

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

H.T.L.

LINCOLN TUNNEL

REPLACEMENT OF 39TH STREET HIGH PRESSURE WATER LINE

CONTRACT LT-246

B3-911.200

PRELIMINARY

In order to avoid excessive paperwork and review of standard "boiler plates", the following portions of the Specifications are transmitted along with the technical specs as part of this review set. The remaining parts of the Information for Bidders, Form of Contract and Division 1 are standard and will appear in the final book.

TABLE OF CONTENTS
(Short Form)

	<u>Page</u>
Insurance Clause #9.....	1
Contract Drawings.....	3
Laws and Ordinances.....	4
Description of Work.....	5
Time for Completion and Damages for Delay.....	5
Operations of Others.....	5
Conditions and Precautions.....	5
TECHNICAL SPECIFICATIONS	

DIVISION 2 - SITE WORK

Section

2A	Maintenance of Traffic and Work Area Protection.....	6
2B	Excavation, Backfill and Pavement Restoration.....	8
2C	Water Supply System.....	12

8. The Contractor assumes the following risks, whether such risks arise from acts or omissions (negligent or not) of the Contractor, the Authority or third persons or from any other cause, excepting only risks occasioned solely by affirmative, wilful acts of the Authority done subsequent to the opening of Proposals on this Contract, and shall indemnify the Authority for all loss and expense incurred in connection with risks (c) and (d) below except for damage caused by or resulting from the sole negligence of the Authority, its agents or employees: (a) the risk of loss or damage to the construction (including materials not yet incorporated in the construction) occurring prior to the issuance of the certificate of final completion; (b) the risk of loss or damage occurring at the construction site to any property of the Contractor; (c) the risk of claims, whether made against the Contractor or the Authority, for loss or damage occurring at the construction site to any property of the Contractor's agents, employees, subcontractors, materialmen and others performing work hereunder; (d) the risk of claims for injuries, damage and loss of any kind, just or unjust, of third persons arising or alleged to arise out of the performance of work, whether such claims are made against the Contractor or the Authority. The risks assumed under (b), (c) and (d) above include those relating to injuries, loss and damage sustained both prior and subsequent to the issuance of the certificate of final completion. This paragraph shall not limit the responsibilities the Contractor would have in the absence of this paragraph. No third party rights are created by the Contract, except to the extent that the Contract specifically provides otherwise by use of the words "benefit" or "direct right of action".

9. The Contractor shall take out and maintain at his own expense Workers' Compensation Insurance in accordance with the requirements of law of the state where work is to be performed and also Comprehensive General Liability Insurance including but not limited to Premises Operations and Completed Operations coverage, with a contractual liability endorsement covering the obligations under subparagraph (d) of paragraph 8 above, in bodily injury liability limits of not less than \$500,000 for each coverage thereunder and in limits of not less than \$500,000 for each coverage under property damage liability. The policies shall not name the Authority as an insured but shall contain a provision that the policy may not be cancelled, terminated or modified without fifteen days written advance notice to the Manager, Risk Management Division, the Port Authority of New York and New Jersey, One PATH Plaza, Jersey City, N.J. 07306 (Attn: Construction Certificate Review). Moreover, the Comprehensive General Liability policy shall not contain any provisions for exclusions from liability other than provisions for exclusions from liability forming part of the standard, basic, unamended and unendorsed Comprehensive General Liability policy

The liability policy shall cover for explosion and ...

and contractual liability endorsement and in addition shall not contain any exclusion for bodily injury to or sickness, disease or death of any employee of the Contractor which would conflict with or in any way impair coverage under the contractual liability endorsement of the liability assumed by the Contractor under paragraph 8 above. Before being permitted to commence work, the Contractor shall deliver to the Manager, Risk Management Division, certificates evidencing the above policies and containing a separate express statement of compliance with each of the requirements above set forth in this paragraph 9. This paragraph shall not limit the obligations of the Contractor under paragraph 8 above.

10. 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) 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 sum of the increases, if any, in the Contractor's compensation for which provision is specifically made in Clause 2 hereof.

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, ten per cent of the sum certified pursuant to subparagraph (a) of this numbered clause, and minus all prior advances and payments to the Contractor or for his account.

For purposes of this numbered clause and for such purposes only, work shall be deemed to include materials and equipment required for the permanent construction, delivered to the construction site but not yet incorporated in the permanent construction.

