Mix
Specification: Sections 02940 and 02954 - Topsoil Mix
Source of Sample:
Contract or P.O. No.:

Quality Characteristics:	Spec.		
Visual Examination:	No hard clods, etc.		
Organic Matter: (Loss on Ignition)	Min. 7% Max. 15%		
Soluble Salts: Micromhos/Cm PPM	Max. 1250 Max. 750		
pH:	5.0 - 7.0		
Mechanical Analysis:			
Passing - 1"	100%		
Passing - 1" Retain 2mm (#10)	Max. 40.0% The portion retained shall be no larger than 3/8" in size and composed of homogeneous clods and/or stones.		
Passing 2mm (#10) Retain Pan	Min. 60.0%		
Buoyocous Hydrometer Test of Material:			
Passing 2mm (#10) Percent - Sand	40% - 60%		
Percent - Silt	30% - 40%		
Percent - Clay	10% - 20%		

END OF APPENDIX "C"

C 3/28/06

DIVISION 2
SECTION 02960

PART 1. GENERAL

Ex. 4

Ex. 4

Ex. 4

Ex. 4

END OF SECTION

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Ex. 45

1.03 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements

1. Cold weather concrete construction shall conform to ACI 306R.
2. Do not mix or place concrete when the ambient temperature is below 35°F, or when conditions indicate that the temperature will fall below 35°F within 72 hours, unless the areas to receive fresh concrete are insulated or enclosed and heated to maintain 50°F as approved by the Engineer.
3. Reinforcement, forms and soils with which concrete will be in contact shall be completely frost-free. If required, apply heat to raise their temperature to a minimum of 35°F. The use of chemicals to eliminate frost shall not be permitted.

B. Hot Weather Requirements

1. Hot weather concrete construction shall conform to ACI 305R.
2. Do not place concrete for pavements, overlays, bridge decks or ramps when the ambient temperature exceeds 90°F or the rate of evaporation exceeds 0.2 lbs/ft²/hr, in accordance with ACI 305R, Figure 2.1.5. Schedule Work so that concrete can be placed during the coolest part of the day (late afternoon or at night).
3. If the concrete temperature reaches 92°F as measured in accordance with ASTM C 1064, it shall be rejected.

1.04 QUALITY CONTROL

A. General

1. Maintain a level of Quality Control sufficient to consistently provide the end result performance properties specified herein. In addition:
 - a. Supply the approved mix proportions. Forward to the Engineer all delivery tickets, which shall carry an automated, time-date stamp and shall indicate the batch weights of all batching constituents.
 - b. Ensure that all plant mixing equipment and trucks are calibrated and New Jersey or New York State Department of Transportation approved.
 - c. Ensure that all personnel performing concrete testing are, at a minimum, certified ACI Grade I Concrete Laboratory Testing Technicians or Concrete Field Testing Technicians, as appropriate.

1.05 SUBMITTALS

- A. For submittals see Appendix "A".
- B. Do not deliver any concrete to the construction site until all approvals have been obtained.

PART 2. PRODUCTS

Ex. 4

DIVISION 3
SECTION 03302
PORTLAND CEMENT CONCRETE SHORT FORM
SUBMITTALS
APPENDIX "A"

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of DIVISION 1 – GENERAL PROVISIONS:

- A. List of materials for Work of this Section.
- B. Shop Drawings of forms and test pour details at least 15 calendar days before the test.
- C. Catalog Cuts, Material Certification and Test Results:
 - 1. At least 35 calendar days prior to concrete placement, the following:
 - a. Name and address of proposed concrete Supplier, type of plant, documentation of State Certification for plant and ready mix trucks, AASHTO Accreditation certification for the independent testing laboratory (required after January 1, 2003), and a certification for an on-site individual in a supervisory capacity from one of the programs specified in 2.03.A.
 - b. Material certifications, source, brand name and test results (where required) of cement, fine and coarse aggregate, fly ash, slag and concrete admixtures following guidelines of Appendix "B".
 - c. Brand name and chemical composition of form oil or release agents, evaporation retardant and liquid membrane curing compounds.
 - d. Certification that admixtures conform to the requirements of 2.02.F & G. submitted with Appendix "B," "Concrete Materials and Mix Proportion Data". Include dosing and re-dosing charts, which shall demonstrate the effects of concrete temperatures from 50°F and 90°F.
- D. Samples :
 - 1. Cement, stone, sand, fly ash, slag, admixtures, evaporation retardant, curing compound. Furnish these to the Engineer in whatever quantities he may require. This applies to all mix proportions, including changes to an approved mix proportion.
 - 2. At the request of the Engineer, provide cement, fly ash and/or slag Mill Certifications at any time.
- E. Construction Procedures and Quality Control Documents and Plans:
 - 1. At least 35 calendar days prior to concrete placement, the following:
 - a. Cold and Hot Weather Concreting Plans to the Engineer in accordance with 1.03 of the Specification. Materials and methods for protecting concrete from freezing.
 - b. Pumping Procedure Plan, including, at a minimum, the pumping scheme, pump description, line diameter, line length, and the number of turns and line offsets.

- c. Method and sequence (timing) of adding concrete admixtures, high range water reducers, non chloride accelerators.
 - d. Mixing and placement procedures and methods, as well as, catalog cuts of equipment for installation. For hand mixes, provide the methods of proportioning, mixing (including minimum time requirements), transferring, and placing the concrete.
 - e. Curing Procedure Plan in accordance with 3.03 A, including the method and materials for curing.
 - f. Materials and procedures for filling cracks and patching honeycombs and/or spalls.
2. Daily copy of batch records in accordance with 1.04.A.1.a of the Specification.
- F. Concrete Mix Proportion:
1. Appendix "B," "Concrete Materials and Mix Proportion Data" at least 35 calendar days prior to concrete placement in accordance with 2.03.A of the Specification. To substantiate the mix proportion, submit all data and field results in accordance with 2.03.A. of the Specification.
 2. ACI Grade I or II Field and/or Laboratory certification for all personnel performing concrete testing.
 3. Written request to the Engineer for approval if a change in the weights of fine and coarse aggregate and cement is required in the approved mix proportion.
 4. AASHTO accreditation for all testing to be performed by the independent laboratory in the formulation and testing of mix proportion to be submitted.

END OF APPENDIX "A"

SECTION 03302

PORTLAND CEMENT CONCRETE SHORT FORM

APPENDIX "B"

CONCRETE MATERIALS AND MIX PROPORTION DATA

A. Materials

- 1. Cement: Type..... Source/Brand
- 2. Sand: Fineness | Modulus..... Source.....
- 3. Stone: Size Class..... | Source.....
- 4. Fly Ash: Type..... | Source.....
- 5. Slag: Grade Source.....
- 6. Admixtures (Source/Brand):.....
- 7. Air Entraining Agent
- 8. Non Chloride Accelerator.....
- 9. Retarder.....
- 10. Water Reducer
- 11. Water Reducer Retarder.....
- 12. High Range Water Reducer
- 13. High Range Water Reducer Retarder

B. Mix Proportion

- 1. Proposed method of placement: Transit Mixer/Portable Mixer/ Pumping/Pipe Diameter:.....
- 2. Proportion of Ingredients

Cement lbs./cu. yd
Fly Ash lbs./cu. yd
Slag lbs./cu. yd
Stone lbs./cu. yd
Sand lbs./cu. yd
Water lbs./cu. yd..... gallons
Air Entraining Agent: ounces/cu. yd.
Admixtures (specify type and amount):
..... at ounces/cu. yd.
..... at ounces/cu. yd.

..... at ounces/cu. yd.

..... at ounces/cu. yd.

3. Mix Properties:

Compressive Strength: f_c = psi at days/hours

Slump: inches

Water to Cementitious Ratio:

Air Entrainment: %

Sand/Stone Ratio:

Combined aggregate gradation chart (% retained on each sieve)

Unit Weight: lbs./cu. ft.

C. Conformance with ACI 318:

Attach a report on mix design and test/statistical data documenting conformance with ACI 318, Chapter 5, or ACI 304R, Chapter 8, as they apply to the Work of the Contract.

D. Concrete Supplier/Batch Plant

1. Name:

2. Address:

3. Contact Name:

4. Telephone number/Fax number/E-mail address:
.....

5. Quality Control technician(s):

Name(s):

.....

.....

Telephone number(s):

.....

.....

END OF APPENDIX "B"

DIVISION 3

SECTION 03303

PLACEMENT OF PORTLAND CEMENT CONCRETE, SHORT FORM

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for casting Portland cement concrete.

For requirements for furnishing Portland cement concrete see Section 03302, entitled PORTLAND CEMENT CONCRETE, SHORT FORM.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Society for Testing and Materials (ASTM)

ASTM D 1751 Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)

ASTM D 1752 Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

New Jersey Department of Transportation (NJDOT)

Standard Specification for Road and Bridge Construction - 2001

1.03 ENVIRONMENTAL REQUIREMENTS

- A. For Cold Weather Requirements see Section 03302, entitled PORTLAND CEMENT CONCRETE, SHORT FORM.
- B. Reinforcement, forms and soils with which concrete will be in contact shall be completely frost-free.
- C. Comply with all provisions of this Section for placing and curing.
- D. For Hot Weather Requirements see Section 03302, entitled PORTLAND CEMENT CONCRETE, SHORT FORM.

Ex. 4

END OF SECTION

03303 - 7

SECTION 03303

PLACEMENT OF PORTLAND CEMENT CONCRETE, SHORT FORM

SUBMITTALS

APPENDIX "A"

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of DIVISION 1 – GENERAL PROVISIONS:

- A. Shop Drawings for number, location and details of contraction, control, expansion and construction joints at least 15 days prior to concrete placement.
- B. Catalog Cuts, Material Certification and Test Results
- C. Construction Procedures, and Quality Control and Assurance Documents
 - 1. At least 35 days prior to concrete placement, the following:
 - a. Surface Preparation Plan for surfaces on which concrete will be placed.
 - b. Type, number and method of application of concrete vibrators.
 - c. Method of concrete placement and consolidation adjacent to joint assemblies and embedded hardware.
 - d. Control Joint Location Plan.
 - e. Method of curing and curing and materials.
- D. Design Computations
 - 1. If required by the Engineer or noted on the Contract Drawings, design computations shall be signed and sealed by a Professional Engineer licensed in the state where Work is being done.

END OF APPENDIX "A"

DIVISION 15

SECTION 15040

PETROLEUM PIPING AND APPURTENANCES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for fuel oil piping and appurtenances.

1.02 REFERENCES

A. AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

ANSI B16.3 Pipe Flanges and Flanged Fittings

B. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

ASTM A47 Ferretic Malleable Iron Castings

ASTM A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated
Welded and Seamless

ASTM A197 Cupola Malleable Iron

ASTM D2310 Machine-Made Reinforced Thermosetting Resin
Pipe

ASTM D2996 Filament-Wound Reinforced Thermosetting
Resin Pipe

C. FIBERGLASS PETROLEUM TANK & PIPING INSTITUTE (FPTPI)

FPTPI-P8/89 FRP Piping Checklist

1.03 QUALITY ASSURANCE

A. The Entity performing this Work shall be certified as required by the State of New York to perform the work of this contract. The entity performing the product inventory and leak detection system work shall have experience on at least 3 similar type of projects.

B. Pipe installers shall be experienced and skilled in the installation of flexible fiberglass pipe and carbon steel pipe.

C. Pipe will be visually inspected by the Engineer when delivered to the construction site. Damaged material or material not meeting the requirements of this Section shall be removed from the construction site and replaced, at no additional cost to the Authority.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store piping and equipment in accordance with manufacturer's instructions to prevent damage to finished surfaces and fittings.
- B. Comply with manufacturer's instructions for unloading, storing and moving pipe.
- C. Handle equipment carefully to prevent damage to finished surfaces and store equipment in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

Ex. 4

END OF SECTION

DIVISION 16

SECTION 16000

ELECTRICAL GENERAL REQUIREMENTS

PART 1. GENERAL

1.01 SUMMARY

Unless otherwise shown on the Contract Drawings, or unless otherwise specified in other Sections of these Specifications, the general requirements specified in this Section are applicable to all electrical work of this Contract. Additional requirements applicable to individual Sections of these Specifications are specified in those Sections, or are shown on the Contract Drawings.

1.02 REFERENCES

The following is a listing of publications referenced in this Section:

	<u>American National Standards Institute (ANSI)</u>
ANSI C 2	National Electrical Safety Code
	<u>American Society of Testing and Materials (ASTM)</u>
ASTM D 178	Standard Specification for Rubber Insulation Matting
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electrical Code
	<u>Occupational Safety and Health Administration (OSHA)</u>

1.03 QUALITY ASSURANCE

- A. Any entity performing Work shall have had experience on at least two projects involving quantities and complexities at least equal to those required under this Division or the applicable Section thereof.
- B. All workmen performing under this Division shall be skilled workers of the trade involved. Where specialty work, such as splicing or welding are required, submit proof of training, experience and work history for each workman, for review by the Engineer. Only approved workmen shall perform specialty work.
- C. All electrical work shall be performed under the supervision of an electrical contractor, licensed in the state (and the city as required) in which the work is to be performed. Submit a copy of the qualifying license for review by the Engineer.
- D. All calculations required by this and other various Sections of these Specifications, or as shown on the Contract Drawings, shall be certified and sealed by a Professional Engineer licensed in the state in which the work is to be performed, and shall be submitted to the Engineer for review.

- E. Various Sections of these Specifications contain the requirement for the specific material or equipment to be furnished with an experience statement "satisfactorily used for purposes similar to those intended herein" or words of similar intent and a statement that specifies the required experience time. These statements shall mean that the manufacturer of the material or equipment being furnished for the work specified in this Contract shall have manufactured similar material or equipment to that specified, for at least the time specified.
- F. In various Sections of this Division there is a statement that refers to the length of required experience that must be satisfied.
- G. Polyvinyl Chloride (PVC): PVC conduits, PVC-insulated power wiring, or items containing PVC, except PVC-insulated wiring for communications systems, remote control, signaling, and power limited circuits, shall not be installed in any indoor area. PVC-insulated wiring for communications systems, remote control, signaling, and power-limited circuits shall be furnished and installed in accordance with NFPA 70.
- H. Asbestos
Asbestos or items containing asbestos shall not be furnished or installed.
- I. Conformance Labels
All electrical materials and equipment for which there is a nationally recognized standard shall bear the conformance labeling of the third party inspection authority, such as Underwriters Laboratories Inc., Factory Mutual, ETL, or approved equal. Where the phrase "where there are established UL standards, shall bear the UL label", or words of similar intent appear in other Sections, the instructions for the conformance label above shall apply.

Ex. 4

END OF SECTION

DIVISION 16
SECTION 16110
RACEWAYS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for raceways.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>American National Standards Institute (ANSI)</u>
ANSI C 80.1	Rigid Steel Conduit - Zinc Coated
ANSI C 80.3	Electrical Metallic Tubing - Zinc Coated
ANSI C 80.5	Rigid Aluminum Conduit
ANSI C 80.6	Intermediate Metal Conduit - Zinc Coated
	<u>National Electrical Manufacturers Association (NEMA)</u>
ANSI/NEMA FB 1	Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
NEMA RN 1	Polyvinyl - Chloride (PVC) externally coated galvanized rigid steel conduit and intermediate metal conduit
NEMA TC-3	PVC Fittings for use with rigid PVC Conduit and Tubing
NEMA TC-6	PVC and ABS plastic utilities duct for underground installation
NEMA TC-8	Extra-strength PVC plastic utilities duct for underground installation
NEMA TC-14	Filament - Wound Reinforced Thermosetting Resin Conduit and Fittings
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electric Code
	<u>Underwriters Laboratories Inc. (UL)</u>
ANSI/UL 1	Flexible Metal Conduit
ANSI/UL 5	Surface Metal Raceways and Fittings
ANSI/UL 6	Rigid Metal Conduit
ANSI/UL 209	Cellular Metal Floor Raceways and Fittings
ANSI/UL 360	Electrical Liquid-tight Flexible Steel Conduit
ANSI/UL 514B	Fittings for Conduit and Outlet Boxes
ANSI/UL 651	Schedule 40 and 80 Rigid PVC Conduit
ANSI/UL 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit
ANSI/UL 797	Electrical Metallic Tubing

- ANSI/UL 870 Wireways, Auxiliary Gutters, and Associated Fittings
- ANSI/UL 884 Underfloor Raceways and Fittings
- ANSI/UL 1242 Intermediate Metal Conduit
- ANSI/UL 1479 Fire Tests of Through-Penetration Firestops

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in manufacturer's original, unopened, protective packaging. Protective caps shall be removed only upon installation of conduit.
- B. Store materials in a clean, dry space and protect them from weather.
- C. Handle in a manner to prevent damage to finished surfaces.

1.04 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

Ex. 4

END OF SECTION

9

Ex. 4

END OF SECTION

SECTION 16120

WIRE, CABLES, SPLICES, TERMINATIONS

(600 VOLTS OR LESS)

APPENDIX A

SUBMITTAL REQUIREMENTS

- A. Submit Catalog Cuts for the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:
 - 1. Wires and cables for each type and size;
 - 2. Splice kit materials and installation procedures.
- B. Submit certified shop test reports for wires and cables.
- C. Submit field test results for wires and cables, including "Megger" readings with the test method used.

END OF APPENDIX "A"

DIVISION 16

SECTION 16127

CONTROL/SIGNAL TRANSMISSION MEDIA

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for the following types of control and signal transmission media:

- A. Coaxial Cable
- B. Twisted Pair Cable
- C. Video - Pair Cable
- D. Optical Fiber Cable
- E. Optical Fiber Connectors and Couplers

1.02 REFERENCES

The following is a listing of the publications referenced in this section:

	<u>American Society for Testing and Materials (ASTM)</u>
ASTM B 3	Soft or Annealed Copper Wire
ASTM B 8	Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B 33	Tinned Soft or Annealed Copper Wire for Electrical Purposes
ASTM E 662	Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
	<u>Electronics Institute of America (EIA)</u>
EIA FOTP-25	Fiber Optic Test Procedures for Impact Resistance
EIA FOTP-33	Fiber Optic Test Procedures for Maximum Pulling Load
EIA FOTP-41	Fiber Optic Test Procedures for Crush Resistance
EIA FOTP-104	Fiber Optic Test Procedures for Flexibility
EIA TIA-598	Optical Fiber Cable Color Coding Standards
	<u>Insulated Cable Engineering Association (ICEA)</u>
ICEA T-33-655	Guide for Low Smoke, Halogen-Free (LSHF) Polymeric Cable Jackets
	<u>Military Standards</u>
MIL-C-17	Standards for Radio Frequency Coaxial Cables
MIL-C-24643	Electrical Cable and Cord for Shipboard Use, Testing for Low Smoke and Halogens

National Fire Protection Association (NFPA)

NFPA 70	National Electrical Code
	<u>Naval Engineering Standards</u>
NES 713	Determination of Toxicity Index of Products of Combustion From Small Specimens of Materials
	<u>Underwriters Laboratories Inc.</u>
UL 910	Test for Flame - Propagation and Smoke - Density Values for Electrical and Optical-Fiber Cables Used in Spaces Transporting Environmental Air
UL 1666	Test for Flame Propagation Height of Electrical and Optical - Fiber Cables Installed Vertically in Shafts
UL 1685	Standards for Safety Vertical Tray Fire Propagation and Smoke Release Test for Electrical and Optical Fiber Cables

1.03 QUALITY ASSURANCE

- A. Wires and cables that have been manufactured more than two (2) years prior to installation shall not be used in the Work of this Contract.
- B. Where cables specified in this Section are used to provide signal paths for systems specified in other Sections of these specifications, or for systems shown on Contract Drawings, the Contractor shall obtain review of the cable characteristics and certification for use with the connected system equipment by the connected equipment manufacturer.
- C. All optical fiber cable installations, splices and terminations shall be performed by qualified workers with prior experience in installing optical fiber cable and working on optical fiber systems. Work experience shall include the successful installation of at least 3 other optical fiber systems of similar complexity to the Work of this Contract. Qualifications shall include successful completion of training classes covering optical fiber cable installation, termination, splicing and connectorizing.
- D. Cable manufacturers shall be regularly engaged in manufacturing control/signal transmission media products of the types, sizes, and characteristics specified in this section and on the Contract Drawings. Cable manufacturers' products shall have been in satisfactory use in similar service for not less than 3 years.
- E. The Contractor shall comply with NFPA 70 "National Electric Code" for components and installation.
- F. All cable of each kind shall be the product of a single manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall deliver to the worksite cable properly packaged in factory-fabricated type or wound on NEMA specified type cable reels.
- B. The Contractor shall store cable in clean dry space in original containers, protected from weather, theft, vandalism, damaging fumes, construction debris and traffic.
- C. The Contractor shall handle cable carefully to avoid braising, puncturing and tearing cable insulation and sheathing. Ensure that dielectric resistance and characteristic impedance integrity of transmission media are maintained.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

Ex. 4

4

Ex. 4

END OF SECTION

SECTION 16127

CONTROL/ SIGNAL TRANSMISSION MEDIA

APPENDIX "A"

SUBMITTAL REQUIREMENTS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

- A. Catalog cuts for control/ signal transmission media.
- B. Cable certificates, acknowledged by the Communication System Manufacturers, certifying that the cables are suitable for the connected equipment as described in Section 1.03 "Quality Assurance".
- C. One (1) foot sample of each type of control/signal transmission media for approval.
- D. Sample splice kit materials and installation procedures.
- E. Certified shop test reports for control/signal transmission media.
- F. Field test reports indicating and interpreting test results.
- G. Qualification data for manufacturers as per Section 1.03 "Quality Assurance" stating their capabilities and experience. Include list of completed projects and other information specified.
- H. Maintenance requirements for cables.