11. Upon the satisfactory completion of all work whatsoever required, the Engineer shall render to the Authority and to the Contractor a certificate in writing certifying to such completion. After the rendition of such certificate of final completion, the receipt from the Contractor of such information as the Engineer may require (including

shall be deemed to be included in the Lump Sum contained in the Proposal unless the Specifications or Contract Drawings expressly state that compensation in addition to such price shall be payable for such items of work. The express statement in some cases to the effect that certain work 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 work among the divisions and sections of the Specifications or among the various Contract Drawings is not intended as a representation of the most effective or logical method of organizing, scheduling, or subcontracting the work, 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 first paragraph of this numbered clause shall control.

2. CONTRACT DRAWINGS.

The Contract Drawings which accompany and form a part of these Specifications bear the general title "The Port Authority of New York and New Jersey - Lincoln Tunnel - Replacement of 39th Street High Pressure Water Line - Contract LT-246" and are separately numbered and entitled as follows:

<u>Drawing No.</u>	<u>Title</u>
1	Key Plan, Plan, Sections and Details

The Contract Drawings do not show all 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.

3. WORKING DRAWINGS AND CATALOG CUTS.

The Contractor shall make all working drawings which may be necessary or required by the Engineer. The size of the drawings, the number of copies and the details to be shown thereon shall be as approved by the Engineer in advance of their preparation. Before using any working drawings, the Contractor shall submit prints thereof, including the required number of revised prints, until the drawings are approved by the Engineer. After approval thereof, no change shall be made thereon unless approved in writing by the Engineer. Tracings of working drawings shall be delivered to the Engineer prior to final payment.

with the preceding two paragraphs of this numbered clause of such patentable subject matter or patented material compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction. 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 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 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.

6. CERTIFICATION.

Where materials and equipment are required to conform to certain Standard or tentative Specifications or requirements for any organizations including, but not limited to, the 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 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 by the Engineer at any time if incorrect, improper or otherwise unsatisfactory in his opinion.

7. 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 work and its performance and those engaged therein if this Contract were being performed for a private corporation, except where stricter requirements are contained in this Contract. He shall not however, apply for any permits or licenses in the name of or in behalf of the Authority, but shall do so in his own name where required by law or by the immediately preceeding sentence.

The Port Authority will apply for the following permit in connection with this Contract in its own name:

New York City Department of Transportation "Contractor's Permit".

15. DESCRIPTION OF WORK.

The work consists of abandoning an existing 6" diameter high pressure water line and installing a 6" diameter high pressure water line at W. 39th Street near 11th Avenue.

16. TIME FOR COMPLETION AND DAMAGES FOR DELAY.

The Contractor shall commence the work on the date on which a fully executed counterpart of this Contract is received by him and shall complete the performance of all work within thirty (30) calendar days (Saturdays, Sundays and holidays included).

Damages to the Authority for delay in completion shall be liquidated in the amount of Fifty Dollars (\$50.00) per calendar day (Saturdays, Sundays and holidays included).

17. 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. 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.

18. CONDITIONS AND PRECAUTIONS.

1. Throughout the construction period, the Contractor shall maintain one half of West 39th Street clear and unobstructed for the movement of vehicular and pedestrian traffic. The construction area shall be protected in accordance with Section 2A.
2. During the periods that traffic will be riding on the backfilled trench (before the pavement is restored) the Contractor shall place steel plates over the trench areas to provide a smooth riding surface. The Contractor shall take caution not to damage the existing tunnel structure and its waterproofing. Any damage that is incurred shall be repaired to match the existing condition in Contractor's own expense.
3. The Contractor shall take caution not to damage any existing utilities which he may encounter during excavation. Any utility that is damaged shall be repaired in Contractor's own expense.

DIVISION 2 - SITE WORK

SECTION 2A

MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

The Contractor shall provide all barricades and all lights required in the performance of the Contract. The protection of the construction area shall conform as a minimum, to the standards outlined in the "Manual on Uniform Traffic Control Devices for Streets and Highways - Part VI" issued by the U. S. Department of Transportation, Federal Highway, Administration with the following additions:

1. All barricades shall be painted orange and white as specified in 2.02 of this Section; however, the color combinations shall not be intermingled.
2. No torches or lanterns shall be used.
3. All Flashers used on or adjacent to the roadways and construction areas shall be acceptable for use only if they are exactly as manufactured by one of the approved manufacturers listed in 2.01.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Flashing Lights

1. Fixture for low intensity shall be one of the following:
 - a) Model No. 650-4507-W6 or 670-4907-W6 as manufactured by Dietz Visi-Flash.
 - b) Model No.1 TSPD-1408-68-2 PAPEBT as manufactured by Julian A. McDermott.
 - c) Stock No. FL503 as manufactured by Flexible Safety Flasher.
 - d) Product No. 209 as manufactured by Selecto-Flash.