END OF APPENDIX "A"

DIVISION 16**SECTION 16133****CONTROL PANELS, ENCLOSURES/CABINETS, AND TERMINAL BOXES****PART 1. GENERAL**

1.01 SUMMARY

This Section specifies requirements for control panels, electrical enclosures and cabinets.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>American National Standards Institute (ANSI)</u>
ANSI Z 55.1	Gray Finishes for Industrial Apparatus and Equipment
	<u>National Electrical Manufacturers Association (NEMA)</u>
NEMA ICS 1	Industrial Control and Systems. General Requirements
NEMA ICS 1.1	Industrial Control and Systems. Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control
NEMA ICS 2	Industrial Control and Systems. Controllers, Contractors, and Overload Relays Rated Not More Than 2000 Volts AC or 750 Volts DC
NEMA ICS 3	Industrial Control and Systems. Factory Built Assemblies
NEMA ICS	Industrial Control and Systems. Terminal Blocks
NEMA ICS 6	Industrial Control and Systems. Enclosures.
NEMA ICS 9	Industrial Control and Systems. Power Circuit Accessories
NEMA PB 250	Enclosures for Electrical Equipment (1000 Volts maximum)
NEMA Z 535.4	Product Safety Signs and Labels
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electric Code
	<u>Underwriters Laboratories Inc. (UL)</u>
ANSI/UL 50	Cabinets and Boxes
ANSI/UL 65	Electric Wired Cabinets
ANSI/ UL 486E	Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
ANSI/UL 486A	Wire Connectors and Soldering Lugs for Use with Copper Conductors
ANSI/UL 969	Marking and Labeling systems
UL 1059	Electrical Terminal Blocks
ANSI/UL 467	Electrical Grounding and Bonding Equipment
UL 437	Key Locks
ANSI/UL 508	Electric Industrial Control Equipment

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Control Panels, Enclosures/Cabinets and Terminal boxes shall be designed in accordance with applicable standards of ANSI, NEMA, NFPA, and UL.
- B. Unless otherwise shown on the Contract Drawings, enclosures/cabinets shall meet the following environmental requirements:
 - 1. Enclosures/Cabinets located in heated areas shall be NEMA Type 1.
 - 2. Enclosures/Cabinets located in unheated areas or in areas subject to dust or oil, shall be NEMA Type 12.
 - 3. Enclosures/Cabinets located in exterior areas or in areas subject to rain, dripping liquid, or hosing shall be NEMA Type 4X, stainless steel.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Control panels, Enclosures/Cabinets and Terminal boxes shall be delivered to the construction site complete. All electrical devices and accessories shall be in place and wired.
- B. Control panels, Enclosures/Cabinets, Terminal boxes and accessories shall be packaged to prevent damage due to vibration, jarring and the like during transportation and handling.
- C. If any electrical devices or accessories must be shipped loose they shall be delivered in the manufacturer's original unopened protective packaging and shall be identified with suitable non-corrosive tag.
- D. Store components and devices in clean and dry space, protected from weather.
- E. Where possible, maintain protective covering until installation is complete and remove such covering as part of final cleanup.
- F. Touch up any damage to finishes to match adjacent surfaces.

1.05 SPARE PARTS AND TOOLS

- A. One set of all special tools and wrenches required for assembly or disassembly of the panel or cabinet and the installation of devices shall be furnished.
- B. Furnish a list of recommended spare parts for each panel or cabinet. This list shall contain the prices and availability of the spare parts recommended.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 GENERAL

- A. List of acceptable manufacturers is shown on contract drawings.
- B. All Enclosures/cabinets and equipment, for which there are established UL standards, shall bear the UL label.
- C. Location of control panels and enclosures/cabinets and their approximate dimensions shall be as shown on the Contract Drawings.
- D. Each control panels, enclosures and cabinets shall be factory assembled, wired, tested and shipped as a single complete unit, with all devices, terminal blocks and internal wiring installed, unless written permission is given by the Engineer to disassemble any components or parts for shipment. Shipped loose components must fit and be ready for immediate installation in the field.
- E. Devices installed shall be grouped according to their function. 15% spare mounting space shall be provided for future alterations.
- F. All indicating devices, instruments, control switches and indicating lights shall be mounted on the door or front panel. Protection relays, if used, shall be semi-flush type with built-in test facilities wherever possible.
- G. No polyvinyl chloride (PVC) materials, insulation or products shall be used.

2.02 CONSTRUCTION FEATURES

Ex. 4

2.04 SHOP TEST

- A. Shop tests shall be in accordance with NEMA, ANSI and IEEE specifications, including:
 - 1. High potential and operating tests on power equipment to demonstrate that this equipment will function correctly and in accordance with the intent of the specifications. Check rating of all protective devices (circuit breakers and fuses).
 - 2. Insulation resistance test for each circuit with equipment connected, except those containing electronic components, using a 1000-volt megger. The insulation resistance shall be no less than 25 megohms.
 - 3. Every control circuit continuity test. Use all schematic diagrams.
 - 4. All control devices functional performance test to determine that all devices are wired and function correctly when energized.
 - 5. Simulated operating test for the entire system.
- B. Information outlining the test methods and procedures to be followed shall be submitted to the Engineer for approval during the period of shop drawing submission. A copy of test forms to be used shall be furnished at the time.
- C. The Engineer shall be permitted to inspect any equipment, material or work to be furnished under this specification and shall have the right to reject any parts considered defective, unsuitable for the purposes or not in accordance with these specifications. Free entry shall be permitted to the Engineer at all times and to all parts of the works engaged in the manufacturing of this equipment.
- D. The Engineer shall be notified in writing at least two weeks before testing. This notification shall list all units to be tested. The Engineer reserves the right to require additional testing or to waive factory inspection or witnessing of tests. The Engineer will advise the Contractor which tests will be witnessed and which will be waived.
- E. Facilities for any reasonable tests that may be considered necessary in connection with any inspection shall be furnished free of charge. The shop shall provide equipment, instruments, cables, tools and personnel required and shall bear all expenses incidental to the foregoing tests, including replacement of damaged parts and material.
- F. During the witnessing of tests, all original test data shall be initiated by the Engineer, and at the conclusion of the tests he shall be furnished with one copy of all original test data. If any data was modified, the Engineer shall be apprised and such modification shall be subject to the approval of the Engineer.
- G. The accuracy of the calibration of all instruments to be employed during the tests shall be ascertained and recorded at the beginning of the tests. All readings shall be directed and visible to the Engineer.
- H. Five (5) certified copies of all test results shall be furnished to the Engineer. Certification shall be by a Professional Engineer, licensed in the State in which tests were performed and so stamped.

- I. Release of equipment shall not relieve the Contractor of the responsibility of furnishing equipment conforming to all specification requirements.

PART 3. EXECUTION

3.01 EXAMINATION

- A. Verify that electrical installations, structural, mechanical and other related Work satisfy the requirements for performance of the work of this Section in accordance with the Contract Documentation.
- B. Before delivering the equipment to the site, the Contractor shall investigate the site conditions to determine the best method of shipment, what preparatory Work, if any, will be needed to bring the equipment onto the site, and what will be the best and quickest method of unloading the equipment and setting it in place.
- C. Report immediately to the Engineer any electrical, structural or related construction defects in areas where control panels or cabinets are to be installed, and do not attempt to rectify any defect unless specifically instructed to do so by the Engineer.
- D. Before unloading the equipment it shall be inspected for damage during shipment. Any damage shall immediately be brought to the attention of the Engineer for resolution.

3.02 PREPARATION

- A. Install any channels, angles or other supports that are required to support or mount the control panels and enclosures/cabinets.
- B. Use supports and fasteners as specified in the Section of the Specifications entitled "SUPPORTING DEVICES" or as shown on the Contract Drawings.

3.03 INSTALLATION

- A. Surface and flush mounted enclosures/cabinets shall be installed with tops 6 feet-6 inches above the floor, unless otherwise shown on the Contract Drawings.
- B. Control panels and enclosures/cabinet shall be installed true and plumb on supporting struts and shall not be mounted directly on concrete, concrete block walls, or any other walls subject to moisture. Leave a minimum gap of 1/2 inch between the back of the enclosure/cabinet and the wall, using stainless steel hardware.
- C. Where mounting directly on the wall is unavoidable the back of the enclosure shall be painted with two coats, minimum, of a bituminous paint.
- D. Cables shall be neatly racked and bundled with nonflammable nylon ties, routed and supported within the enclosures/cabinets, cable ducts or gutters. Minimum bending radii as recommended by cable manufacturers shall not be reduced.
- E. After conduits and cables are installed, the enclosures/cabinets shall be inspected for foreign materials and shall be vacuumed clean. Prior to energization, the panels shall be tested as described below.

- F. A new set of as-built drawings, neatly bound together in plastic covers, shall be placed in the print pocket of each enclosure/cabinet.

3.04 FIELD TESTS

- A. Visually inspect each device in the panel and operate manually.
- B. Check all connections for tightness.
- C. Check rating of all protective devices (circuit breakers and fuses). To each pole of the circuit breakers apply current 3 times its rating, recording currents and breaker trip times. Apply rapidly increasing currents and record the value that consistently causes instantaneous tripping of the breaker. Compare these recorded times with manufacturer's time current curves.
- D. Perform each panel control wiring tests to determine that all devices are function correctly when energized and in accordance with the intent of the Contract Drawings and Specifications.
- E. Perform control system functional test. This test shall include step by step procedure to determine that entire control system (this control panel could be just part of it) operate properly.
- F. All discrepancies found by the contractor shall be brought to the attention of the Engineer.
- G. All testing shall be performed in the presence of and as directed by the Engineer. The Contractor shall notify the Engineer when the equipment is installed and ready for testing.

END OF SECTION

SECTION 16133

CONTROL PANELS, ENCLOSURES AND CABINETS

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

A. Shop Drawings

Shop drawings for each enclosure/cabinet shall include:

1. Job name
2. Item number
3. Quantity of each enclosure/cabinet configuration
4. Nameplate schedule in accordance with design drawings
5. Complete assembly drawings including plan, elevation and section views with dimensions. Show dimensioned location of all devices, terminal blocks, accessories and details for purchaser cable support. Indicate conduit entrance areas and mounting details.
6. Cabinet/Enclosure construction details, floor plan and channel base detail drawings
7. Specification for enclosure/cabinet mechanical and electrical parts, and assemblies.
8. Wiring interconnection and schematic diagrams as follows:
 - a. The elementary diagrams supplied by panel vendor shall contain
 - (1) Each device designation corresponding to panel layout drawing and wiring diagrams
 - (2) All device terminal numbers corresponding to device vendor information
 - (3) Contact development diagrams of all control, selector, and transfer switches, protection and auxiliary relays, pushbuttons, etc. Indicate connections to control panel terminal blocks
 - (4) Contact diagrams for all alarm and indication circuits. Indicate connections to control panel terminal blocks
 - b. Control panel internal connection wiring diagram shall contain
 - (1) Each device designation corresponding to panel layout drawing and elementary diagrams. All device terminals shall be identified identical to device vendor drawing and arranged in correct physical relationship.
 - (2) Sufficient information at each wire termination to locate the other termination without recourse to routing sheets, supplementary tabulations, or any other document.

- (3) Terminal strips numbered sequentially from top to bottom and left to right. Show terminals requiring external connections. The terminal strips shall be shown on drawings spaced at least 4 inches apart, so as to permit purchaser's external wiring to be shown on the same drawings.
 - c. External connection diagram between the control panel and the equipment connected to it.
 - 9. Bill of materials: Components shall be identified by manufacturer's catalog number, technical characteristics and settings required for the installation. Bill of materials shall correlate components to panel layout drawing and diagrams.
- B. Catalog cuts
- 1. Enclosures
 - 2. Cabinets
 - 3. Terminal blocks
 - 4. All factory or field mounted devices and equipment shown on the Control panel or Enclosure/Cabinet drawings
- C. Schedules
- 1. Nameplate nomenclature
 - 2. Terminal block designations
- D. As-built Documentation

END OF APPENDIX "A"

DIVISION 16
SECTION 16135
BOXES AND FITTINGS

PART 1. GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for electrical boxes and fittings.
- B. Types of electrical boxes and fittings specified in this Section are:
 - 1. Outlet Boxes
 - 2. Device Boxes
 - 3. Pull Boxes
 - 4. Junction Boxes
 - 5. Conduit Bodies
 - 6. Fittings

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>National Electrical Manufacturers Association (NEMA)</u>
NEMA OS1	Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports
NEMA OS2	Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports
NEMA 250	Enclosures for Electrical Equipment (1000 Volts Maximum)
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electrical Code
	<u>Underwriters Laboratories Inc. (UL)</u>
UL 50	Cabinets and Boxes
UL 514A	Metallic Outlet Boxes
UL 514B	Fittings for Conduit and Outlet Boxes
UL 514C	Nonmetallic Outlet Boxes, Flush Device Boxes, and Covers
UL 886	Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations

1.03 QUALITY ASSURANCE

Boxes and fittings, of types and sizes required, shall have been satisfactorily used for purposes similar to those intended herein for not less than three years. A list of acceptable manufacturers is shown on Contract Drawing.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in manufacturer's original, unopened, protective packaging.
- B. Store materials in a clean, dry space and protect them from weather.
- C. Handle in a manner to prevent damage to finished surfaces.
- D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.
- E. Touch up any damage to finishes to match adjacent surfaces.

1.05 SUBMITTALS

"Submittal Requirements" shall be in accordance with APPENDIX A.

PART 2. PRODUCTS

Ex. 4

PART 3. EXECUTION

3.01 INSTALLATION

- A. Install boxes and conduit bodies at the locations shown on the Contract Drawings and as required by NFPA 70 at any other location where they are required to facilitate the pulling, supporting or connection of wires and cables.
- B. Securely mount all boxes in a manner approved by the Engineer and support the boxes independently of conduits entering them.
- C. Install boxes and conduit bodies in classified (hazardous) locations in accordance with their listing or label requirements. Conduit seal fittings shall be packed and filled only after proper operation of equipment and systems has been demonstrated and approved by the Engineer.
- D. Paint exteriors of boxes exposed in mechanical equipment rooms or in electrical rooms or closets or spaces shown as "unfinished" on the Contract Drawings, and the exteriors of boxes installed above hung or accessible ceilings, as follows:
 - 1. Emergency: Orange
 - 2. Fire Alarm: Red
 - 3. High Voltage: Red with 1-inch, white block letters reading "HIGH VOLTAGE" on each exposed face and cover.
- E. All installations shall conform to NFPA 70.

F. Dissimilar Metals

1. "Dissimilar metals" shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data.
2. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

END OF SECTION

SECTION 16135

BOXES AND FITTINGS

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit the following, for approval in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

- A. Catalog Cuts
 - 1. All boxes and fittings.
- B. Shop Drawings
 - 1. Special boxes.
 - 2. Boxes larger than 12 inches.
 - 3. Ancillary equipment if shown on Contract Drawings.

END OF APPENDIX "A"

DIVISION 16
SECTION 16140
WIRING DEVICES

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for wiring devices.

1.02 REFERENCES

The wiring devices specified in this Section shall be constructed, installed and tested in accordance with requirements of the following publications:

Federal Specifications

W-C-596 Electrical Power Connector, plug, Receptacle and Cable

W-S-896 Outlet Toggle and Lock, Flush Mounted Switches

Institute of Electrical and Electronic Engineers (IEEE)

IEEE 241 Electric Power Systems in Commercial Buildings

National Electrical Manufacturers Association (NEMA)

NEMA WD 1 General Requirements for Wiring Devices

NEMA WD 6 Wiring Devices - Dimensional Requirement

National Fire Protection Association (NFPA)

NFPA 70 National Electrical Code

Underwriters Laboratories Inc. (UL)

UL 20 General Use Snap Switches

UL 498 Electrical Attachment Plugs and Receptacles

UL 917 Clock-Operated Switches

UL 943 Ground Fault Circuit Interrupters

UL 1054 Special - Use Switches

1.03 QUALITY ASSURANCE

Wiring devices, of types and ratings required, shall have been satisfactorily used for purposes similar to those intended herein for not less than three years.

5

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, protective packaging.
- B. Store materials in clean, dry space and protect them from weather.
- C. Handle in manner to prevent damage to finished surfaces.
- D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements of this Section, provide wiring devices of the acceptable manufacturers as shown on Contract Drawings.
- B. All devices for wall system outlets shall be furnished by one manufacturer.
- C. All device plates shall be furnished by one manufacturer.

2.02 CONSTRUCTION FEATURES

END OF SECTION

SECTION 16140
WIRING DEVICES
APPENDIX A

SUBMITTAL REQUIREMENTS

Submit for approval the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

- A. Shop drawings
 - 1. Installation details for surface mounted receptacles and switches
 - 2. Installation details for "poke-through" assemblies
 - 3. Installation details for floor service receptacles
- B. Catalog cuts
 - 1. Receptacles
 - 2. Switches
 - 3. Wallplates
 - 4. Ground fault circuit interrupter receptacles
 - 5. Poke-through assembly devices

END OF APPENDIX "A"

DIVISION 16
SECTION 16190
SUPPORTING DEVICES

PART 1: GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for hangers and supports, sleeves and fasteners used to support electrical raceways and equipment, except as specified in B below.
- B. Supporting devices, furnished as part of factory-fabricated equipment, are specified as part of equipment assembly in other Sections of the Specifications.

1.02 REFERENCE

The supporting devices, specified in this Section shall be constructed, installed and tested in accordance with requirements of the following publications:

AISC	<u>American Institute of Steel Construction Inc. (AISC)</u> Manual of Steel Construction
AISI	<u>American Iron and Steel Institute (AISI)</u> Specifications for the Design of Cold-Formed Steel Structural Members
ASTM A 36	<u>American Society for Testing and Materials (ASTM)</u> Structural Steel
AWS D1.1	<u>American Welding Society (AWS)</u> Structural Welding Code, Steel
NECA 5055	<u>National Electrical Contractors Association (NECA)</u> Standard of Installation
NFPA 70	<u>National Fire Protection Association (NFPA)</u> National Electrical Code

1.03 QUALITY ASSURANCE

Supporting devices, of types and sizes required, shall have been satisfactory used for purposes similar to those intended herein for not less than three years.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, protective packaging.
- B. Store materials in a clean, dry space and protect them from weather.
- C. Handle in a manner to prevent damage to finished surfaces.
- D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.
- E. Touch up damage to finishes to match adjacent surfaces, including re-coating of galvanized or plated surfaces where damaged, cut or drilled.

1.05 SUBMITTALS

See Appendix "A" For Submittal Requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with requirements of this Section, provide supporting devices of the acceptable manufacturers as shown on Contract Drawings.

2.02 HANGERS AND SUPPORTS

A. General

- 1. Unless otherwise shown on the Contract Drawings, provide hangers and supports as specified below.
- 2. Where more than one type of hanger or support is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.
- 3. Hangers and supports, for which there are established Underwriters Laboratories Inc. (UL) standards, shall bear the UL label.

B. Raceway Support

1. Clevis Hangers

For supporting horizontal conduit; galvanized steel; with hole for threaded steel rod.

2. Riser Clamps

For supporting vertical conduits; galvanized steel; with two or three bolts and nuts, and 4-inch ears.

3. Reducing Couplings

Steel rod reducing coupling; size as required; galvanized or plated steel

4. C-Clamps
Black malleable iron or galvanized or plated steel; with hole for threaded rod.
5. I-Beam Clamps
Galvanized or plated steel, 1-1/4-inch x 3/16-inch stock; 3/8-inch cross bolt; 2-inch flange width
6. Right Angle or Parallel beam Clamps
Galvanized steel clamps for supporting or fastening conduit up to 2-inch trade size
7. One-Hole Conduit Straps
For supporting up to 1-inch conduit or electrical metallic tubing (EMT); galvanized steel
8. Two-Hole Conduit straps
For supporting conduit or EMT larger than 1-inch galvanized steel; 3/4" strap width.
9. Hexagon Nuts: galvanized steel
10. Round Steel Rod: galvanized or plated steel; threaded
11. Trapeze Hangers: Same as Specified in 2.02 C below
12. The following types of hangers and supports shall not be used:
 - a. Perforated metal strapping;
 - b. Slotted, perforated angles;
 - c. Spring pressure or torsion clips, hangers or supports.

C. Equipment Supports

1. U-channel strut system shall be 12-gauge, hot-dipped galvanized steel. Provide with drilled or slotted holes as required for the application and with the following fittings which mate and match with U-channel:
 - a. Fixture hangers
 - b. Channel hangers
 - c. End caps
 - d. Beam clamps
 - e. Wiring stud
 - f. Thin wall conduit clamps
 - g. Rigid conduit clamps
 - h. Conduit hangers
 - i. U-bolts

D. Supporting Steel Sections and Channels

Supporting steel sections and channels shall be fabricated of ASTM A 36 steel in accordance with the appropriate requirements of the AISC, AISI, and AWS publications specified in 1.02, and shall be hot-dipped galvanized after fabrication.

E. Cable Supports

1. Provide cable supports with insulating wedging plug for non-armored type electrical cables in risers. Assembly shall include body of galvanized malleable iron with insulating wedging plug.
2. Provide cable supports for armored type electrical cables in risers. Assembly shall include body and pressure plates of galvanized steel.

2.03 SLEEVES AND SEALS

A. General

1. Unless otherwise shown on the Contract Drawings, provide sleeves and seals as specified below.
2. Where more than one type of sleeve or seal is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.
3. Sleeves and seals, for which there are established, UL standard, shall bear the UL label.

B. Pipe Sleeves

1. Provide pipe sleeves for conduits penetrating concrete or masonry floor and walls, as follows:
 - a. Steel Pipe
Fabricate from schedule 40, galvanized steel pipe; remove burrs.
 - b. Iron Pipe
Fabricate from cast iron or ductile iron pipe; remove burrs.
 - c. Plastic Pipe
Fabricate from either fiberglass or Schedule 40, PVC plastic pipe; remove burrs. Fiberglass sleeves may be utilized for interior or exterior usages, but PVC sleeves shall be utilized for exterior usage only.
2. Sleeves shall have a minimum inside diameter as shown below, based on the installed raceway diameter.

<u>Raceway Diameter (inches)</u>	<u>Sleeve Inside Diameter (inches)</u>
1 or less	2
1-1/4 to 2	3
2-1/2 to 3	4
3-1/2 to 4	5
5	6
6	7

3. Where a sleeve encloses only one conductor, phase or polarity, or a ground wire or cable, the sleeve shall be non-ferrous.
- C. Interlocking Modular Seals
- Provide interlocking modular type seals for conduit access located in exterior foundation and pit walls. The seals shall be multi-link, stainless steel bolted connection, high-temperature fittings.
- D. Sealing Bushings
- Provide sealing bushings for conduit access core-drilled through foundation walls or floors. The bushings shall be molded, one-piece neoprene sealing rings with PVC coated steel or uncoated aluminum pressure plates, stainless steel hex socket head cap screws and flat washers.
- E. Fire Seals
- Provide UL listed, 3 hour rating, silicone based foam, fire resistive, waterproof joint sealing system to prevent the passage of hot gases and fire.
- F. Wall and Floor Seals
- Provide watertight and pressure-tight wall and floor seals suitable for sealing around conduit passing through exterior concrete floors and walls. Assembly shall include steel sleeves, galvanized malleable iron body, neoprene sealing grommets and rings, metal pressure rings, membrane clamp were required by foundation design and pressure clamps with type 316 stainless steel hex head cap screws. Seal sizes shall be maximum published size for conduit to be installed therein.

2.04 FASTENERS

- A. General
1. Unless otherwise shown on the Contract Drawings, provide fasteners as specified below.
 2. Where more than one type of fasteners is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.
- B. Toggle Bolts
- Toggle bolts shall be spring head, galvanized or plated steel, 1/4-inch to 1/2-inch sizes, length as required.
- C. Expansion Anchors
- Expansion anchors shall be metallic expansion anchors or shields, including drop-in anchors, wedge and sleeve anchors, and two-piece and three-piece shields for lag screws or machine screws or bolts.

D. Powder activated Fasteners

Powder activated fasteners shall be steel, pin or stud type, selected for proper length and penetration for the equipment, clamp or strap to be installed, and the base material.

E. Bolts, Nuts, Lockwashers and Washers

1. All hardware shall be galvanized or plated steel, unless otherwise shown on the Contract Drawings.
2. Bolts and nuts, 1/4-inch trade size and larger, shall be hex head or hex socket type, standard American sizes.
3. Lockwashers shall match the finish of the furnished bolts and nuts, and generally be installed one-per-bolt, at the nut end of the assembly.
4. Washers shall be standard or fender type, as required, and sized to match the installed bolts or screws.

F. The following types of fasteners shall not be used:

1. Lead anchors or studs;
2. Wooden plugs or anchors;
3. Plastic anchors;
4. "Nail-in" anchors, either of plastic or metal type.

PART 3. EXECUTION

3.01 EXAMINATION

- A. Verify that electrical installations, structural, mechanical and other related Work satisfy the requirements for performance of the Work of this Section in accordance with the Contract Documents.
- B. Report immediately to the Engineer any electrical, structural or related construction defects in areas where supporting devices are to be installed, and do not attempt to rectify any defect unless specifically instructed to do so by the Engineer.

3.02 PREPARATION

Before installation the supporting devices, the Contractor shall investigate the site condition to determine, what preparatory work, if any, will be needed.

3.03 INSTALLATION

A. General

1. Install hangers and supports, sleeves and fasteners in accordance with approved printed manufacturer's installation procedures, and as specified.
2. Coordinate all affected trades and all aspects of the electrical work, including installation of raceways and wiring as necessary to interface installation of supporting devices with other work.
3. Install hangers and supports, and attachments to properly support raceways, equipment and accessories from building structure. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze hangers where possible. Install hangers and supports with maximum spacing not to exceed that permitted by NFPA 70 and NECA 5055, as applicable, unless otherwise shown on the Contract Drawings.
4. Secure threaded rod couplings, trapeze hangers or supports or similar horizontal elements, using lock washers and jam nuts to prevent loosening.

B. Conduit and Raceway supports

1. Do not support raceways from hung ceiling supports or members, or metal roof deck.
2. Do not support raceways from mechanical ductwork, ductwork supports, piping or piping supports.
3. Threaded rod for the support of conduits, raceways or trapeze hangers of the given size, shall be not less than the following:

<u>Conduit, Raceway, Hanger Size</u> (inches)	<u>Threaded Rod Size</u> (inches)
2 or less	3/8
2-1/2 to 3-1/2	1/2
4 to 5	5/8
6	3/4

4. Where trapeze hangers are used, bolt or clamp the raceways in place to at least every third hanger and to the first hanger on each side of a bend, fitting, junction or pull box or change in direction.

C. Sleeves

1. Unless otherwise shown on the Contract Drawings, extend sleeves for raceways and risers one inch beyond top of finished floor, curb or building element being penetrated.
2. Install sleeves level and plumb, accurately located and positioned to conform to the requirements of the equipment and in accordance with the approved layout drawings.
3. Install interlocking modular seals in tandem, one at the interior and one at the exterior face of the pipe sleeve.
4. Tighten sleeve seal nuts until sealing grommets have expanded to form watertight seal.

D. Fasteners

1. Wood screws, lag screws, carriage bolts or machine screws shall be utilized for wood or materials of similar fibrous nature.
2. Welded or blazed threaded studs, bolts or machine screws or clamps shall be utilized for structural and miscellaneous steel, iron or other metals.
3. Metallic expansion shields, wedge anchors or drop-in anchors, with lag screws, bolts or machine screws shall be utilized for solid masonry or concrete.
4. Sleeve anchors, drop-in anchors or toggle bolts shall be utilized for concrete masonry units (CMU). Do not use powder-activated fasteners in CMU.

E. Dissimilar Metals

1. "Dissimilar metals" shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data.
2. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

END OF SECTION

SECTION 16190

SUPPORTING DEVICES

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit for approval the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

A. Shop Drawings

Submit layout drawings for dimensioned locations of inserts, sleeves and anchors when required by the Contract Drawings.

B. Catalog Cuts

1. Hangers and supports
2. Sleeves
3. Fasteners

C. Submit calculations for the following:

1. Supporting steel sections and channels, properly reflecting installed and future loading, including:
 - a. Safety factors of not less than 4 to 1;
 - b. Deflection ratio of not greater than 1/240.
2. Special hangers and supports shown on the Contract Drawings
3. Hangers, supports and fasteners when required by but not specifically shown on the Contract Drawings.

END OF APPENDIX "A"

DIVISION 16
SECTION 16450
GROUNDING

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for grounding.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

Administrative Code

Electrical Code of the City of New York

American National Standards Institute (ANSI)

ANSI C 2 National Electrical Safety Code

Institute of Electrical and Electronics Engineers (IEEE)

IEEE Std Recommended Practice for Grounding of Industrial and Commercial
142-1991 Power Systems

IEEE Std Recommended Practice for Powering and Grounding Sensitive Electronic
1100-1992 Equipment

National Fire Protection Agency (NFPA)

NFPA 70 National Electrical Code

Underwriters Laboratories Inc. (UL)

UL 467 Grounding and Bonding Equipment

1.03 QUALITY ASSURANCE

- A. Components and installation shall comply with NFPA 70, "National Electric Code."
- B. Provide products specified in this Section that are listed and labeled. The terms "listed" and "labeled" shall be defined as they are in NFPA 70 Article 100.

1.04 SUBMITTALS

See Appendix A for Submittal Requirements.

PART 2. PRODUCTS

END OF SECTION

Ex. 4

DIVISION 16
SECTION 16452
ELECTRICAL BONDING

PART 1. GENERAL**SUMMARY**

This Section specifies requirements for furnishing, installing and testing an electrical bonding system for corrosion control/stray current mitigation on all underground structures.

1.01 REFERENCES

	<u>American Society for Testing and Materials (ASTM)</u>
ASTM B 3	Soft or Annealed Copper Wire
ASTM B 8	Concentric-Lay Stranded Copper Conductors, Hard, Medium-Hard, or Soft
	<u>Military Specifications (MIL)</u>
MIL A-18001	Anode, Corrosion Preventative Zinc, Slab, Disk and Rod Shapes
	<u>National Association of Corrosion Engineers (NACE)</u>
NACE RP 0169	Control of External Erosion on Underground or Submerged Metallic Pipe Systems

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

The Electrical Bonding System shall be designed, manufactured and installed in accordance with the latest revision of applicable standards ASTM, MIL and NACE. In case of conflict between various standards, the more stringent requirement shall apply.

1.03 QUALITY ASSURANCE

- A. The Contractor shall provide the Electrical Bonding System design, certified by a NACE accredited Corrosion Engineer, licensed as a Professional Engineer in the state in which the work is to be performed, and experienced in corrosion control procedures. Submit the qualifications of the Corrosion Specialist, for review by the Engineer.
- B. Electrical bonding devices, of type and sizes required, shall have been satisfactory used for the purposes similar to those herein, for not less than three years.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Store materials in original packaging in a manner to prevent soiling, damage, wetting or corrosion prior to installation.
- B. Handle in a manner to prevent damage to finished surfaces.
- C. Where possible, maintain protective coverings until installation is complete and remove such covers as part of final cleanup.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with requirements of this Section, provide electrical bonding materials and equipment of the manufacturers listed on the Contract Drawings.

2.02 MATERIALS

Ex. 4

END OF SECTION

SECTION 16452

ELECTRICAL BONDING

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples", Division 1 - GENERAL PROVISIONS:

- A. The Electrical Bonding System design, certified by a NACE accredited Corrosion Specialist, licensed as a Professional Engineer in the state in which the work to be performed.
- B. Shop Drawings
 - 1. Details of bonding of structural steel and reinforcing bars encased in concrete below-grade.
 - 2. Steel and concrete shop drawings, including all required welds, bonding connections and recoating or patching of protective coatings.
 - 3. Layout drawings of test electrodes, cabling and test junction boxes.
- C. Submit 12 copies of all test data, and the final report.
- D. Submit qualifications of the Corrosion Specialist and a copy of NACE certificate.

END OF APPENDIX "A"

DIVISION 16
SECTION 16470
PANELBOARDS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for electrical panelboards and cabinets.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>National Electrical Manufacturers Association (NEMA)</u>
NEMA PB 1	Panelboard
NEMA PB 1.1	General instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less
NEMA PB 250	Enclosures for Electrical Equipment (1000 Volts maximum)
NEMA AB 1	Molded Case Circuit Breakers and Molded Case Switches
NEMA AB 3	Molded case Circuit Breakers and Their Application
NEMA 280	Application Guide for Ground Fault Circuit Interrupters
NEMA AB 4	Guidelines for Inspection and Preventive Maintenance of Molded Case Circuit Breakers Used in Commercial and Industrial Applications
NEMA Z535.4	Product Safety Signs and Labels
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electric Code
	<u>Underwriters Laboratories Inc. (UL)</u>
ANSI/UL 67	Panelboards
ANSI/ UL 50	Cabinets and Boxes
UL 1059	Electrical Terminal Blocks
ANSI/UL 65	Electric Wired Cabinets
ANSI/ UL 486E	Equipment Wiring Terminals for Use With Aluminum and/or Copper Conductors
ANSI/UL 486A	Wire Connectors and Soldering Lugs for Use With Copper Conductors
ANSI/UL 969	Marking and Labeling systems
ANSI/UL 467	Electrical Grounding and Bonding Equipment
ANSI/UL 437	Key Locks

Federal Specifications

Panelboards, W-P-115a,c
Type 1 - Circuit Breaker Equipped
Class 1- Panelboards
Class 2 - Load Centers
Molded Case Circuit Breakers, W-C-375a,b
Fusible Switches, W-S-865c

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Panelboards shall be designed in accordance with applicable standards of ANSI, NEMA, NFPA and UL. A list of acceptable manufacturers is shown on the Contract Drawings.
- B. Unless otherwise shown on the Contract Drawings, Panelboard cabinets shall meet the following environmental requirements:
 - 1. Cabinets located in heated areas shall be NEMA Type 1.
 - 2. Cabinets located in unheated areas or in areas subject to dust or oil, shall be NEMA Type 12.
 - 3. Cabinets located in exterior areas or locations subject to rain, dripping liquid, or hosing shall be NEMA Type 4X, stainless steel.
- C. ANSI design test shall have been made on a prototype of each type of panelboard.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Panelboards shall be delivered to the construction site complete. All circuit breakers, other electrical devices, and accessories, shall be in place and wired.
- B. Panelboards and accessories shall be packaged to prevent damage due to vibration, jarring and the like during transportation and handling.
- C. If any electrical devices or accessories must be shipped loose they shall be delivered in the manufacturer's original unopened protective packaging and shall be identified with suitable non-corrosive tag.
- D. Store components and devices in clean and dry space, protected from weather.
- E. Where possible, maintain protective covering until installation is complete and remove such covering as part of final cleanup.
- F. Touch up any damage to finishes to match adjacent surfaces.

1.05 SPARE PARTS AND TOOLS

- A. One set of all special tools and wrenches required for assembly or disassembly of the panelboard and the installation of breakers shall be furnished.
- B. Furnish a list of recommended spare parts for each panelboard. This list shall contain the prices and availability of the spare parts recommended.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 GENERAL

- A. List of acceptable manufacturers is shown on contract drawings.
- B. The size, rating, and number of circuit breaker in the panelboard shall be as shown on the Contract Drawings.
- C. All panelboards, for which there are established UL standards, shall bear the UL label.
- D. Location of panelboards and their approximate dimensions shall be as shown on the Contract Drawings.
- E. Each panelboard shall be factory assembled, tested and shipped as a single complete unit, with all circuit breakers and buses installed, unless written permission is given by the Engineer to disassemble any parts for shipment.

2.02 CONSTRUCTION FEATURES

- A. Panelboard interior
 - 1. Panelboard interiors shall be designed and assembled so that individual breakers may be added, removed, or replaced without disturbing adjacent units and without removing main bus or branch circuit connectors.
 - 2. All parts shall be readily accessible and like parts shall be interchangeable insofar as possible.
 - 3. Modifications and optional features such as silver plated copper bus, subfeed lugs, shunt trips, meters, etc., shall be as shown on the Contract Drawings.
- B. Panelboard Enclosures (Cabinets)
 - 1. The panelboard assembly shall be mounted in a galvanized steel or stainless steel enclosure (cabinets) as shown on the Contract Drawings. Cabinets and trims shall be surface-mounted or recessed installation as shown on the Contract Drawings.
 - 2. Cabinets shall be arranged to provide side gutters 6 inches wide. Cabinets shall be provided with top and bottom gutters not less than 6 inches wide. For 400A or 600A mains, top and bottom gutters shall be 8 inches. Where feeder cables supplying the mains of a panelboard are carried through its box to other panelboards, the cabinet shall be provided with adequate additional side gutters space for the riser cable and taps.
 - 3. The cabinet shall have a galvanized sheet-steel one-piece frame with a hinged door.
 - 4. Recessed or flush-mounted cover frames shall extend 3/4 inch beyond each side of the cabinets and shall be set with their backs flush with the finished wall. Covers shall have adjustable trim clamps to compensate for misalignment and shall be completely concealed when door is closed.