- e) Product Type A, Trans Lite, as manufactured by Casell Company.
- f) Nightflasher Model No. NF-PST or Paralta Model No. 7000 as manufactured by Royal Industries-Signal Division.

2. Fixtures shall be equipped with Stimsonite 781H or 94H amber lens or an approved equal.

B. Heavy timbers for barricades shall be Dense IND 50 Southern Yellow Pine or construction Douglas Fir. Southern Yellow Pine shall conform to the requirements of Paragraph No. 316 of the Standard Grading Rules for Southern Pine Lumber of the Southern Pine Inspection Bureau (Effective June 1, 1956). Douglas Fir shall conform to the requirements of Paragraphs Nos. 123-b and 124-b of the Standard Grading Dressing Rules for Douglas Fir, Sitka Spruce, West Coast Hemlock and Western Red Cedar Lumber of the West Coast Lumbermen's Association.

C. Where traffic guides are required, they shall be 26 inches high; all rubber molded in one piece, combined 3 inch O.D. post and 6-1/2 inch diameter by 5/8 inch thick base disc; tapered post wall thickness for shock resistance; post painted Highway orange inside and out to prevent ozone attack; top of base and outside and inside of posts shall be coated with neutral rubber lacquer to prevent fading; reflectorization shall be by means of 4 inch wide white reflective sleeves, one secured at the bottom of the post immediately above the base and one secured at the top of the post. Traffic guides to be as manufactured by Interstate Division of Technibuilt Corporation or approved equal. Traffic guides to be affixed to the timber barricade with epoxy and/or nails as directed by the Engineer.

2.02 PAINT MATERIALS

Paint shall be manufactured by Sherwin-Williams Co. or approved equal and shall be as follows:

- 1. Primer - Hi-Level exterior undercoated B46W31.
- 2. Paint - (a) International Orange B42E1.
(b) White B53W10.

PART 3 - EXECUTION

3.01 MAINTENANCE

All barricades and lights shall be approved by the Engineer. The Contractor shall maintain them in a condition deemed satisfactory to the Engineer.

SECTION 2B

EXCAVATION, BACKFILL AND PAVEMENT RESTORATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

The work under this section consists of excavating, backfilling and restoring pavement and sidewalk as shown on the Contract Drawings.

1.02 JOB CONDITIONS

Protect excavations as follows:

- A. Prevent water from entering excavated areas.
- B. Dispose of water in manner such as not to cause injury to the public health or damage to public or private property.
- C. If underlying soil is weakened or disturbed, replace it as directed by the Engineer.
- D. Shut excavation as necessary and as approved by the Engineer to secure sides against movement.

PART 2 - PRODUCTS

2.01 BACKFILL MATERIAL

- A. Use clean sand, gravel, or a mixture of these, with no organic matter.
- B. Use material excavated at construction site which satisfies above requirements.

2.02 CONCRETE, Class D-18, and Asphalt concrete shall conform to the requirements of Divisions III and IV of the "Standard Specifications, Department of Highways, The City of New York".

2.03 DENSE GRADED AGGREGATE

- A. Dense graded aggregate shall conform to all the requirements of the "New Jersey Interagency Engineering Committee - Standard For Dense Graded Aggregate Base Course", with the following exceptions:
 - 1. Dense graded aggregate shall be quarry processed, quality controlled, crushed dolomitic limestone, gneiss, or traprock.

2. The provision for material passing the #4 sieve consisting entirely or in part of natural processed sand is deleted.

3. The use of blast furnace sslag will not be permitted.

B. Do not use aggregate from any source that does not conform to the approved sample from that source.

2.04 Steel plates shall be a minimum of one inch (1") thick.

2.05 WIRE MESH-ASTM A185

Wire sizes are expressed in gauge numbers of the United States Steel Wire Gauge. Mesh shall be furnished in rolls.

PART 3 - EXECUTION

3.01 EQUIPMENT

Mechanical tampers: Model AVS1900 as manufactured by J.I. Case/Tenneco Co., Model RVS-5 as manufactured by Jackson Vibrators, Inc., TVR-15 as manufactured by Koehring-Master Division, or an approved equal.