5. Surface-mounted cover frames shall be sized to match the overall dimensions of the cabinet or flanged around to cover the edge of the cabinet.
 6. Breakers and interior bus shall be covered by a removable framed trim, mounted inside the cabinet.
 7. Doors shall close against a rabbet placed all around the inside edge of the frame, with a close-fitting joint between the door and frame
 8. Doors shall be fitted with concealed, continuous, flush piano hinges.
 9. Fastening screws on front panel shall be stainless steel and shall be of the captive, tamper proof type. Front panels shall not be removable with door in locked position.
 10. Provide a metal frame with clear impact resistant plastic cover, mounted inside of each panelboard door to hold circuit directory.
- C. Overcurrent protective devices and buses
1. Overcurrent protective devices shall be circuit breakers, fully rated, bolt on, thermal magnetic, inverse time delay, molded case. Breakers shall be 1, 2 or 3 pole with an integral crossbar or an internal common trip element, to assure simultaneous opening of all poles of a multi-pole circuit breaker. All circuit breakers shall meet requirements specified in the section of these Specifications entitled "OVERCURRENT PROTECTIVE DEVICES"
 2. Connections of the branch circuits to the main bus shall be of the phase sequence type, that is, adjacent poles shall be of unlike polarity and rotated in sequence. This shall allow complete flexibility of circuit arrangement (1, 2 or 3 poles) to evenly balance the electrical load on each phase.
 3. Main bus bars, including full capacity isolated neutral, shall have an ampere rating not less than that of the main breaker or lugs, and shall be braced for a momentary short circuit as specified on the Contract Drawings. The minimum short circuit rating shall be equal or be greater than the rating of the panelboard integrated equipment.
 4. Buses shall be designed in such a manner that no machining, drilling, or tapping shall be required to change circuits or add new breakers.
 5. All main and brunch circuit bus shall be copper with a 1000 Amperes per square inch current density, and contact surfaces shall be silver plated and shall have no more than 200 Amperes per square inch current density.
 6. A copper ground bus shall be furnished and installed by the panelboard manufacturer for equipment grounding. When shown on the Contract Drawings the Manufacturer shall install an isolated type grounding bus.
 7. Main lugs shall be solderless, mechanical type and shall be secured in line with UL standards to prevent lugs from turning or loosening when incoming cables are installed.
 8. Where circuit breakers with ground fault protection are shown on Contract Drawings, they shall be UL class A type and shall be identified on the panelboard.
 9. Lighting fixture circuits controlled only by a circuit breaker shall each be identified by a 1 inch long by 3/4-inch high black laminated plastic nameplate with white letters.

10. Circuit breakers used for switching fluorescent lighting shall be rated and identified with a SWD tag.

2.03 ACCESSORIES

A. Nameplates

1. Provide approved nameplates on the front cover of each cabinet, indicating the panel name and number.
2. Unless otherwise shown on the Contract Drawings, fabricate nameplates from an approved type of lamacoid plastic with letters engraved on the plate in white on black background. Where letter sizes are not shown on the Contract drawings, use 1/2-inch high letters. Nomenclature shall comply with a schedule approved by the Engineer.
3. Secure nameplates on equipment with brass or stainless steel screws with locking hardware.

B. Panelboard cabinet locks

Each locked cabinet shall be furnished with a combination catch and flat lock with spring loaded type door pull. Locks shall be fitted to separate keying for each system. Furnish one key for each cabinet installed and a maximum of 20 keys per system.

- ### C.
- Provide a typewritten directory identifying each brunch circuit as to the load which it serves, and install the directory in metal frame inside the panelboard door.

2.04 PAINTING

- ### A.
- Surfaces to be painted shall be prepared by the removal of all grease, oil, rust, scale or other foreign material.
- ### B.
- A prime coat of zinc chromate paint and two (2) finish coats of enamel paint conforming to ANSI Z 55.1 shall be applied. The gray prime and finish paints shall be a compatible finish system. In public areas the cabinets shall be painted as above, unless otherwise shown on Contract Drawings.
- ### C.
- Furnish a can of touch-up paint for use after equipment is positioned.
- ### D.
- Stainless steel panels shall not be painted. Galvanized panels shall be painted if shown on the Contract Drawings.

2.05 SHOP TESTS

- ### A.
- Shop tests shall be in accordance with NEMA, ANSI and IEEE specifications.
- ### B.
- During the period of shop drawing submission complete information outlining the test methods and procedures to be followed shall be submitted to the Engineer for approval. A copy of test forms and a set of sample computations to be used shall be furnished at the time.
- ### C.
- The Engineer shall be permitted to inspect any equipment, material or work to be furnished under this specification and shall have the right to reject any parts considered defective, unsuitable for the purposes or not in accordance with these specifications.

- D. The Engineer shall be notified at least two weeks before testing. This notification shall list type and number of units to be tested. The Engineer reserves the right to require additional testing or to waive factory inspection or witnessing of tests.
- E. Five (5) certified copies of all test results shall be furnished to the Engineer. Certification shall be by a Professional Engineer licensed in the State in which the tests are performed, and stamped.
- F. Circuit breakers shall be tested individually in the following sequence:
 - 1. Calibration test
 - 2. Overload performance test
 - 3. Continuous current test
 - 4. Endurance performance test
 - 5. Calibration test (repeated)
 - 6. Determination of interrupting rating
 - 7. Dielectric testResults of tests on prototype circuit breakers of each size and type will be acceptable.
- G. Panelboards shall be marked with their maximum short circuit rating at the supply voltage. The short circuit rating of each panelboard shall be determined after complete assembly. The short circuit tests on the breakers and panelboard structure shall be made simultaneously by connecting the fault to each overcurrent device with the panelboard connected to its rated voltage source. The method of testing shall be in accordance with UL 67. The source shall be capable of supplying specified panelboard short circuit current or greater.
- H. Release of equipment shall not relieve the Contractor of the responsibility of furnishing equipment conforming to all specification requirements.

PART 3. EXECUTION

3.01 EXAMINATION

- A. Verify that electrical installations, structural, mechanical and other related Work satisfy the requirements for performance of the work of this Section in accordance with the Contract Documents.
- B. Before delivering the equipment to the site, the Contractor shall investigate the site conditions to determine the best method of shipment, what preparatory work, if any, will be needed to bring the equipment onto the site, and what will be the best and quickest method of unloading the equipment and setting it in place.
- C. Report immediately to the Engineer any electrical, structural or related construction defects in areas where control panels or cabinets are to be installed, and do not attempt to rectify any defect unless specifically instructed to do so by the Engineer.
- D. Before unloading the equipment it shall be inspected for damage during shipment. Any damage shall immediately be brought to the attention of the Engineer for resolution.

3.02 PREPARATION

- A. Install any channels, angles or other supports that are required to support or mount the panelboards.
- B. Use supports and fasteners as specified in the Section of the Specifications entitled "SUPPORTING DEVICES" or as shown on the Contract Drawings.

3.03 INSTALLATION

- A. Surface and flush mounted panelboards shall be installed with tops 6 feet-6 inches above the floor, unless otherwise shown on the Contract Drawings.
- B. Panelboards shall be installed true and plumb on supporting struts and shall not be mounted directly on concrete, concrete block walls, or any other walls subject to moisture. Leave a minimum gap of 1/2 inch between the back of the enclosure/cabinet and the wall, using stainless steel hardware.
- C. Where mounting directly on the wall is unavoidable the back of the enclosure shall be painted with two coats, minimum, of a bituminous paint.
- D. Cables shall be neatly racked and bundled with nonflammable nylon ties, routed and supported within the enclosures/cabinets or gutters. Minimum bending radii as recommended by cable manufacturers shall not be reduced.
- E. After conduits and cables are installed, the enclosures/cabinets shall be inspected for foreign materials and shall be vacuumed clean. Prior to energization the panels shall be tested as described below.
- F. A typewritten directory shall be furnished and installed in the frame inside the panelboard.

3.04 FIELD TESTS

- A. Visually inspect each breaker in the panelboard and operate manually.
- B. Check all connections for tightness
- C. Check current rating of all circuit breakers. To each pole of the circuit breakers apply current 3 times its rating, recording currents and breaker trip times. Apply rapidly increasing currents and record the value that consistently causes instantaneous tripping of the breaker. Compare these recorded times with manufacturer's time current curves.
- D. Perform megger and hi-pot test on each pole.
- E. All discrepancies found by the contractor shall be brought to the attention of the Engineer
- F. All testing shall be performed in the presence of and as directed by the Engineer. The Contractor shall notify the Engineer when the equipment is installed and ready for testing.

END OF SECTION

SECTION 16470

PANELBOARDS

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit for approval the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

A. Shop Drawings

Shop drawings for each enclosure/cabinet shall include:

1. Data sheet for each panelboard with the following information
 - a. Job name
 - b. Item number
 - c. Panelboard nameplate(s) in accordance with the design drawings
 - d. Quantity of this panelboard configuration
 - e. Phase, wire and voltage
 - f. Main and neutral Bus material, continuous current, current density, and momentary capacity.
 - g. Short-circuit rating
 - h. Main connection information:
 - (1) Circuit Breaker - rating, interrupting rating, number of poles, type, manufacturer, and catalog number
 - (2) Lugs per phase, Cables per phase, Cable size range
 - (3) Location (top, bottom)
 - i. Thru feed lugs, subfeed
 - j. Ground bar with main lug on frame
 - k. Branch connection information:
 - (1) Circuit breakers rating, number of poles, type, manufacturer, and catalog number
 - (2) Lugs and cables per phase, Cable size range
 - l. Panelboard circuits breaker's arrangement for left and right side-top to bottom.
 - m. Panelboard overall dimensions H x W x D
 - n. Panelboard NEMA rating
2. Panelboard dimensional drawing. Indicate conduit entrance space at the top and bottom, knockout diagram and mounting details
3. Panelboard directory

- B. Catalog cuts
 - 1. Panelboards and Cabinets
 - 2. Circuit breakers
 - 3. Family of time current characteristic curves for all types and sizes of circuit breakers
- C. As-built Documentation acceptable to the Engineer, with typewritten copy of completed panelboard directories.

END OF APPENDIX "A"

DIVISION 16

SECTION 16475

OVERCURRENT PROTECTIVE DEVICES (600 VOLTS OR LESS)

PART 1. GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for overcurrent protective devices.
- B. The types of overcurrent protective devices specified in this Section are:
 - 1. Low Voltage Power Air Circuit Breakers
 - 2. Molded Case Circuit Breakers
 - 3. Safety Switches
 - 4. Fuses

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>American National Standards Institute (ANSI)</u>
ANSI C 37.13	Low Voltage AC Power Circuit Breakers used in enclosures
ANSI C 37.16	Related Requirements and application recommendation for Low Voltage Power Circuit Breakers
ANSI C 37.50	Test Procedures for Low Voltage AC Power Circuit Breakers
ANSI C 97.1	Low Voltage Cartridge Fuses 600 Volts or Less
	<u>National Electrical Manufacturers Association (NEMA)</u>
NEMA AB-1	Molded Case Circuit Breakers and Molded Case Switches
NEMA KS-1	Enclosed Switches
	<u>National Fire Protection Association (NFPA)</u>
NFPA 70	National Electrical Code
	<u>Underwriters Laboratories Inc. (UL)</u>
UL 98	Enclosed and Dead Front Switches
UL 198	Safety Standard for Fuses
UL 489	Molded Case Circuit Breakers and Circuit Breaker Enclosures
UL 943	Standard for Ground Fault Circuit Interrupters
	<u>Federal Specifications (FS)</u>
W-C-375B/Gen	Circuit Breakers, Molded Case; Branch Circuit and Service
FSW -S-865	Covers Surface-mounted, Air-break, Box or Enclosed Switches for Ratings through 500 Volts, 1200 Amperes and 50 Horsepower

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

The overcurrent protective devices and associated materials shall conform to all applicable standards, and shall also conform to the requirements specified herein and shown on the Contract Drawings.

1.04 QUALITY ASSURANCE

Overcurrent protective devices of types and ratings required, shall have been satisfactorily used for purposes similar to those intended herein for not less than three years.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Overcurrent protective devices to be installed in an assembly, as shown on the Contract Drawings, shall be mounted in the assembly and delivered in accordance with the manufacturer's specifications for such assembly.
- B. Overcurrent protective devices to be installed in their own enclosures, as shown on the Contract Drawings, shall conform to the following requirements:
 - 1. Enclosures shall be packaged with material to prevent damage to components due to vibration, jarring and the like during transportation and handling.
 - 2. Enclosures shall be delivered in the manufacturer's original, unopened, protective packaging and shall be identified with suitable non-corrosive tags.
- C. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of the final cleanup.

1.06 SUBMITTALS

See Appendix "A" for Submittal Requirements.

1.07 SPARE PARTS

Furnish a minimum of three but not less than 10% spare fuses of each type and rating required and shown on the Contract Drawings.

PART 2. PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the requirements of this Section, provide low voltage power circuit breakers, molded case circuit breakers, safety switches and fuses of one of the manufacturers specified on the Contract Drawings.

2.02 MATERIALS

Ex. 4

2

2

Ex. 4

END OF SECTION

SECTION 16475

OVERCURRENT PROTECTIVE DEVICES

APPENDIX "A"

SUBMITTAL REQUIREMENTS

Submit for approval the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - General Provisions:

- A. Shop Drawings
 - 1. Fuses; time-current and current-limiting curves for both melting and clearing.
 - 2. Circuit breakers; time-current curves.
 - 3. Fused circuit breakers - time current curves.
- B. Catalog Cuts
 - 1. Low Voltage Power Air Circuit Breakers
 - 2. Molded case circuit breakers
 - 3. Safety Switches
 - 4. Fuses

END OF APPENDIX "A"

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is for each hour worked, some classifications require the payment or provision of supplements for each hour paid (including paid holidays on which no work is performed) and/or may require supplements to be paid or provided at a premium rate for premium hours worked.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please visit the New York State Department of Labor website (www.labor.state.ny.us) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
boilermaker	1:1,1:4
Mason	1:1,1:4
Carpenter	1:1,1:4
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:4
Iron Worker	1:1,1:6
Laborer	1:1,1:3
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3

Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

Queens County General Construction

Asbestos Worker

09/01/2005

JOB DESCRIPTION Asbestos Worker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per hour: 07/01/2005

Asbestos Worker
Insulating Only

\$ 41.56

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyman
Insulating Only

\$ 23.86

OVERTIME PAY

See (C, O, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages:

Apprentice Insulating Only:

1 year terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
40%	60%	70%	80%

Supplemental Benefits per hour:

Apprentice
Insulating Only

Same % as
for Wage of
\$ 23.86

9-12a

Asbestos Worker

09/01/2005

JOB DESCRIPTION Asbestos Worker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per hour: 07/01/2005

Asbestos Worker
Removal&Abatement Only*

\$ 24.45

*NOTE - On mechanical systems that are NOT to be SCRAPPED. ALL other removal and/or abatement refer fo Building Laborer Catagory EXCEPT for Re-roofing refer to Roofing Catagory.

SUPPLEMENTAL BENEFITS

Journeyman
Removal&Abatement Only

\$ 7.10

OVERTIME PAY

See (B) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6) on HOLIDAY PAGE

NOTE: Easter Paid at Time and One-half IF worked

REGISTERED APPRENTICES

Apprentice Removal&Abatement Only:
 1000 hour terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
78%	80%	83%	89%

Supplemental Benefits per hour:

Apprentice Removal&Abatement Only Same % as for Wage of \$ 7.10

9-12a - Removal Only

Boilermaker

09/01/2005

JOB DESCRIPTION Boilermaker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2005	09/01/2005
Boilermaker	\$ 39.62	\$ 42.02

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2005	09/01/2005
Journeyman	\$ 8.02 + 48% of the Hourly Wage	\$ 8.02 + 48% of the Hourly Wage

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (8, 16, 23, 24) on HOLIDAY PAGE
 Overtime: See (4, 6, 11, 12, 15, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1/2) Year Terms at the following percentage of Journeyman's Wage

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

	07/01/2005	09/01/2005
Apprentices	\$ 8.02 + 48% of the Hourly Wage	\$ 8.02 + 48% of the Hourly Wage

4-5

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/05
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Piledriver... \$38.79

Dockbuilder.. 38.79

SUPPLEMENTAL BENEFITS

Per hour paid:
Journeyman \$ 27.86

OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

HOLIDAY:
Paid: See (18,19)on HOLIDAY PAGE.
Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr.Apprentices
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:
(1)year terms at the following percentage of Journeyman's wage.

	1st	2nd	3rd	4th
	40%	50%	65%	80%

Supplemental benefits per hour:

APPRENTICES: \$ 18.94

9-1456

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/05

Carpet/Resilient
Floor Coverer.... \$39.25

SUPPLEMENTAL BENEFITS

Per hour paid:
Journeyman... \$27.86

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:
Paid: See (18, 19)on HOLIDAY PAGE.
Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr.Apprentices
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour:
(1) year terms at the following percentage of Journeyman's wage.

	1st.	2nd.	3rd.	4th.
	40%	50%	65%	80%

Supplemental benefits per hour:

Apprentices... \$18.94

9-2287

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/05

Marine Construction:

Marine Diver... \$47.85
 Marin Diver Tender.. 35.15

SUPPLEMENTAL BENEFITS

Per hour paid:
 Journeyman \$ 27.86

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (18,19)on HOLIDAY PAGE.
 Paid: See (5,6,10,11,13,16,18,19) for 1st & 2nd yr.Apprentices
 Overtime: See (5,6,10,11,13,16,18,19) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wager per hour:

(1) year terms at the following percentage of the journeyman's wage.

1st	2nd	3rd	4th
40%	50%	65%	80%

Supplemental benefits per hour:

Apprentices \$18.94

9-1456MC

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour: 07/01/2005

Building:
 Millwright \$ 39.99

SUPPLEMENTAL BENEFITS

Per hour paid:
 Journeyman \$ 30.46

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (18,19) on HOLIDAY PAGE.
 Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr.Apprentices
 Overtime See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1) year terms at the following percentage of Journeyman's wage.

	1st	2nd	3rd	4th
Supplemental benefits per hour:	55%	65%	75%	95%

APPRENTICES:	1st	2nd	3rd	4th
	19.63	21.67	24.49	27.74

9-740.1

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/2005
 Timberman \$ 40.73

SUPPLEMENTAL BENEFITS

Per hour paid:
 Journeyman \$ 26.05

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (18,19) on HOLIDAY PAGE.
 Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr. Apprentices
 Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1) year terms at the following percentage of Journeyman's wage.

	1st.	2nd.	3rd.	4th.
	40%	50%	65%	80%

Supplemental benefits per hour:

Apprentices \$ 17.80

9-1536

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, Tompkins Corner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour: 07/01/2005 10/17/2005

Core Drilling:

Driller \$ 27.60 Addit. \$ 1.96/hr
 Assistant 22.88 Addit. \$ 1.71/hr

Note: Hazardous Waste Pay Differential:

For Level C, an additional 10% above wage rate per hour

For Level B, an additional 10% above wage rate per hour

For Level A, an additional 10% above wage rate per hour

Note: When required to work on water: an additional \$ 0.50 per hour.

SUPPLEMENTAL BENEFITS

Per hour paid:
 Driller \$ 10.36
 Assistant 10.36

OVERTIME PAY

OVERTIME: See (B,E,K*,P,R**) on OVERTIME PAGE.

HOLIDAY

HOLIDAY:

Paid: See (5,6) on HOLIDAY PAGE.

Overtime: * See (5,6) on HOLIDAY PAGE.

** See (8,10,11,13) on HOLIDAY PAGE.

Assistant: One (1) year increments at the following percentage of Assistant wages. This is not an apprenticeship for Driller.

1st Year	2nd Year	3rd Year	4th Year
70%	80%	90%	100%

9-1536-CoreDriller

Carpenter

09/01/2005

JOB DESCRIPTION Carpenter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond

PARTIAL COUNTIES

Nassau: That portion of the county that lies west of Seaford Creek and south of the Southern State Parkway.

WAGES

Per hour: 07/01/2005

Additional

Exhibit Shows \$ 44.42

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman \$ 25.55

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (18,19) on HOLIDAY PAGE.

Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr.Apprentices

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1) year terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th
40%	50%	65%	80%

Supplemental benefits per hour:

APPRENTICES: \$ 17.30

9-EXHIB

Carpenter - Heavy&Highway

09/01/2005

JOB DESCRIPTION Carpenter - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/05

Building:

Carpenter... \$44.56

Heavy/Highway:

Carpenter... \$44.10

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman \$ 26.05

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (18,19) on HOLIDAY PAGE.
 Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr.Apprentices
 Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following percentage of Journeyman's wage.

	1st	2nd	3rd	4th
	40%	50%	65%	80%

Supplemental benefits per hour:

Apprentices: \$ 17.80

9-NYC

Electrician

09/01/2005

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour:

	07/01/05	05/12/06
Electrician	\$43.00	\$44.00
Audio/Sound/Tele/Data	43.00	44.00

SUPPLEMENTAL BENEFITS

Journeyman..	32.347	35.507
Appr. 1st term..	9.451	11.072
Appr. 2nd term..	10.961	12.857
Appr. 3rd term..	12.095	14.196
Appr. 4th term..	13.147	15.439
MIJ(5th term)...	14.121	14.883

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 10, 11, 12, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages Per Hour

1st term...	13.25	13.75
2nd term...	16.05	16.55
3rd term...	18.15	18.65
4th term...	20.20	20.60
MIJ(5th term)...	24.80	25.30

9-3

Electrician

09/01/2005

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

07/01/05

Electrician:

Alarm Technician

Repair and Maintenance for Fire,
 Burglar and Security Systems

\$ 25.07

SUPPLEMENTAL BENEFITS

SUPPLEMENTAL BENEFITS:

Journeyman: \$ 31.91% of wage
 + \$12.00 per day

Apprentice: 31.91% of wage

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 12, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

(1/2) year terms at the following wage

1st	2nd	3rd	4th	5th
\$8.00	\$9.00	\$10.00	\$10.50	\$11.25
6th	7th	8th	9th	10th
\$11.50	\$12.50	\$13.00	\$15.05	\$16.18

9-3H

Electrician

09/01/2005

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/05	05/11/06
Electrician	\$24.80	\$25.30

Retrofitting or upgrading of existing interior lighting fixtures with energy efficient components, providing there is no additional wiring, additional fixtures, or is part of a more expansive renovation project.

SUPPLEMENTAL BENEFITS

Journeyman	\$14.121	\$14.883
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OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 10, 11, 12, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 11, 12, 16) on HOLIDAY PAGE

9-3m

Electrician

09/01/2005

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/05
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Applies to line clearance, tree work, and right-of-way preparation on all new or existing overhead, electrical, telephone, and CATV lines.

Senior Trimmer	\$20.36
Junior Trimmer	17.81
Groundperson	11.76

SUPPLEMENTAL BENEFITS

Per hour paid: 17% of wage

OVERTIME PAY

See (B, G, P) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

(An additional floating holiday after four years' service)

Overtime: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

9-3T

Elevator Constructor

09/01/2005

JOB DESCRIPTION Elevator Constructor

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point

Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour: 07/01/2005

Elevator Constructor \$ 40.89

Elevator Constructor

Modern. & service 32.73

SUPPLEMENTAL BENEFITS

Per hour:

Constructor \$ 19.970

Moder./Service 18.919

OVERTIME PAY

Constructor. See (C, O) on OVERTIME PAGE.

Modern./Serv.See (B, H) on OVERTIME PAGE.

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

(1) year terms at the following percentage of Journeyman's wage.

Term	1st	2nd	3rd	4th	5th
Constructor	\$ 16.60	\$ 22.36	\$ 26.43	\$ 30.50	\$ 30.50
Modern./Service	16.32	17.88	21.13	24.38	24.38

Supplemental Benefits per hour worked:

Term	1st	2nd	3rd	4th	5th
Constructor	\$ 14.308	\$ 15.48	\$ 16.478	\$ 17.470	\$ 17.470
Modern./Service	14.210	14.907	15.793	16.679	16.679

9-1

Glazier

09/01/2005

JOB DESCRIPTION Glazier

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour: 07/01/2005

05/01/2006

Glazier...	\$ 34.60	\$ 36.20
Scaffolding..	35.60	37.20

Repair & Maintenance:

Glazier:	21.30	22.05
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Repair & Maintenance- All repair & maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$100,000.00.

SUPPLEMENTAL BENEFITS

Per hour paid: Overtime rate shown in parenthesis

Journeyman....	\$24.11(29.71)	\$24.11(29.71)
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Repair & Maintenance:

Glazier	13.79	22.05
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OVERTIME PAY

OVERTIME: See (C*,D*O) on OVERTIME PAGE.

* Denotes if an optional 8th hour is required same will be at the regular rate of pay. If 9th hour is worked then both hours or more (8th and 9th or more) will be at the double time rate of pay.

** For Repair & Maintenance see (B,F, P) on overtime page.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

The Following are paid holidays for the Repair&Maintenance Class: New Years day, Presidents day, Memorial day, Independents day, Labor day, Thanksgiving day, day after Thanksgiving, and Christmas day.

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage rates.

1st term...	\$13.84	\$13.84
2nd term...	\$17.30	\$17.30
3rd term...	\$20.76	\$20.76
4th term...	\$27.68	\$27.68

Supplemental Benefits:

(Per hour worked), overtime rate shown in parenthesis:

1st term....	8.19	8.19
2nd term....	15.33(18.08)	15.33(18.08)
3rd term....	17.10(20.40)	17.10(20.40)
4th term....	20.66(25.06)	20.66(25.06)

9-1281 (DC9 NYC)

Ironworker

09/01/2005

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/05

Derrickman/Rigger	\$39.80
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SUPPLEMENTAL BENEFITS

Journeyman..	\$30.07
Apprentice:	
1st and 2nd term	15.04
All others	22.55

OVERTIME PAY

OVERTIME See (A*,D1,E**,Q,V) on OVERTIME PAGE.

*Time and one-half shall be paid for all work in excess of seven (7) hours at the end of a work day to a maximum of two hours on any regular work day (the eighth (8th) and ninth (9) hours of work) and double time shall be paid for all work thereafter.

**Time and one-half shall be paid for all work on Saturday up to seven (7) hours and double time shall be paid for all work thereafter.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 10) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(1/2) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th
50%	50%	70%	80%	90%	90%

9-197D/R

Ironworker

09/01/2005

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour: 07/01/05

Ornamental	\$38.05
Chain Link Fence	38.05
Guide Rail Installation	38.05

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman..	\$32.92
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OVERTIME PAY

OVERTIME: See (A*,D1,E**,Q,V) on OVERTIME PAGE.

*Time and one-half shall be paid for all work in excess of seven (7) hours at the end of a work day to a maximum of two hours on any regular work day (the eighth (8th) and ninth (9th) hours of work) and double time shall be paid for all work thereafter.

**Time and one-half shall be paid for all work on Saturday up to seven (7) hours and double time shall be paid for all work thereafter.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(1/2) year terms at the following percentage of Journeyman's wage.

APPRENTICE:

1st 60%	2nd 65%	3rd 70%	4th 80%	5th 85%	6th 95%
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Supplemental Benefits per hour paid:

1st	2nd	3rd	4th	5th	6th
\$26.45	27.25	28.07	29.69	30.49	32.11

9-580-Or

Ironworker

09/01/2005

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Rockland: Southern Section

WAGES

Per hour: 07/01/05

Reinforcing &
 Metal Lathing... \$ 41.00

SUPPLEMENTAL BENEFITS

Per hour paid:
 Journeyman \$ 26.23

OVERTIME PAY

OVERTIME: See (A*,E*,Q,V) on OVERTIME PAGE.

* All overtime in excess of ten (10)hours shall be paid at double wage.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 10, 11, 13, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$ 24.00	\$ 27.50	\$ 31.50	\$ 35.50

Supplemental Benefits per hour paid:

1st	2nd	3rd	4th
18.23	19.73	20.73	21.73

9-46Reinf

Ironworker

09/01/2005

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Wages: (per Hour)

	07/01/05
Structural..	\$37.65
Riggers.....	37.65
Machinery Movers...	37.65
Machinery Erectors.	37.65

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyman..	41.88
Apprentice	29.08

OVERTIME PAY

OVERTIME: See (B*,E**,Q,V) on OVERTIME PAGE.

* Time and one-half shall be paid for all work in excess of (8) eight hours at the end of a work day to a maximum of two hours on any regular work day (the ninth (9th) and tenth (10th) hours of work) and double time shall be paid for all work thereafter.

** Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1st	2nd	3rd	4th	5th	6th
\$19.90	20.50	20.50	21.10	21.10	21.10

9-40/361-Str

Laborer

09/01/2005

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per hour: 07/01/05

Laborer/Excavation:

Basic...	\$ 33.59
Flagman.	33.59
Pipelayer.	33.59
Tree Work, Landscape.	33.59

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman & Apprentices..	18.96
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OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (2, 20) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 13) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th
50%	60%	75%	90%

9-731Ex

Laborer

09/01/2005

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per hour:

GROUP A: Blasters.

GROUP B: Tunnel workers *

* (including Miners, Drill Runners, Iron Men, Maintenance Men, Conveyor Men, Safety Miners, Riggers, Block Layers, Cement Finishers, Rod Men, Caulkers, Powder Carriers, Miners' Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Derail Men, Form Men, Bottom Bell, Top Bell or Signal men, Form Workers, Movers, Concrete Workers, Shaft Men, Tunnel Laborers and Caulkers' Helpers).

GROUP C: Powder Watchmen, Top Laborers and Changehouse Attendants.

Wages: (per hour) 7/01/05

Laborer (Tunnel)-FREE AIR:

Group A	\$36.89
Group B	35.34
Group C	32.73

Small Bore Micro Tunnel Machines	80% of rates above
For Repairs on Existing Water Tunnels	90% of rates above
For Repairs of Sewer & Drainage Tunnels	85% of rates above
For Repair & Maintenance of all Subway & Vehicular Tunnels	80% of rates above

SUPPLEMENTAL BENEFITS

Per hour paid:

GROUP A \$ 32.78 per hour paid +
 0.28 per hour worked +
 3.00 per day +
 0.16 per overtime hour.

GROUP B \$ 31.34 per hour paid +
 0.28 per hour worked +
 3.00 per day +
 0.16 per overtime hour.

GROUP C \$ 28.92 per hour paid +
 0.28 per hour worked +
 3.00 per day +
 0.16 per overtime hour.

Small Bore Micro Tunnel Machines	80% of rates above
For Repairs on Existing Water Tunnels	90% of rates above
For Repairs of Sewer & Drainage Tunnels	85% of rates above
For Repair & Maintenance of all Subway & Vehicular Tunnels	80% of rates above

OVERTIME PAY

OVERTIME: For Laborer (Free Air) See (D, M, R*) on OVERTIME PAGE.
 For Repair Categories See (B, F, R*) on OVERTIME PAGE.
 & Micro Tunneling
 * Straight time first 8 hours, double time after 8 hours.

HOLIDAY

Paid: See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE

9-147Tnl/Free

Laborer

09/01/2005

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Wages: (per Hour)	07/01/05
Laborer/Asphalt:	
Screenman, micro paver	\$35.73
Rakers	\$35.36

Tampers	\$32.92
Ac/Paintman, Liquid Tar.	\$32.92

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman	\$ 20.45
Apprentice	9.60

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 11, 12, 15, 16) on HOLIDAY PAGE
 Overtime: See (21, 22, 25) on HOLIDAY PAGE
 HOLIDAY:

Paid: See (5,11,12,15,20)* on HOLIDAY PAGE.
 Overtime: See (21, 22, 25)** on HOLIDAY PAGE.

* If an employee does not work on said holiday, he will receive single time pay rate for the said day, provided that the said employee has worked one (1) day in the calendar week in which the said holiday occurs. If an employee works on said holiday, he will be paid only for the single time rate, plus one (1) day's pay for the holiday.

** If an employee does not work on any of these holidays, they will receive no pay. If an employee works on said holiday, he will be paid the single-time rate, plus one day's pay for the holiday.

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd
40%	50%	60%

9-1018a

Laborer

09/01/2005

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 7/01/05

Laborer:

Laborer-Concrete \$ 31.90

SUPPLEMENTAL BENEFITS

\$ 12.42

OVERTIME PAY

OVERTIME: See (A,E,Q) on OVERTIME PAGE attached.*
 *(B,E,Q,) when working below street level to top of foundation. For Work done on Sat & Sun add an additional \$2.25 & \$4.50 per hour respectively to Supp.Benefits.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

9-6A/18A/20-C

Laborer - Building

09/01/2005

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2005

Building Laborer-Demolition: \$ 28.60

* / Total Demolition Only: Demolition shall be the complete demolition (wrecking) or dismantling of entire buildings or structures. Also may include the removal of all or any portion of a roof in which structural change is to occur. Structural change is defined as the removal of structural slabs, steel members, concrete members and penetration through the structural slab.

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman: \$ 14.39

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 13, 15, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage.

1st	2nd	3rd	4th
\$17.00	\$18.00	\$19.50	\$22.00

Supplemental Benefits per hour paid:

Apprentices: \$ 8.20

9-79/95

Laborer - Building

09/01/2005

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2005

Laborer (Bldg):

Basic Laborer \$ 29.25

Mason Tender 29.25

Laborer (interior demolition) 27.80

Laborer (Asbestos Abatement). 25.50

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeymam \$ 15.79

Apprentice 8.90

Interior Demolition 14.24

OVERTIME:

See (B,H) on OVERTIME PAGE.(Time & One-half after 8 hours or after forty per week)

HOLIDAY:

Paid: See (1) on HOLIDAY PAGE.

Overtime See (5,6,*) on HOLIDAY PAGE.

* Easter is paid at time and one-half if worked.

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

APPRENTICES:

1000 hours terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th
78 %	80 %	83 %	89 %

Supplemental Benefits per hour paid:

\$ 8.40

9-NYDC(78)

Laborer - Building

09/01/2005

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2005

Building:

Plasterer Tender.. \$ 28.80

Spray Fireproofing. 28.80

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman \$ 15.79

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hours terms at the following wage.

1st	2nd	3rd	4th
\$ 17.00	\$ 18.00	\$ 19.50	\$ 22.00

Supplemental Benefits per hour paid:

Apprentices 8.90

9-30 (79)

Laborer - Heavy&Highway

09/01/2005

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/05

Laborer:

Highway... \$ 31.04

Formsetter... 34.14

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman: \$ 20.45

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

HOLIDAY:

Paid: See (5,11,12,20)* on HOLIDAY PAGE.

Overtime: See (21,22)** on HOLIDAY PAGE.

* If an employee does not work on said holiday, he will receive single time pay rate for the said day, provided that the said employee has worked one (1) day in the calendar week in which the said holiday occurs. If an employee works on said holiday, he will be paid only for the single time rate, plus one (1) days pay for the holiday.

** If an employee does not work on these holidays he shall receive no pay.

If an employee works on any of these holidays he will receive the single time rate plus 15% of same.

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following percentage of journeymens wage.

1st	2nd	3rd
40%	50%	60%

Apprentices: \$ 9.60

9-1010HH-FS

Laborer - Trac Drill

09/01/2005

JOB DESCRIPTION Laborer - Trac Drill

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/05

Hydraulic Trac Drill:	
Hydraulic Runner...	\$30.75
Hydraulic Tender...	25.98
Wagon, Air Trac, Quarry	
Bar Drill Runner...	30.20
Drill Runners Assistant	
Nipper...	25.49
Blaster...	33.90
w/ Hyd. Trac. Drill...	34.45
Power Tool...	29.51
Powder Carrier...	26.87
Magazine Keeper...	16.12

SUPPLEMENTAL BENEFITS

Per hour paid: \$23.60*

*\$ 10.50 of total to be paid at premium rate for overtime hours.

OVERTIME PAY

OVERTIME Magazine Keeper See (B,H) on OVERTIME PAGE.

OVERTIME: ALL OTHERS SEE (D,E,Q) on OVERTIME PAGE.

HOLIDAY

HOLIDAY:

Prevailing Wage Rates for 07/01/2005 - 06/30/2006
 Last Published on Sep 01 2005

Paid: For Blaster See (5,6,11,13) on HOLIDAY PAGE.

FOR ALL OTHERS SEE (1) ON HOLIDAY PAGE.

Overtime: See (5,6,11,13) on HOLIDAY PAGE.

9-29

09/01/2005

Laborer - Tunnel

DISTRICT 9

JOB DESCRIPTION Laborer - Tunnel

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

GROUP 2: Tunnel Workers* * (including Miners, Drill Runners, Iron Men, Maintenance Men, Inside Muck Lock Tender, Pumpmen, Electricians, Cement Finishers, Rod Men, Caulkers, Carpenters, Hydraulic Men, Shield Drivers, Monorail Operators, Motor Men, Conveyor Men, Safety Miners, Powder Carriers, Pan Men, Riggers, Miner's Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Form Workers, Concrete Workers, Tunnel Laborers, Caulker's Helpers), Hose Men, Grout Men, Gravel Men, Derail Men and Cable Men.

GROUP 3: Top Nipper

GROUP 4: Outside Man Lock Tender, Outside Muck Lock Tender, Shaft Men, Gauge Tender and Signal Men.

GROUP 5: Powder Watchmen, Top Laborers and Changehouse Attendants.

WAGES: (per hour)

7/01/05

Laborer(Compressed Air):

	\$38.59
GROUP 1	37.26
GROUP 2	36.59
GROUP 3	35.95
GROUP 4	31.09
GROUP 5	

SUPPLEMENTAL BENEFITS

SUPPLEMENTAL BENEFITS :

GROUP 1	\$34.34	per hour paid +
	0.28	per hour worked +
	3.00	per day +
	0.16	per overtime hour
GROUP 2	\$33.20	per hour paid +
	0.28	per hour worked +
	3.00	per day +
	0.16	per overtime hour
GROUP 3	\$32.57	per hour paid +
	0.28	per hour worked +
	3.00	per day +
	0.16	per overtime hour
GROUP 4	\$31.98	per hour paid +
	0.28	per hour worked +
	3.00	per day +
	0.16	per overtime hour
GROUP 5	\$30.54	per hour paid +
	0.28	per hour worked +
	3.00	per day +
	0.16	per overtime hour

OVERTIME PAY

See (D, M, *R) on OVERTIME PAGE

NOTE: Time and one-half to be paid for all overtime repair-maintenance work on existing equipment and facilities.

* Straight time first 8 hours, double time after 8 hours.

HOLIDAY

Paid: See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE

9-147Tnl/Comp Air

Mason - Building

09/01/2005

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building: 07/01/05

Mosaic & Terrazzo Worker \$41.68

Mosaic & Terrazzo Finisher \$40.37

SUPPLEMENTAL BENEFITS

Journeyman: \$18.55

Apprentices: Same percentages as wages.

OVERTIME PAY

See (A, E, Q, *V) on OVERTIME PAGE

* ADD \$8.05 per hour to supplements on time & one-half overtime hours. ADD \$10.05 per hour to supplements on double-time overtime hours.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(750 Hour) terms at the following percentage of the journeymans wage.