3.02 EXCAVATION

A. Excavate to depths required by the Contract Drawing in such manner as not to disturb subbase below such depths.

B. Remove existing pavement, concrete, and all other material encountered within limits of excavation.

C. Around and adjacent to existing structures, pipes and conduits, if any, which are to remain in place, perform excavation without damage to or movement of same and where excavation is to be performed under such structures, pipes and conduits, support them, as approved by the Engineer, in a manner to insure uninterrupted operation of the supported items.

3.03 DISPOSAL OF EXCAVATED MATERIAL

Dispose of all debris and all excavated material unsuitable for or in excess of that required for backfill away from the construction site.

3.04 PREPARATION

- A. Prior to placing backfill compact existing surface as specified for compaction of each laeyr of backfill.
- B. Do not place backfill until the Engineer has inspected and approved the construction and directed when backfill may be placed.
- C. Remove all temproary structures, sheet pile's, sheeting, bracing and forms and all organic materials and debris of every nature taking care in the removal of sheet piling, sheeting and temporary supports not to cause movement of adjacent ground or structures or create the danger of a slide.

3.05 PLACING AND COMPACTION OF BACKFILL

Backfill shall be palced in strict accorance with paragraph B of 4.11.6 of Section 4.11 of the "Department of Highways, City of New York Standard Specifications" as quoted hereinbelow:

- "B. Filling shall be carefully deposited and spread by approved methods in uniform layers not exceeding twelve (12) inches depth, extending across the entire width of fill, each layer being thoroughly compacted to the satisfaction of the Engineer before a successive layer is deposited. Compaction equipment shall be approved by the Engineer before it is placed in use and shall be capable of exerting a pressure equivalent to two hundred and fifty (250) to three hundred (300) pounds per inch width of compression roll, or an equivalent pressure if other than smooth wheel or pneumatic tired rollers are permitted.

In areas inaccessible to power rolling or adjacent to construction which may be damaged, other types of approved compaction equipment may be used.

When directed the filling shall be further compacted by wetting as required.

Filling shall be carried up uniformly on all sides of structures and thoroughly tamped."

3.06 RESTORATION OF PAVEMENT

- A. Place concrete as shown on the Contract Drawing and allow to cure 72 hours before placing asphalt pavement.

- B. Asphalt concrete may be placed in one-three (3") inch layer. Finished grade of pavement shall match the adjacent surfaces and shall be placed in accordance with the applicable requirements of Division IV of the "Standard Specification, Department of Highways, The City of New York".

3.07 DEPARTMENT OF HIGHWAYS-CITY OF NEW YORK-STANDARD SPECIFICATIONS

The work under this Section shall be performed in accordance with the New York City specifications except that measurement and payment provisions shall not apply and where provisions are in conflict with requirements specified herein the provisions of these Specifications shall apply. Further, the requirements for placement of temporary pavement and waiting period to allow settlement before placement of final pavement are waived providing the backfilling is performed in accordance with Item 3.05 herein.

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SECTION 2C

WATER SUPPLY SYSTEM

PART 1 - GENERAL

1.01 RELATED CONSTRUCTION SPECIFIED IN OTHER SECTIONS.

Excavation, Backfill and Pavement Restoration.

1.02 STANDARDS

Except where otherwise shown on the Contract Drawings or specified herein comply with all applicable requirements of the following:

For Ductile Iron Pipe - AWWA C-600.

1.03 TESTS AND FLUSHING

A. After completion of the piping installation but before backfill or encasement at joints, perform tests as hereinafter specified.

B. Furnish all temporary piping, connections, appurtenances, gages and water as required.

C. Design piping, valving and bracing to absorb reaction forces subject to approval by Engineer. Where pipe restraint is called for on the Contract Drawings, it has been designed for the backfilled condition only.

D. Notify the Engineer sufficiently in advance of each test to enable his inspection of same.

E. If tests prove unsatisfactory, change, clean and repair system and rerun tests until satisfactory results are obtained.

F. Dispose of water without damaging any property and if damage occurs make necessary repairs or replacements to the satisfaction of the Engineer.

G. CLEANING AND WASHOUT

Subsequent to the installation and testing of all piping, and immediately prior to connection to existing piping systems, the Contractor shall flush the piping system, subject to the following:

1. Do not flush through hydrants.
2. Submit details of method to be used to Engineer for approval.
3. Flush through size pipe and at flow rates as follows:

<u>Size Pipe</u>	<u>Size Flush Pipe</u>	<u>Rate of Flow</u>
6"	4"	750 gpm

4. Furnish and operate an approved type pitot gauge for checking flow rates.
5. Total flow through any pipe length shall be at least twice the volumetric capacity of that length, measured from the time the required flow rate is attained.