1st	2nd	3rd	4th	5th	6th
50%	55%	65%	70%	80%	95%

9-7/3

Mason - Building

09/01/2005

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Building: 07/01/2005 12/01/2005

Tile Setters \$ 41.31 \$ 42.27

SUPPLEMENTAL BENEFITS

Journeyman: \$ 18.78 \$ 19.28

Apprentice: 9.43+ 9.93+
 term wage % of 9.35 9.35

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 10, 11, 15, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

(750 hr) terms at the following percentage of journeyman's wage

1st	2nd	3rd	4th	5th	6th
50%	55%	65%	75%	85%	95%

9-7/52

Mason - Building

09/01/2005

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Building 7/01/05 1/01/06

Marble/ Sawyer, Rubber & Polisher \$35.93 \$36.58
 Marble Restoration

Prevailing Wage Rates for 07/01/2005 - 06/30/2006
 Last Published on Sep 01 2005

Finishers	18.46	18.66
SUPPLEMENTAL BENEFITS		
Journeyman:	\$14.63	\$14.98
Polisher	5.95	6.25
Finisher		
Apprentice:...	\$7.85 +	8.20 +
term wage % of...	6.78	\$6.78

OVERTIME PAY
 See (A, E, Q, V) on OVERTIME PAGE

HOLIDAY
 Paid: See (*5, 6, 11, 15) on HOLIDAY PAGE
 Overtime: See (5, 6, 11, 15) on HOLIDAY PAGE
 * Journeymen receive 1/2 days pay for Labor Day. Cleaner, Maintenance and 1ST three terms of Apprentices see (5, 6, 11, 15) on HOLIDAY PAGE. All others See (1) on HOLIDAY PAGE.

REGISTERED APPRENTICES
 (1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	
50%	55%	60%	65%	70%	80%	90%	95%	9-7/24

09/01/2005

Mason - Building

DISTRICT 9

JOB DESCRIPTION Mason - Building

ENTIRE COUNTIES
 Westchester

PARTIAL COUNTIES
 Bronx: Entire 5 Boroughs EXCEPT for projects that fall within a fifty-mile radius of Columbus Circle in New York City.
 Kings: Entire 5 Boroughs EXCEPT for projects that fall within a fifty-mile radius of Columbus Circle in New York City.
 New York: Entire 5 Boroughs EXCEPT for projects that fall within a fifty-mile radius of Columbus Circle in New York City.
 Queens: Entire 5 Boroughs EXCEPT for projects that fall within a fifty-mile radius of Columbus Circle in New York City.
 Richmond: Entire 5 Boroughs EXCEPT for projects that fall within a fifty-mile radius of Columbus Circle in New York City.

WAGES

Wages:	7/01/05	1/01/06
Building:		
Marble Cutters & Setters	\$46.20	\$47.30
SUPPLEMENTAL BENEFITS		
Journeyman:	\$17.80	\$18.20
Apprentice:	7.95 +	7.95 +
term wage % of	9.85	9.85

OVERTIME PAY
 See (B, O, V) on OVERTIME PAGE

HOLIDAY
 Paid: See (*5, 6, 8, 11, 15) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15) on HOLIDAY PAGE
 * Journeymen receive 1/2 days pay for Labor Day. Apprentices 1st three terms See (5, 6, 8, 11, 15) on HOLIDAY PAGE, plus any day following a Thursday or Sunday Holiday. All others See (1) on HOLIDAY PAGE.

REGISTERED APPRENTICES
 (1/2) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	
50%	55%	65%	70%	80%	95%	9-7/4

09/01/2005

Mason - Building

DISTRICT 9

JOB DESCRIPTION Mason - Building

ENTIRE COUNTIES
 Bronx, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

	07/01/2005	12/01/2005
Building:		
Finisher	\$ 33.39	\$ 34.00

SUPPLEMENTAL BENEFITS

Journeyman.. \$ 16.35 \$ 16.85

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 10, 11, 15, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

(750 hour) terms at the following percentages of journeyman's wage.

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	65%	70%	75%	85%	90%	95%

Supplemental Benefits:

Apprentices.	7.00+	7.50+
term wage % of	9.40	9.35

9-7/88-tf

Mason - Building

09/01/2005

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour 07/01/2005

Bricklayer \$ 38.42

SUPPLEMENTAL BENEFITS

Per Hour 07/01/2005

Journeyman \$ 18.03

Apprentice \$ 10.40

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(750 Hour) Terms at the following Percentage of Journeyman's Wage

1st	2nd	3rd	4th	5th(500Hrs)	6th(500Hrs)
50%	60%	70%	80%	90%	95%

9-1Brk

Mason - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Wages: 7/01/05 1/01/06

Marble-Riggers, \$38.58 \$39.23
 Crane & Derrickman

SUPPLEMENTAL BENEFITS

Journeyman...	\$18.47	\$18.82
Apprentice	8.30+	8.65+
wage % of	10.17	10.17

OVERTIME PAY

See (C, O, V) on OVERTIME PAGE

HOLIDAY

Paid: See (*2) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

* 1/2 Day for Labor Day.

REGISTERED APPRENTICES

(1/2) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd	4th	5th	6th
50%	55%	65%	75%	85%	95%

9-7/20-MR

Mason - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Shall include but not limited to: fired clay brick pavers, pre-cast con-crete slabs (london walks), pressed concrete pavers, cobble stone, all types of flagging, asphalt concrete pavers- asphaltic cement sand and stone aggregate, unit safety surface.

WAGES: (per hour)

	7/01/05
Journeyman	\$24.12
Apprentice (1 year term)	20.27

SUPPLEMENTAL BENEFITS

Journeyman	\$10.76
Appr	6.08

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 25) on HOLIDAY PAGE

9-1 Paver

Mason - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

	07/01/05
Stone Setter	\$42.58

SUPPLEMENTAL BENEFITS

(per hour paid)

Stone Setter	\$25.43
Stone Tender	10.95
1st year apprentice	15.06

OVERTIME PAY

See (*C, **E, Q) on OVERTIME PAGE

* On weekdays the eighth (8th) and ninth (9th) hours are time and one-half all work thereafter is paid at double the hourly rate.

** The first seven (7) hours on Saturday is paid at time and one-half all work thereafter is paid at double the hourly rate.

HOLIDAY

Paid: See (8, 25) on HOLIDAY PAGE
 Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(750 hour) terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th
50%	60%	70%	80%	90%	100%

9-1Stn

Mason - Heavy&Highway

09/01/2005

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

07/01/05

Cement Mason \$39.00

SUPPLEMENTAL BENEFITS

Journeyman: \$19.60

Apprentices:

1st term 13.73

2nd term 14.93

3rd term 16.14

4th term 17.34

5th term 18.55

6th term 19.24

OVERTIME PAY

See (C, O, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1/2) year terms at the following percentage of Journeyman's wages and fringes.

1st	2nd	3rd	4th	5th	6th
50%	60%	70%	80%	90%	95%

9-780

Mason - Heavy&Highway

09/01/2005

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

07/01/05

Pointer, Cleaner, &
Caulker (Mason) \$33.46

SUPPLEMENTAL BENEFITS

Journeyman \$15.94

Appr 1st term 2.50

Appr 2nd term 5.91

Appr 3rd term 6.50

Appr 4th term 6.50

OVERTIME PAY

See (B, E2, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$16.80	19.69	25.75	31.30

9-1PCC

Operating Engineer - Building

09/01/2005

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Survey Rates-Building: 7/01/05

Party Chief \$44.74

Instrument Man 33.63
 Rodman 29.67

SUPPLEMENTAL BENEFITS

(per hour paid)
 Journeyman \$20.30

OVERTIME PAY

See (A, *E, Q, V) on OVERTIME PAGE
 * Doubletime paid on the 8th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 8, 11, 12, 15, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 12, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Building

09/01/2005

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

07/01/2005

Building:
 Double Drum... \$48.72
 Cranes, Stone Derrick, Boom Trucks.. 51.60
 Fork Lifts, Hoists Concrete Pump,
 Plaster Buckets & Platforms... 47.56
 All Engine Driven Equipment,
 Compressors... 32.04
 CRANES: Crawler Or Truck
 100' to 149' Boom \$1.75/hr Addit. To Above Crane Rates.
 150' to 249' " 2.00/hr " " "
 250' to 349' " 2.25/hr " " "
 350' to 450' " 2.75/hr " " "
 Tower Crane 2.00/hr " " "

SUPPLEMENTAL BENEFITS

(per hour paid)
 Journeyman \$17.70 +
 \$3.95/hr (\$3.95 not subject to
 condition V; paid at straight
 time all hours worked)*
 Apprentice \$8.95 +
 \$3.95/hr *(see above)

OVERTIME PAY

See (C, O, *V) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following percentages of Journeyman wage:

1st	2nd	3rd
40%	50%	60%

9-14/14B

Operating Engineer - Building

09/01/2005

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

07/01/05

Building:
 Maintenance Engineer... \$42.42
 Maintenance Engineer On Pumps,

Generators, Mixers & Heaters...	33.61
Oilers...	40.47
Oilers On Backhoes, Crawler Cranes & Compressors...	30.79

SUPPLEMENTAL BENEFITS
 (per hour paid)

Journeyman...	\$20.30 (+.85 sup dues)
Apprentice...	11.55 (+.85 sup dues)

OVERTIME PAY
 See (D, O, V) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime:	See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
 (1) year terms at the following wage rates:

1st	2nd	3rd	4th
\$16.66	20.82	22.90	24.98

9-15Ab

Operating Engineer - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

EQUIPMENT COVERED: Jet-Rodder/Vacuum Truck, Flusher, Sewer Rodder, Stetco Hoist and similar, Sewer Winch/Tugger Hoist and similar, Vacall/Vactor, Closed Circuit Television Inspection Equipment, Chemical Grouting Equipment and similar, John Beame, Meyers and similar.

WAGES: (per hour)

07/01/05

Maintenance Engineer	\$43.59
Asst. Maint. Engineer	29.44

SUPPLEMENTAL BENEFITS
 (per hour paid)

Journeyman	\$20.30
Apprentice	11.55

OVERTIME PAY
 See (D, O, V) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE
Overtime:	See (5, 6, 9, 11, 12, 15, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
 (1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$16.66	20.82	22.90	24.98

9-15Sewer

Operating Engineer - Heavy&Highway

09/01/2005

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per Hour:

DIPPER, CLAMSHELL DREDGES	07/01/2005	10/01/2005
---------------------------	------------	------------

CLASS A		
Operator	\$ 28.97	\$ 29.62
CLASS B		
Operator II	\$ 23.94	\$ 24.59
Engineer	25.37	26.02
Boat Master	24.14	24.79
CLASS C		
Maintenance Engineer	\$ 24.49	\$ 25.15
Mate	22.89	23.54
Drag Barge Operator	22.89	23.54
Welder	24.12	24.77
Boat Captain	23.05	23.70
Chief of Party	22.89	23.54
CLASS D		
Oiler	\$ 19.29	\$ 20.34
Scowman	18.78	19.43
Rodman	18.78	19.43
Deckhand	18.83	19.48
HYDRAULIC DREDGES	07/01/2005	10/01/2005
CLASS A		
Leverman	\$ 28.97	\$ 29.62
CLASS B		
Leverman II	\$ 23.94	\$ 24.59
Engineer	24.82	25.47
Derrick Operator	25.07	25.72
Chief Mate	24.72	25.37
Chief Welder	25.38	26.03
Electrician	24.33	24.98
Fill Placer	24.72	25.37
Boat Master	24.13	24.78
CLASS C		
Maintenance Engineer	\$ 24.49	\$ 25.14
Mate	22.89	23.54
Drag Barge Operator	22.89	23.54
Welder (Dredge)	24.11	24.76
Spider Barge Operator	23.91	24.56
Boat Captain	23.05	23.70
Chief of Party	22.89	23.54
CLASS D		
Oiler	\$ 19.29	\$ 19.94
Shoreman	18.80	19.45
Rodman	18.80	19.45
Deckhand	19.23	19.88

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

	07/01/2005	10/01/2005
All Classes A & B	\$ 7.55 plus	\$ 7.90 plus
(overtime hours add)	7% of Wage	7% of Wage
	\$ 1.25	\$ 1.25
All Class C	\$ 6.95 plus	\$ 7.30 plus
	7% of Wage	7% of Wage

(overtime hours add)	\$ 0.95	\$ 0.95
All Class D	\$ 6.35 plus	\$ 6.70 plus
(overtime hours add)	7% of Wage	7% of Wage
	\$ 0.65	\$ 0.65

OVERTIME PAY
 See (B, F, R) on OVERTIME PAGE

HOLIDAY
 Paid: See (5, 6, 8, 15, 26) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarConst

Operating Engineer - Heavy&Highway **09/01/2005**

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Dutchess, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

	07/01/2005
Survey Rates-Heavy/Highway:	
Party Chief	\$46.14
Instrument Man	33.61
Rodman	29.06

SUPPLEMENTAL BENEFITS
 (per hour paid)
 Journeyman \$19.45 (+ \$.85 sup dues)

OVERTIME PAY
 See (B, *E, Q, V) on OVERTIME PAGE
 * Doubletime paid on the 9th hour on Saturday.

HOLIDAY
 Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

9-15Dh

Operating Engineer - Heavy&Highway **09/01/2005**

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT 9**

ENTIRE COUNTIES
 Bronx, Kings, New York, Queens, Richmond

WAGES

	7/01/05
Heavy and Highway:	
Backhoes	\$43.78
Barrier Movers	43.78
Boom Truck	43.78
Bulldozers	43.78
Cherry Pickers	43.78
Concrete Breaker	43.78
Curb Pavers	43.78
Groover	43.78
Loaders	43.78
P-811 Track Removal Machine or Similar	43.78
Dual Purpose Trucks	41.64
Finishing Machines	41.64
Fireman	41.64
Forklifts	41.64
Post Hole Diggers	41.64
Rollers (5 tons and under)	41.64
Tractors	41.64
Tugger Hoists	41.64
Generators	29.44
Water Pump	30.13
Tower Crane Maint. Engineer	56.64
Cherry Picker (20 Ton)	45.07

Oiler 39.48

SUPPLEMENTAL BENEFITS

(per hour paid):

Journeyman... \$20.30
 Apprentices.. 11.55

OVERTIME PAY

See (D, O, V) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE
 Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

1st	2nd	3rd	4th
\$16.66	20.82	22.90	24.98

9-15-15A/H/H

Painter

09/01/2005

JOB DESCRIPTION Painter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

(Per hour)	07/01/2005	05/01/2006
Brush	\$ 33.00	\$ 33.50
Spray & Scaffold	36.00	36.50
Fire Escape	36.00	36.50
Decorator	36.00	36.50
Paperhanger/Wall Coverer	34.98	35.33

SUPPLEMENTAL BENEFITS

(per hour worked)	07/01/2005	05/01/2006
Paperhanger	\$ 22.02	\$ 23.01
All others	19.91	18.90

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Indentured after 5/31/93 (1) year terms at the following wage rate.
 (per hour)

Appr 1st term...	\$ 12.70	\$ 12.70
Appr 2nd term...	16.50	16.75
Appr 3rd term...	19.80	20.10
Appr 4th term...	26.40	26.80

Supplemental benefits:

(per Hour worked)		
Appr 1st term...	7.64	8.63
Appr 2nd term...	9.75	10.74
Appr 3rd term...	12.22	13.21
Appr 4th term...	16.99	17.68

9-NYDC9-B/S

Painter

09/01/2005

JOB DESCRIPTION Painter

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Drywall Taper 07/01/2005
 \$35.32

SUPPLEMENTAL BENEFITS

Journeyman \$17.77
 Appr 1st term 8.00
 Appr 2nd term 12.94
 Appr 3rd term 15.62

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 10, 11, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rate

1st term \$13.73
 2nd term 20.90
 3rd term 28.26

9-1974-DWT

Painter - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Painter - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

7/01/05

Metal Polisher \$ 21.98

All workers shall be paid a premium in an amount equal to twenty (20%) percent of their basic straight time rate of pay for all time worked on hanging scaffolds and on standing scaffolds while working more than 28 feet off the ground, such premium to be paid on top of their straight time or overtime, whichever is applicable.

SUPPLEMENTAL BENEFITS

(% of Total Wages)

Journeymen & Apprentice - 55% of Wages

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

55% of Basic Polisher Rate (*)

9-8A/28A-MP

Painter - Heavy&Highway

09/01/2005

JOB DESCRIPTION Painter - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Painter (Striping-Highway): 07/01/05

Striping-Machine Operator \$23.64
 Linerman Thermoplastic 28.49

SUPPLEMENTAL BENEFITS

(per hour paid)

✧ Journeyman.. 7.14 +
 7% of wage

OVERTIME PAY

See (B, E, P, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 8, 11, 12, 15, 16, 17, 20) on HOLIDAY PAGE

Overtime: See (5, 8, 11, 12, 15, 16, 17, 20, 21, 22) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage.

1st term	\$ 14.24
2nd term	17.09
3th term	19.94
4th term	21.36

9-8a/28a (230)-HWSt

Painter - Heavy&Highway

09/01/2005

JOB DESCRIPTION Painter - Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Ulster, Warren, Washington, Westchester

WAGES

07/01/2005

STEEL:

" **Bridge	\$ 42.00
" Spray	48.00
" Sandblasting	48.00
" Power Tool	48.00

**For Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SUPPLEMENTAL BENEFITS

(per hour) \$ 24.77

OVERTIME PAY

See (*A, **F, ***R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (*4, **6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd
40%	60%	80%

Supplemental Benefits:

1st term	19.77
2nd term	24.77
3rd term	24.77

9-DC-9/806-BrSS

Plasterer

09/01/2005

JOB DESCRIPTION Plasterer

DISTRICT 9

ENTIRE COUNTIES

Kings, Nassau, Queens, Suffolk

WAGES

NEW YORK CITY:

Brooklyn & Queens 07/01/2005

(per hour)

Building:
 Plasterer/Traditional \$ 33.24

SUPPLEMENTAL BENEFITS

(per hour worked)
 Journeyman \$ 18.30

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 11, 13, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following journeyman's wage rate.

First year:	1st 6 months	2nd 6 months
	40%	45%
Second year:	1st 6 months	2nd 6 months
	55%	60%
Third year:	1st 6 months	2nd 6 months
	70%	75%

Supplemental Benefits:

Appr. 1st term	\$ 8.03
Appr. 2nd term	8.86
Appr. 3rd term	10.49
Appr. 4th term	11.30
Appr. 5th term	12.96
Appr. 6th term	13.79

9-530-Z1

Plasterer

09/01/2005

JOB DESCRIPTION Plasterer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

07/01/2005

Journeyman \$ 32.00

SUPPLEMENTAL BENEFITS

Journeyman \$ 16.30

OVERTIME PAY

See (C, O) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
 Overtime: See (5, 6, 8, 10, 11, 13, 18, 19, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1/2) year terms at the following percentage of journeyman's wage.

1st	2nd	3rd	4th	5th	6th
40%	45%	55%	60%	70%	75%

Supplemental Benefits:

Appr 1st term	\$ 6.45
Appr 2nd term	7.27
Appr 3rd term	8.91
Appr 4th term	9.73
Appr 5th term	11.37
Appr 6th term	12.20

9-530-Z1/SC

Plumber

09/01/2005

JOB DESCRIPTION Plumber

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

7/01/05

Steamfitter..... \$ 29.30

Refrigeration, A/C, Oil Burner and Stoker Service and Installations, limited on Refrigeration to combined compressors up to five (5) horsepower, and on A/C Heating and Air Cooling to combined compressors up to ten (10) horsepower.

SUPPLEMENTAL BENEFITS

Journeyman..... \$ 7.71

OVERTIME PAY

OVERTIME:.....See (B, E, Q*, S**) on OVERTIME PAGE.

HOLIDAY

HOLIDAY:

Paid:.....See (2, 6, 9, 10, 11, 15, 17, 26, Memorial Day) on HOLIDAY PAGE.

Overtime:.... * (2, 6, 9, 15, 17)

** (10, 11, 26, Memorial Day)

9-638B-StmFtrRef

Plumber

09/01/2005

JOB DESCRIPTION Plumber

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Wages: 7/01/05

Steam Fitter*... \$41.82

Sprinkler Fitter*.. \$41.82

For Work on Temporary Heat**
& Air Conditioning.. \$31.78

SUPPLEMENTAL BENEFITS

(per hour paid)

Journeyman... \$30.75
+.32 per hour worked

For Work on Temporary... \$24.39
Heat & Air conditioning. +.32 per hour worked

Apprentices.. term percentage of \$30.75
+ .32 per hour worked

OVERTIME PAY

OVERTIME:..... See (C*, D**, O, V) on OVERTIME PAGE.

* Applicable to HVAC and mechanical contracts with a dollar value not to exceed Seven Million Five Hundred Thousand Dollars (\$7,500,000.00) and to fire protection/sprinkler contracts with a dollar value not to exceed Seven Hundred Fifty Thousand Dollars (\$750,000.00). Hours of labor shall be eight hours (8) per day.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following percentage of Journeyman's wage.

1st. 2nd. 3rd. 4th. 5th.

40% 50% 65% 80% 85%

9-638A-StmSpFr

Plumber

09/01/2005

JOB DESCRIPTION Plumber

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

	7/01/05	7/01/06
Plumber	\$45.01	\$47.91
Repair & Alteration	\$28.13	\$28.13

Repair & alteration work is any repair and/or replacement of present plumbing system that does not change existing roughing or water supply lines.

THERE ARE NO HELPERS UNDER THIS CLASSIFICATION; WHEN USING APPRENTICES, MUST FOLLOW RATIO FOR PLUMBERS

On tower work, bridges, elevated highway, or buildings, where pipe is being installed, fifty (50) or more feet vertically in a free drop from its base, an additional \$1.00 per hr.

SHIFT WORK: When shift work is directly specified in Transit Authority and/or Department of Transportation contract documents, and must continue for a period of not less than ten (10) consecutive work days. A shift shall consist of seven (7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M. and midnight shifts. For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits. For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:00 P.M. is not considered shift work, and therefore not subject to shift premium.

SUPPLEMENTAL BENEFITS

Plumber:		
Journeyman	\$28.23	\$28.23
Apr 1st term	0.61	0.61
Apr 2nd term	2.61	2.61
All other Apprs	11.09	11.09
Plumber-Jobbing & Alterations	12.12	12.12

OVERTIME PAY

OVERTIME:

Plumber:..... See (C, O, V) on OVERTIME PAGE.

Plumber-Jobbing &

Alterations..See (B, H) on OVERTIME PAGE.

HOLIDAY

HOLIDAY:

Plumber:..... Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE.

Plumber-Jobbing &

Alterations..Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

(1/2) year terms at the following wage:

1st	2nd	3rd & 4th	5th & 6th
\$10.50	10.75	13.04	15.14
7th & 8th	9th	10th	
17.99	\$19.39	31.36	

Roofer

09/01/2005

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

7/01/05

Roofer/Waterproofer...

\$32.08

SUPPLEMENTAL BENEFITS

Journeyman

\$ 21.57

Appr.....

Wage %
of same

OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following percentage of Journeyman's wage.

1st	2nd	3rd
40%	50%	75%

9-8R

Sheetmetal Worker

09/01/2005

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour:

07/01/2005

Sign Erector

\$ 35.20

(NOTE)

Overhead Highway Signs and Structurally Supported Signs (SEE IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2005

Journeyman

\$ 25.81

OVERTIME PAY

See (A, H) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 12, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 11, 12, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1/2) year terms at the following rate(s):

1st	2nd	3rd	4th	5th
\$12.09	13.82	15.54	17.27	19.00
6th	7th	8th	9th	10th
20.72	22.45	24.18	25.91	27.63

Supplemental Benefits:

Apprentice(s)	
1st Term	\$ 7.79
2nd Term	8.74
3rd Term	9.64
4th Term	10.52
5th Term	11.97
6th Term	12.75
7th Term	14.30
8th Term	15.13

9-137-SE

Sheetmetal Worker

09/01/2005

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2005

Sheetmetal Worker \$ 39.99

For Temporary Operation or
 Maintenance of Fans is 80% of Above Wage Rate

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyman \$ 31.06

OVERTIME PAY

See (A, O) on OVERTIME PAGE

For Fan Maintenance See Codes B & O

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages Per Hour:

(1/2) Year Terms at the following Percent of Journeyman(s) Wage

1st	2nd	3rd	4th	5th	6th	7th	8th
30%	35%	40%	45%	50%	55%	60%	70%

Supplemental Benefits per hour:

1st Term	\$ 11.85
2nd Term	13.38
3rd Term	14.77
4th Term	16.23
5th Term	17.65
6th Term	18.96
7th Term	20.73
8th Term	24.18

4-28

Sprinkler Fitter - Refrigeration

09/01/2005

JOB DESCRIPTION Sprinkler Fitter - Refrigeration

DISTRICT 9

ENTIRE COUNTIES

Bronx, Nassau, New York, Queens, Suffolk

WAGES

Per hour: 07/01/2005

Steamfitter \$ 29.30

Refrigeration, A/C, Oil Burner and Stoker Service and Installations, limited on Refrigeration to combined compressors up to five (5) horsepower, and on A/C Heating and Air Cooling to combined compressors up to ten (10) horsepower.

SUPPLEMENTAL BENEFITS

Per hour worked:

Journeyman \$ 7.71

OVERTIME PAY

See (B, E, *Q, **S) on OVERTIME PAGE

* Overtime Code Q applies to Holiday Codes 2, 6, 9, 15, and 17.

** Overtime Code S applies to Holiday codes 10, 11, 26, and Memorial Day.

HOLIDAY

Paid: See (2, 6, 9, 10, 11, 15, 17, 26) on HOLIDAY PAGE

Overtime: See (2, 6, 9, 10, 11, 15, 17, 26) on HOLIDAY PAGE

Memorial Day a Paid Holiday with Overtime as per Overtime Code S

9-638B

Survey Crew Consulting

09/01/2005

JOB DESCRIPTION Survey Crew Consulting

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Dutchess: Only the portion south of the north city line in Poughkeepsie.

WAGES

Feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a Consulting Engineer agreement.

WAGES: (per hour)

7/01/05

Survey Rates:

Party Chief..... \$29.82

Instrument Man.. 25.01

Rodman..... 21.95

SUPPLEMENTAL BENEFITS

(per hour paid)

Journeyman..... \$11.70

OVERTIME PAY

OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.

*Doubletime paid on the 9th hour on Saturday.

HOLIDAY

Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Teamster - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour: 07/01/2005

Truck Driver, Chauffeur

Loader/Operator

Trailers \$ 23.10

Straight Jobs 22.80

SUPPLEMENTAL BENEFITS

Per Hour:

All Classifications \$ 18.18

OVERTIME PAY

See (B, L, S, S1) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 7, 8, 11, 12, 26) on HOLIDAY PAGE

Employee must work Two(2) Days in Holiday Week

4-282.Demo

Teamster - Building / Heavy&Highway

09/01/2005

JOB DESCRIPTION Teamster - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour: 07/01/2005

Group#1

Excavation \$ 31.235

Group#2

Euclid & Turnapull type \$ 31.800

ADDITIONS Per Day:

Three(3) Axle Tractors
and Trailers: \$ 8.00

Heavy Equipment and
Tag-Alongs Trailers: 12.00

Drivers of Boom Trucks: 10.00

SUPPLEMENTAL BENEFITS

Per Hour:

All Groups/
Classifications \$ 25.00

OVERTIME PAY

See (B, E, Q, R, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 12, 15, 25) on HOLIDAY PAGE

Overtime: See (11, 12, 15, 25) on HOLIDAY PAGE

Employee must work Two(2) Days in Holiday Week

5,6,13 Paid at Triple Time if Worked.

4-282ny

Welder

09/01/2005

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour

Welder (To be paid the same rate of the mechanic performing the work)

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule.
Additional requirements may also be listed in the HOLIDAY section.

- (A) Time and one half of the hourly rate after 7 hours per day
- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays, if worked
- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays, if worked
- (U) Four times the hourly rate for Holidays, if worked

(V) Including benefits at SAME PREMIUM as shown for overtime

(W) Time and one half for benefits on all overtime hours.

NOTE: BENEFITS are PER HOUR WORKED, for each hour worked, unless otherwise noted

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day

**MINORITY BUSINESS ENTERPRISES
AND
WOMEN'S BUSINESS ENTERPRISES
DIRECTORY
AND
FORMS**

The Port Authority has a long-standing practice of making its contract available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it. The Port Authority's on-line Directory of Qualified MBE/WBEs lists the firms that are registered to assist Contractors in meeting and exceeding their Good Faith Goals.

The MBE/WBE Directory specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated.

Contractors are provided with an interactive directory and the ability to view and print a current listing of M/WBE contractors. Information may be selected and sorted according to categories, state, dollar range, and type (MBE, WBE, DBE, and SBE).

To view the directory, type in www.panynj.gov/mwbe or go to www.panynj.gov, select Engineering - M/W/S/DBE Information (under Doing Business with the Port Authority), and then select MWBE Qualified Vendor Search. A hard copy is available upon request to the Contract Desk at (973) 792-3935 or contractsdesk@panynj.gov.

THE PORT AUTHORITY OF NY & NJ
MBE/WBE CERTIFICATION
UNIFORM CERTIFICATION APPLICATION

General Instructions: PLEASE TYPE OR PRINT CLEARLY. DO NOT LEAVE ANY BLANK SPACES ON THE APPLICATION. If a question is not applicable to your business, insert "N/A" in the space provided for your answer. You may make photocopies of the completed application as necessary. Whenever the space is insufficient to answer the questions completely, attach additional sheets as necessary. Use the question number to identify any answer continued on an additional sheet of paper.

1. Name and Street Address of Applicant Firm (Enter the full name of the enterprise. For example, a corporation named ABC Construction, Inc. should be identified as "ABC Construction, Inc." not as "ABC Construction".)

Company Name _____

Street Address _____

City _____ State _____ Zip _____

1a. "Doing Business As" (D/B/A) Name (Complete if the firm does business under an assumed or trade name which is different from its legal name.) Attach copy of Certification.

1b. Mailing Address (Complete if different from street address)

2. Business Telephone number () _____ Fax: () _____

Cell phone number () _____

3. Federal Employer Identification Number (EIN) or Social Security Number. A Federal Employer Identification Number is required for most business activities. Sole proprietorships may submit the social security number of the owner in lieu of the federal identification number. For an EIN application or additional information, contact the U.S. Internal Revenue Service or visit their website.

Federal Tax ID/EIN# _____ Social Security # _____
(Attach W-9)

4. Name of Company President/Chief Executive Officer/Owner

President Chief Executive Officer Owner

4a. Name, title and telephone number of an officer of the firm who can be contacted during the application review process.

Name Title

Telephone number Cell phone number

5. This firm is applying for certification as: (Refer to page 14 of this application to determine the appropriate definition for your company. One or more categories may be designated)

_____ Woman-Owned Business Enterprise (WBE)

_____ Minority Business Enterprise (MBE)

Schedule A

6. Does this firm have current U.S. Small Business Administration (SBA) 8(a) status? Yes No (If "yes", attach a copy of the SBA letter of approval)

7. Are you currently involved in the bidding process or other contract/purchase order negotiations with any governmental agency, department or authority?

Yes No (If yes, identify agency, department or authority)

8. Type of ownership

Sole Proprietorship _____ Certificate of Trade Name on file in _____
Date Established County

Partnership _____ Business Certificate for Partners _____
Date Established County

Limited Liability Partnership _____ Certificate of Limited Partnership on file in _____
Date Established County

Corporation _____ Certificate of Incorporation on file in _____
Date Established County

Limited Liability Company _____ Articles of Organization on file in _____
Date Established County

8a. Did business exist under a different type of ownership prior to the date indicated in question 8 above?

Yes No (If yes, Explain)

8b. Has your Certificate of Incorporation or business certificate been amended?

Yes No (If yes, Explain)

8c. Method of Acquisition (check all applicable):

Started New Business Secured Franchise Other _____
 Bought Existing Business Secured Concession
 Inherited Business Merger or Consolidation

Date of Acquisition _____

8d. Name and Position of all person (s) with an ownership interest.
(Check all that are applicable. If no positions are held, state 'none'.)

*Group Code Key (Refer to Page 15 for Definitions)

01-Black	02a-Hispanic	03a Asian-Pacific	04-Native American
	02b-Portuguese	03b Asian-Indian	05-Non-Minority
	02c-Spanish		06-Other

Name	Position	Group Code*	%Owned	Gender	US Citizen or Permanent Resident Alien
				<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Yes <input type="checkbox"/> No

9. Identify the cash and capital contributions to the firm by those identified in 8d, including gifts, equipment, loans, and expertise as well as any other individuals.

Contributor/Source	Amount/Value	Type/Date of Contribution

10. If the firm is a partnership, complete for all partners:

Name	Total Amount/Value of Contribution	Date of Ownership

10a. If a corporation or company, complete for all shareholders:

Name	Number of Shares	Common or Preferred	Amount Paid When Purchased	Date of Ownership

11. Gross Receipts (Sales). Provide gross receipts for the last three (3) years. (If in business for less than three (3) years complete as applicable.)

\$ _____ Current Year () \$ _____ Last Year () \$ _____ Previous Year ()

12. Number of employees (Average over the past year)

Permanent		Temporary	
Full-Time		Full-Time	
Part-Time		Part-Time	

13. If licenses, permits or accreditations are required to conduct the business, identify:

Type of License/Permit	Issued by	Issue Date	Exp. Date	Holder/Registrant

14. Check the item (s), which best describe (s) the business operation

- Construction-related Consumer Service
 Professional Service Manufacturer/Supplier
 Technical Service Retail
 Other _____

14a. Describe principal products/commodities sold, specialties or services offered

15. Identify individuals responsible for managerial operations (state if owner or non-owner)
 (*For Group codes see Page 15)

Name & Title	Gender	*Group Code	Owner or Non-Owner
1) Financial Decisions			
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner
2) Estimating			
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner
3) Preparing Bids			
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner
_____	<input type="checkbox"/> Male <input type="checkbox"/> Female	_____	<input type="checkbox"/> Owner <input type="checkbox"/> Non-Owner

4) Negotiating Bonding

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

5) Negotiating Insurance

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

6) Marketing & Sales

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

7) Hiring & Firing

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

8) Supervising Field Operations

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

9) Purchasing Equipment/Supplies

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

10) Managing & Signing Payroll

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

11) Negotiating Contracts

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

12) Signatures for Business Accounts

_____ Male Female _____ Owner Non-Owner
_____ Male Female _____ Owner Non-Owner

15a. Do any of the following also work for another firm? If yes, provide the person's name, his/her position, other firm's name, address and telephone number.

	Name & Position	Other Firm Name, Address	Business Telephone
1) Office Staff			
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
2) Field/Supervisory Staff			
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
3) Estimator			
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
4) Controller			
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
5) Consultant (for firms providing consultant/technical services or advisory services)			
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____

15b. Does this firm share the following with any other firm? If yes, provide the other firm's name, address & telephone number.

(1.) Office space

Other Firm Name	Address	Telephone No.

(2.) Yard space

Other Firm Name	Address	Telephone No.

(3.) Equipment (include rentals)

Other Firm Name	Address	Telephone No.

16. List rented, leased or owned warehouse, plant and office facilities

Facility Type	Owner or Name of Lessor and/or rental agent	Amount of yearly rent payment

16a. List major equipment or machinery, which is owned or leased by the firm

Type of Equipment	Depreciated Dollar Value	Acquisition Date	Payment Terms

17. Do any principals, officers, employees and/or owners of the firm have an affiliation, i.e. business interest or employment with any other firm? Yes No (If yes, complete the following)

Name of Person	Firm Name & Address	Telephone	Nature of Business	Nature of Affiliation

18. Attorney for firm

Name _____

Address _____

City _____ State _____ Zip _____

Telephone No. _____

19. C.P.A. or Accountant for firm

Name _____

Address _____

City _____ State _____ Zip _____

Telephone No. _____

20. Has the firm applied or received a determination for certification as an M/WBE with another governmental agency, department or authority? Yes No (If Yes, complete the following)

(1.) Pending with

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(2.) Certified by

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(3.) Registered by

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(4.) Withdrawn/Closed out

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(5.) Rejected by

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(6.) Denied by

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

(7.) Decertified by

Agency	Date	Contact Person	Telephone No.	Specify M/WBE

20a. Are there appeals pending on any of the above applications or certifications? Yes No

Agency	Date of Appeal	Contact Person	Telephone No.

21. List the three (3) largest accounts for which the applicant has provided goods or services within the last two years

Firm Name & Telephone No.	Account Dollar Amount	Location of Performance	Contact Person	Duration

22. Identify Bank (s) where firm's accounts are maintained

Bank Name & Address	Contact	Type of Account	Account No.

23. Do you have a Line of Credit Yes No (If yes, Identify)

Source	Limit	Name of Guarantor (s)

24. List Major current creditors and/or lenders and types of investment and/or loans in the firm

Creditor/Lender Name	Type of Investment/Credit/Loan	Dollar value of investment/Terms/Credit/Loan

25. If company is owned in full or in part by another firm, identify the firm and the percentage of ownership interest. Include venture capitalists and other similar investors.

Firm Name	Address	Percentage Ownership

26. Is the firm bonded? Yes No (If yes specify type and limit)

Bonding Company _____
 Address _____
 Telephone No. _____ Contact Person _____
 Type _____ Limit _____

SUPPORTING DOCUMENTS

27. REQUIRED FOR ALL APPLICANTS

Attach copies of the following documents, as applicable. Indicate documents submitted by checking appropriate boxes. All documents must be submitted for certification.

NOTE: If applicable documents are not submitted, application will be returned to you.

- 1. Resumes of all principals, partners, officers and/or key employees of the firm. Provide home address and telephone number, education, training and employment with dates
- 2. Copies of any licenses, permits and/or accreditations required to conduct the business
- 3. Bank signature card, bank resolution, or letter from the bank identifying persons authorized to conduct transactions, level of authority and limitations, if any
- 4. Current financial statement
- 5. Most recent three years' Federal, State and City tax returns including all schedules, and W-2s where applicable
- 6. Proof of sources of capitalization/investments
- 7. Proof of ethnicity (Birth Certificate, Baptismal Certificate, U.S. Passport, U.S. Driver License with photograph)
- 8. Proof of U.S. Citizenship (Birth Certificate, Baptismal Certificate, U.S. Passport, Naturalization Certificate)
- 9. Proof of permanent resident alien status (permanent resident "green" card)
- 10. Lease Agreements for business premises
- 11. All third party agreements including: equipment rental, purchase agreements, management service agreements, etc.
- 12. Any employment agreements
- 13. Vehicle registration(s)
- 14. Any certification, decertification or denial of certification documentation
- 15. Proof of U.S. Small Business Administration (SBA) 8(a) Certification (copies of all approval letters)
- 16. Written request for exemption from disclosure regarding trade secrets

SUPPORTING DOCUMENTS

27a. REQUIRED FOR A SOLE PROPRIETORSHIP

- Copy of Business Trade Name or Certification Trade Name files with County Clerk
(If doing business under an assumed name)

27b. REQUIRED FOR A PARTNERSHIP AND JOINT VENTURE PARTNERSHIP

Attach copies of the following: (Indicate documents submitted by checking appropriate boxes)

1. Business Certificate
 2. Partnership Agreement
 3. Buy-Out Rights

27c. REQUIRED FOR A LIMITED LIABILITY COMPANY (Check appropriate boxes below)

1. Sole Proprietorship
 2. Corporation
 3. Partnership Agreement

Attach required documents and indicate documents submitted by checking appropriate boxes

1. Certificate of formation and/or organization
 2. Operating and/or managing agreements
 3. Franchise and/or third-party agreement

27d. REQUIRED FOR A CORPORATION

Attach documents of the following: (Indicate documents submitted by checking appropriate boxes)

1. Articles of incorporation, including date approved by State
 2. Corporation By-Laws
 3. Minutes of first corporate organizational meeting and amendments
 4. Copies of all issued stock certificates, front and back, as well as next un-issued certificate
 5. Copy of stock ledger
 6. If applicable, furnish copies of agreements relating to:
- a. stock options
 - b. shareholder agreements
 - c. shareholder voting rights
 - d. restriction on the disposal of stock loan agreements
 - e. facts pertaining to the value of shares
 - f. buy-out rights
 - g. restrictions on the control of the corporation

7. List of current Board of Directors including group code, gender and effective dates

Name	Position	Group Code*	Gender	Date
			<input type="checkbox"/> Male <input type="checkbox"/> Female	
			<input type="checkbox"/> Male <input type="checkbox"/> Female	
			<input type="checkbox"/> Male <input type="checkbox"/> Female	
			<input type="checkbox"/> Male <input type="checkbox"/> Female	

*For Group Codes, See Page 15

NOTE: IF APPLICABLE DOCUMENTS ARE NOT SUBMITTED, APPLICATION WILL BE RETURNED TO YOU.