H. HYDROSTATIC TEST

Subject the entire piping system installed under this Contract, including all parts and appurtenances, to a hydrostatic test of not less than 200 psi or 50 psi in excess of maximum static pressure, whichever is greater for a period of two hours. Leakage shall not exceed two quarts per hour per 100 pipe joints irrespective of pipe diameter. Furthermore such leakage shall be distributed over all joints in the test section. If the leakage occurs in fewer than 1/3 of the total number of joints, the installation will be considered unsatisfactory and necessary repairs will be required.

I. PURITY TEST

Have sterilization and test for purity of water in the entire piping system, including all parts and appurtenances, and portions of lines de-watered in the performance of the Work, performed by an approved independent testing laboratory which shall furnish to the Engineer a certificate certifying conformance with the purity standards of the City of New York.

- J. Obtain written approvals of the purity test from the City of New York and file original copy of said approval with the Engineer.

1.04 RECORD DRAWINGS

Prepare as-built record drawings as follows:

- A. On tracing cloth in ink or on mylar.
- B. Include all portions of permanent construction specified in this Section.
- C. Use cloth 36" x 14" with 1/2" margins and scale 1" = 30'.
- D. Show Contractor, Port Authority Contract Number, all pipe lengths, valves, fittings, connections, dimensions and horizontal and vertical locations and all other data necessary to permit determination of exact location and physical characteristics of all parts of the piping, valves, connections and appurtenances.
- E. A sample drawing may be viewed in the office of the Engineer.

1.05 SUBMITTALS

Submit Shop Drawings for all rodding and bandings.

PART 2 - PRODUCTS

2.01 DUCTILE IRON WATER PIPE

- A. Type II, Grade C, thickness class 56, cement lined, bituminous coated inside and out conforming to the requirements of Federal Specification WW-P-421D.
- B. Type III, meeting all requirements of 2.01 A.

2.02 FITTINGS FOR DUCTILE IRON PIPE

Type II or Type III and/or as shown on the Contract Drawing for pressure rating of 250 psi, ductile iron, cement lined, bituminous coated inside and out conforming to the requirements of ANSI A21.10 (AWWA C110). Lining and coating shall be in accordance with those specified for the pipe.

2.03 BITUMASTIC PAINT

No. 50 as manufactured by the Koppers Company or No. CA-50 as manufactured by the Barrett Division of the Allied Chemical and Dye Corporation or approved equal.

2.04 CEMENT MORTAR LINING FOR DUCTILE IRON PIPE

Shall conform to the requirements of ANSI A21.4 except that the thickness of the lining shall be twice that specified in Section 4-10.1.

PART 3 - EXECUTION

3.01 EXCAVATION AND BACKFILL

- A. Verify that excavation and backfill is performed in accordance with requirements of Section entitled "Excavation, Backfill and Pavement Restoration" and so as to provide a minimum of 4' cover over pipe unless otherwise shown on Contract Drawings.
- B. Before placing pipe in trench finish bottom of trench by hand and compact so as to support pipe for its entire length.
- C. If water enters trench, remove it and suspend operations until a method for preventing the accumulation of water in the bottom of trench is approved by the Engineer, and is effected.
- D. Where ground water exists in trench at or above the invert level such that in the opinion of the Engineer, laying of pipe as required by B and C above is impractical, use of blocking in laying of pipe will be permitted.

3.02 PIPE RESTRAINT

TYPE II AND TYPE III - PIPE RODDING AND BANDING

- A. Rod and band joints where and in accordance with details shown on Contract Drawings.
- B. Install bands with full bearing against pipe bells.
- C. Do not install bands which depend upon friction between pipe or fitting and band.
- D. Where no bell is available at a joint requiring rodding, extend rods to next bell, and where such rods are in excess of 6' long, provide intermediate supporting bands at intervals of 6' or less.

3.03 OPERATION OF VALVES

- A. Do not operate existing valves.
- B. Engineer will operate valves as required.

3.05 COATING OF PIPE AND APPURTENANCES

- A. Before backfilling, apply two heavy brush coats of bitumastic paint to all rods, bands, nuts, bolts, washers and other appurtenances.
- B. Prepare surfaces and apply coating in accordance with manufacturer's printed instructions.