DEFINITIONS OF MBE AND WBE
(To be used for Question 5, Page 1)

MINORITY BUSINESS ENTERPRISE (MBE) – A business enterprise which is at least fifty-one percent (51%) owned by, and controlled or, in the case of a publicly owned business, at least fifty-one percent (51%) of the stock of which is owned by citizens or permanent resident aliens; and whose management and daily business operations are controlled by one or more such individuals meeting the ethnic definitions of:

- 01 Black
- 02a Hispanic
- 03a Asian-Pacific
- 03b Asian-Indian
- 04 Native American

WOMAN-OWNED BUSINESS ENTERPRISE (WBE) – A business enterprise which is at least fifty-one percent (51%) owned by, and controlled by one or more socially, in the case of a publicly owned business, at least fifty-one percent (51%) of the stock of which is owned by citizens or permanent resident aliens who are women and whose management and daily business operations are controlled by women.

- 01 Black
- 02a Hispanic
- 02b Portuguese
- 02c Spanish
- 03a Asian-Pacific
- 03b Asian-Indian
- 04 Native American

Women, regardless of race or ethnicity

UNDER EACH CERTIFICATION CATEGORY, OWNERSHIP MUST BE REAL, SUBSTANTIAL AND CONTINUING. THE APPLICANT MUST HAVE AND EXERCISE THE AUTHORITY TO INDEPENDENTLY CONTROL THE BUSINESS DECISIONS OF THE ENTERPRISE.

DEFINITIONS OF GROUP CODES

(To be used for Question 8d, Page 2-3; Question 15, Pages 4-5; and Supporting Documents 27d-7, Page 13)

Group Code	Group Name	Group Definition
01	Black	Persons having origins from any of the black African racial groups not of Hispanic origin
02a	Hispanic	All persons of Mexican, Puerto Rican, Cuban, Caribbean Islands, Central or South American culture or origin, regardless of race
02b	Portuguese	Persons whose culture or origin is rooted in Portugal
02c	Spanish	Persons whose culture or origin is rooted in Spain
03a	Asian-Pacific	Persons having origins in any of the original peoples of the Far East, Southeast Asian or the Pacific Islands
03b	Asian-Indian	Persons having origins in any of the original peoples of the Indian subcontinent
04	Native American	Persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification
05	Non-Minority	Persons whose culture or origin is other than those defined above
06	Other	Persons other than those defined above who believe they are socially and economically disadvantaged

ACKNOWLEDGEMENTS AND VERIFICATION

FIRST, this certification application form, the supporting documents, and any other information provided in support of the application is considered part of the application. Any false statements or misrepresentations in the application may result in the applicant's disqualification from certification as Minority and/or Woman-owned Business Enterprise (M/WBE) by The Port Authority of New York and New Jersey for him/herself and its subsidiaries, which are included in the term "Port Authority".

SECOND, the information contained herein is subject to the Port Authority's Freedom of Information policy as reflected in the resolution adopted by the Committee on Operations of the Port Authority on August 13, 1992.

THIRD, the Port Authority may require further proof of eligibility for certification in addition to the information disclosed in this application and the applicant shall cooperate with the Port Authority in supplying the additional information. By completing this application, the applicant agrees to submit the additional proof required and acknowledges that the Port Authority may decide to deny the application if the additional proof is not submitted within 30 days after it is requested.

FOURTH, by filing this application, the applicant consents to examination of its books and records and interviews of its principals and employees by the Port Authority for the purpose of determining whether the applicant is, or continues to be, an eligible M/WBE. The applicant acknowledges that its certification may be denied if such examinations or interviews are refused or if the Port Authority determines, as a result of the examinations or interviews, that the applicant does not qualify for certification as a M/WBE.

FIFTH, by filing this application, the applicant consents to inquiries being directed by the Port Authority to the applicant's bonding companies, banking institutions, credit agencies, contractors, clients and other certifying agencies for the purpose of ascertaining the applicant's eligibility for certification. If the applicant fails to permit such inquiring to be made, such failure may be grounds for denying or revoking the applicant's certification.

SIXTH, the applicant agrees that it will advise the Port Authority of any change in the ownership or operational and managerial control of applicant's business after the certification application has been filed within 30 days of such change.

SEVENTH, certification is normally granted for a period of five (5) years. However, the Port Authority may require submission of a new application, additional information, examinations of the applicant's principals and employees at any time before the expiration of the five-year certification period. The applicant's failure to submit such material or to consent to such examinations and interviews will be grounds for revocation of certification.

EIGHT, the filing of this application, its acceptance by the Port Authority, and any subsequent certification of the applicant by the Port Authority, is not intended to and does not create any procedural or substantive rights enforceable at law by the applicant against the Port Authority, its Commissioners, officers, agents or employees and any such certification is only intended to facilitate the identification of qualified and bona fide M/WBEs.

NINTH, the Code of Ethics certification attached hereto shall be considered part of this certification application and the applicant is advised to familiarize him/herself with the terms of the certification prior to submitting this application.

TENTH, in submitting this application the applicant and each person signing on behalf of the applicant certifies that, to the best of their knowledge and belief, the following statements are true and correct:

- A) No individual who is current or former employee of the Port Authority or its subsidiaries (i.e., Port Authority Trans-Hudson Corporation (PATH), Newark Legal and Communications Center Urban Renewal Corporation) other than those individuals identified in the space immediately below (1) owns an interest in; or (2) has involvement in a relationship with the applicant firm (a) from or as a result of which the individual has received within the past year, or is entitled to receive in any future year, more than \$1,000 or its equivalent; or (b) which has a market value in excess of \$1,000. *(List here any such current or former Port Authority Employee (s))

- B) No individual who is a current or former employee of the Port Authority or its subsidiaries other than those individuals identified in the space immediately below (1) holds a position in the applicant firm such as an officer, director, trustee, partner, employee, or a position of management; or (2) acts as a consultant, agent or representative of the firm in any capacity. *(List here any current or former Port Authority Employee (s))

*Included within the scope of this certification are the individuals identified by the applicant in response to questions 4, 4a, 8d, 9, 10, 10a, 17, 18, 19, 24 and 25.

ELEVENTH, the criteria for certification by the Port Authority as a Small Business Enterprise are outlined in the documentation entitled "Small Business Enterprise Program (SBE) Administered by The Port Authority of New York and New Jersey" which accompanies this application. If the applicant believes that he/she is eligible for SBE certification, he/she may request that this application also be treated as an SBE certification application by signing below. If signature is provided, all acknowledgments and provisions of this M/WBE certification shall also apply.

Applicant _____ Date _____

VERIFICATION

STATE OF _____)

SS:

COUNTY OF _____)

(A) (For Sole Proprietorships, Partnerships, and Limited Liability Partnerships)

_____, being duly sworn, states that he or she is the owner of (or a Partner in) the entity making the foregoing application and that the statements and representations made in the application are true to his/her own knowledge.

Signature Date

(B) (For Corporations and Limited Liability Companies)

_____, being duly sworn, states that he/she is the
Name of Corporate Officer

_____ of _____
Title of Corporate Officer Name of Corporation

the entity making the foregoing application, that he/she has read the application and knows its contents, that the statements and representations made in the application are true to his/her knowledge, and that the application is made at the direction of the Board of Directors of the Corporation.

Corporate Seal _____ Signature Date

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

Notary Public

Mail to: *The Port Authority of New York and New Jersey
Office of Regional and Economic Development Small Business Programs
233 Park Avenue South, 4th Floor
New York, NY 10003*

NOTE: Applicant must also sign page 16

CODE OF ETHICS CERTIFICATION

In signing and submitting the annexed Certification Application, each applicant and each person signing on behalf of any applicant certifies that they have not made any offers or agreements or given or agreed to give anything of value or taken any other action with respect to any employee or former employee of The Port Authority of New York and New Jersey or any of its subsidiaries (hereinafter referred to as the "Authority") or any immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics and Financial Disclosure dated as of July 18, 1994 (a copy of which is available upon request to the Office of Regional and Economic Development /Small Business Programs), nor do they have any knowledge of any act on the part of such employee or former employee relating either directly or indirectly to the applicant which constitutes a breach of the ethical standards set forth in said code.

As used herein, "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by an Authority contract), etc., which might tend to obligate the Authority employee to the Contractor and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by any Authority contract.

The foregoing certification shall be deemed to have been made by the applicant as follows: If the applicant is a corporation, such certification shall be deemed to have been made not only with respect to the application itself, but also with respect to each director and officer, as well as, to the best of the certifier's knowledge and belief, each stockholder with an ownership interest in excess of 10%; if the applicant is a partnership, such certification shall be deemed to have been made not only with respect to the applicant itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate applicant, shall be deemed to have been authorized by the Board of Directors of the applicant, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the applicant cannot make the foregoing certification, the applicant shall so state and shall furnish with the application, a signed statement that sets forth in detail the reasons thereof.

The foregoing certification or signed statement shall be deemed to have been made by the applicant with full knowledge that it would become part of the records of the Authority and that the Authority will rely on its truth and accuracy in granting certification.

Applicants are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et. Seq.). Applicants are also advised that the inability to make such certification will not, in and of itself disqualify an applicant, and that in each instance the Authority will evaluate the reasons therefore provided by the applicant.

**SMALL BUSINESS ENTERPRISE PROGRAM
ADMINISTERED BY
THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY**

The Small Business Enterprise Program is designed to promote New York and New Jersey businesses and to provide them with the advantage of competing against firms of like size and expertise in a limited competitive environment. In order to be eligible to participate in opportunities set aside for the program, the Port Authority must certify a firm as a Small Business Enterprise. To be eligible for certification, firms at a minimum:

- Must have its principal place of business in either New York or New Jersey
- Must have operated in that specific type of business for at least three (3) years
- Cannot exceed the average annual income limitations (cited below) utilizing gross revenues for the last three (3) fiscal years

Average Annual Income Limitation for Programs

□ **SBE Construction Program - \$13 million**

The Port Authority's Engineering Department must also qualify firms applying for this program. This requires the submittal of acceptable references for completed contracts. A minimum of three (3) acceptable references is required for each construction specialty area.

□ **SBE Architectural & Engineering Program - \$4.5 million**

- *Landscape Architectural Services - \$6.5 million*
- *Marine Engineering & Naval Architecture - \$17 million*

Firms applying for these programs must also have averaged annual revenues of no less than \$100,000 over the last three (3) fiscal years to be considered for the program.

□ **SBE Commodity Program - \$6.5 million**

Firms eligible to participate in the Commodity Program are eligible to take advantage of a five percent (5%) price preference in designated contracts solicited by the Port Authority's Procurement Division.

□ **SBE Janitorial Maintenance Program - \$15 million**

□ **SBE Unarmed Guard Service Program - \$11.5 million**

INFORMATION FOR DETERMINING JOINT VENTURE ELIGIBILITY

Return your submittal to:	<i>The Port Authority of NY & NJ Office of Regional & Economic Development Small Business Programs 233 Park Avenue South, 4th Floor New York, NY 10003 Firms not currently certified should call (212) 435-7808 for information</i>
---------------------------	--

*(Note: This form need not be completed if all joint venture firms are M/W/DBEs
The Joint Venture approval is valid through the duration of the Port Authority contract)*

1. NAME OF JOINT VENTURE: _____

2. ADDRESS OF JOINT VENTURE: _____

3. TELEPHONE NUMBER (S) OF JOINT VENTURE: _____

4. (A) IDENTIFY THE FIRMS WHICH COMPRISE THE JOINT VENTURE. (THE MINORITY OR WOMAN-OWNED OR DISADVANTAGED BUSINESS ENTERPRISE PARTNER MUST COMPLETE A UNIFORM CERTIFICATION APPLICATION - SCHEDULE A):

(B) DESCRIBE THE ROLE OF THE M/W/DBE IN THE JOINT VENTURE:

5. NATURE OF THE JOINT VENTURE'S BUSINESS: _____

6. PROVIDE A COPY OF THE JOINT VENTURE AGREEMENT.

Schedule B

7. WHAT IS THE CLAIMED PERCENTAGE OF MBE OR WBE OF DBE OWNERSHIP? _____

8. OWNERSHIP OF JOINT VENTURE: (THIS NEED NOT BE FILLED IN IF DESCRIBED IN THE JOINT VENTURE AGREEMENT)

(A) PROFIT AND LOSS SHARING: _____

(B) CAPITAL CONTRIBUTIONS, INCLUDING EQUIPMENT:

(C) OTHER APPLICABLE OWNERSHIP INTERESTS:

9. CONTROL OF AND PARTICIPATION IN THIS CONTRACT. IDENTIFY BY NAME, RACE, SEX AND "FIRM" THOSE INDIVIDUALS AND THEIR TITLES WHO ARE RESPONSIBLE FOR DAY-TO-DAY MANAGEMENT AND POLICY DECISION-MAKING, BUT NOT LIMITED TO, THOSE WITH PRIME RESPONSIBILITY FOR:

<u>NAME & TITLE</u>	<u>SEX</u>	<u>GROUP CODE*</u>	<u>FIRM</u>
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____
MANAGEMENT DECISIONS, SUCH AS:			
ESTIMATING			
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____
MARKETING AND SALES			
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____
_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____	_____

HIRING AND FIRING OF MANAGEMENT PERSONNEL

_____ M F _____
_____ M F _____

PURCHASING OF MAJOR ITEMS OR SUPPLIES

_____ M F _____
_____ M F _____

SUPERVISION OF FIELD OPERATIONS

_____ M F _____
_____ M F _____

***GROUP CODE KEY**

01 - BLACK 02A - HISPANIC 03A - ASIAN-PACIFIC 04 - NATIVE AMERICAN
 02B - PORTUGUESE 03B - ASIAN-INDIAN 05 - NON-MINORITY
 02C - SPANISH 06 - OTHER

Affidavit

"The undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of the joint venture and the intended participation by each joint venturer in the undertaking. Further, the undersigned agree to provide to the grantee current and complete information and any proposed changes to the joint venture arrangement. The undersigned also agree to permit authorized representatives of the grantee or the Federal-funding agency to audit and examine the books, records and files of the joint venture, or those of each joint venturer relevant to the joint venture. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statement."

NAME OF FIRM

NAME OF FIRM

SIGNATURE

SIGNATURE

NAME

NAME

TITLE

TITLE

DATE

DATE

State of _____

County of _____

On this _____ day of _____, 20____, before me appeared (name) _____ to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (name of firm) _____ to execute the affidavit and did so as his or her free act and deed.

Notary Public

State of _____

County of _____

On this _____ day of _____, 20____, before me appeared (name) _____ to me personally known, who being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (name of firm) _____ to execute the affidavit and did so as his or her free act and deed.

Notary Public

Small Business Programs
 NOTE: The Contractor is required to submit to the Engineering Dept. a MODIFIED PLAN for any changes to the original plan: i.e.; subcontractor, dollar amount or work performed.
 If more than 1 page is used, complete totals on last page.

Contract Number: _____
 Contract Description: _____
 Contractor Name: _____
 Contract Amount: _____
 Mailing Address: _____
 Telephone Number: _____
 Contract Goals: MBE _____ WBE _____ DBE _____

Name, Address, Phone Number of PA Certified MBE/WBE/DBE subcontractor (including name of contact person)	Indicate MBE, WBE Or DBE	Description of Work, Services to be provided. Where applicable, specify, "supply" or "install" or both "supply" and "install."	Anticipated date work will start and finish	*Approximate \$ amount of M/W/DBE Subcontract	MBE/WBE/DBE % of Total Contract Amount
TOTAL:					

Signature of Contractor: _____
 Print Name: _____
 Title: _____ Date: _____

FOR SBP USE ONLY
 Contract Goals: Approved Waived Rejected
 Reviewed by: _____ SBP Business Development Representative
 Print Name: _____ Date: _____

Distribution: Original – SBP; Copy 2 – Engineer of Construction; Copy 3 – Contractor; Copy 4 – Line Department
 *Please Note: supplies, equipment and material men are only credited 60% towards the M/W/DBE goal. Please adjust calculations accordingly.

INSTRUCTIONS

CONTRACTOR INSTRUCTIONS: Contractor is required to submit a MBE/WBE Participation Plan and/or best efforts documentation to the designee identified in the contract book within 7 days of contract award.

ENGINEER OF CONSTRUCTION INSTRUCTIONS: After a review of the submitted MBE/WBE Participation plan, forward to the Office or Regional and Economic Development, Small Business Programs (SBP) via fax at (212) 435-7828 or PAD to 233PAS 4th Floor for review and approval. Approved/waived/rejected plan will be returned within 10 business days of receipt of this document. Engineer of Construction will advise vendor of the results of the MBE/WBE Participation Plan review.

CONFORMED



THE PORT AUTHORITY OF NY & NJ

Engineering Department

April 2, 2007

VIA FACSIMILE AND DHL NEXT DAY DELIVERY

Neelam Construction Corp.
263 Herbert Avenue
Closter, NJ 07624

SUBJECT: LAGUARDIA AIRPORT – STORAGE TANKS UPGRADE FOR
REGULATORY COMPLIANCE – CONTRACT LGA-743
PURCHASE ORDER ULGA743

Gentlemen:

The Port Authority of New York and New Jersey hereby accepts your proposal on the above Contract.

Your attention is directed to the clause of the Contract entitled “Time for Completion and Damages for Delay” and to the fact that before you may commence performance of the work you must furnish whichever of the documents mentioned in that clause are applicable.

Subject to the provisions of the Form of Contract, including those of the clause entitled “Extra Work Orders”, the Chief Engineer shall have the authority to order any item of Extra Work if the cost thereof to the Authority, together with the cost of all other Extra Work previously ordered, will not be in the aggregate in excess of \$44,319.

Forwarded herewith for your use and compliance are “General Instructions Relating to the Direction and Processing of Correspondence and of Those Other Items Specified to be Submitted to the Port Authority Under the Terms of the Contract”.

In order to ensure that payments are processed properly, please include the above-referenced Purchase Order No. on all payment invoices and correspondence.

Very truly yours,

THE PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

BY 
Chief Engineer

Two Gateway Center
Newark, New Jersey 07102

DHL DELIVERED TO CONTRACTOR ON APRIL 3, 2007