SPECIAL PROVISIONS

ROUTE 21 SB VIADUCT
AND
CHESTER AVENUE BRIDGE
CONTRACT NO. 004950250
BRIDGE REHABILITATION, SUPERSTRUCTURE REPLACEMENT,
AND PAVEMENT RECONSTRUCTION
CITY OF NEWARK
ESSEX COUNTY

FEDERAL PROJECT NO.: BR-0045(133)

AUTHORIZATION OF CONTRACT

The Contract is authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements thereto, and Title 23 of the United States Code - Highways.

SPECIFICATIONS TO BE USED

The 2007 Standard Specifications for Road and Bridge Construction, of the New Jersey Department of Transportation as amended herein will govern the construction of this Project and the execution of the Contract.

These Special Provisions consist of the following:

Pages 1 to 122 inclusive.

General wage determinations issued under Davis-Bacon and related acts, published by US Department of Labor, may be obtained from the Web Determinations online web site at http://www.wdol.gov/dba.aspx#0 Select state, county and construction type heading: HIGHWAY where the Project is to be performed then click Search.

Pay the prevailing wage rates determined by the United States Secretary of Labor and the New Jersey Department of Labor. If the prevailing wage rate prescribed for any craft by the United States Secretary of Labor is not the same as the prevailing wage rate prescribed for that craft by the New Jersey Department of Labor, pay the higher rate.
State wage rates may be obtained from the New Jersey Department of Labor & Workforce Development (Telephone: 609-292-2259) or by accessing the Department of Labor & Workforce Development's web site at http://lwd.dol.state.nj.us/labor/wagehour/wagehour_index.html. The State wage rates in effect at the time of award are part of this Contract, pursuant to Chapter 150, Laws of 1963 (NJSA 34:11-56.25, et seq.).

If an employee of the Contractor or subcontractor has been paid a rate of wages less than the prevailing wage, the Department may suspend the Work, and declare the Contractor in default.
The following FHWA funded project Attachments that are located at the end of these Special Provisions:"

1. Required Contract Provisions, Federal-Aid Construction Contracts (Form FHWA-1273).
2. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246).
3. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246).

4. State of New Jersey Equal Employment Opportunity for Contracts Funded by FHWA.

5. Disadvantaged Business Enterprise Utilization Attachment, FHWA Funded Contracts

5(A) The Incentive Program, Disadvantaged Business Enterprise Utilization Attachment for FHWA Funded Contracts.

6. Equal Employment Opportunity Special Provisions.

7. Special Contract Provisions for Investigating, Reporting, and Resolving Employment Discrimination and Sexual Harassment Complaints.

The following additional project specific Attachments are located at the end of these Special Provisions:

Attachment for Norfolk Southern Railroad's Requirement: Norfolk Southern – Special Provisions for Protection of Railway Interest, pages 1 to 22.

BUREAU OF CONSTRUCTION SERVICESCONSTRUCTION SERVICES

DIVISION 100 – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION

101.01 INTRODUCTION
THE FOLLOWING IS ADDED:

Pursuant to NJSA 27:1B-21.6 and USC (United States Code) Section 115, the Department intends to enter into a contract for the advancement of the Project. However, sufficient funds for the Project may not have been appropriated, and only amounts appropriated by law may be expended. Payment under the Contract is restricted to the amounts appropriated for a fiscal year (FY).

Governing bodies have no legal obligation to make such an appropriation. There is no guarantee that additional funds will be appropriated. Failure by governing bodies to appropriate additional funds will not constitute a default under, or a breach of, the Contract. However, if the Department terminates the Contract or suspends work because funds have not been appropriated, the parties to the Contract will retain their rights for suspension and termination as provided in 108.13, 108.14 and 108.15; except as indicated below.

Do not expend or cause to be expended any sum in excess of the amount allocated in the current fiscal year's Capital Program (as specified below). The Department will notify the Contractor when additional funding has been appropriated. Any expenditure by the Contractor which exceeds the amount appropriated is at the Contractor's risk and the Contractor waives its right to recover costs in excess of that appropriated amount.

The approved FY'13 Capital Program has an item with $ 9.475 million for the construction of the Project.

The Department anticipates that the balance of the funds necessary to complete the Project will be provided during Federal FY '14.

The Federal FY begins October 1 of the previous calendar year and the State FY begins July 1 of the previous calendar each year.

101.03 TERMS
THE FOLLOWING TERMS ARE CHANGED.

pavement structure. The combination of pavement, base courses, and when specified, a subbase course, placed on a subgrade to support the traffic load and distribute it to the roadbed (see Figure 101-1). These various courses are defined as follows:

1. **pavement.** One or more layers of specified material of designed thickness at the top of the pavement structure.
2. **base course.** One or more layers of specified material of designed thickness placed on the subgrade or subbase.
3. **subbase.** One or more layers of specified material of designed thickness placed on the subgrade.

101.04 INQUIRIES REGARDING THE PROJECT

1. **Before Award of Contract.**

THE FIRST PARAGRAPH IS CHANGED TO:

> Submit inquiries and/or view other questions/answers by following the format prescribed on the project's electronic bidding web page.

THE SECOND PARAGRAPH IS CHANGED TO:

> The deadline for submitting inquiries is 12:00 noon, 7 days before the opening of bids.

2. **After Award of Contract.**

North Region
Ms. Chrissa Roessner, Regional Construction Engineer
200 Stierli Court
Mt. Arlington, NJ 07856-1322
Telephone: 973-601-6670

SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS

102.02 BIDDER REGISTRATION AND DOWNLOADING OF THE PROPOSAL DOCUMENTS
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Bidder shall not alter or in any way change the software.

102.03 REVISIONS BEFORE SUBMITTING A BID
THE SECOND PARAGRAPH IS CHANGED TO:

The Bidder shall acknowledge all addenda posted through the Department's website. The addenda acknowledgement folder is included in the Department's electronic bidding file. The Department has the right to reject the bid if the Bidder has not acknowledged all addenda posted.

102.04 EXAMINATION OF CONTRACT AND PROJECT LIMITS

1. Evaluation of Subsurface and Surface Conditions.
The Test pits for the AT&T steel conduit located near the retaining wall at the Railroad Side of the Viaduct were conducted by Advantage Engineering Associates, P.C and report is available at the Engineering Documents Unit of NJDOT.

3. Existing Plans and As-Builts.

Existing Plans and As-builts used are as follows:

a. Route 21 Section 4C
b. Route 21 Section 4D
c. Route 21 Sections 4E & 5A
d. Route 21 Sections 3B,5C,1F, & 4

102.10 SUBMISSION OF BIDS
THE FOLLOWING IS ADDED TO THE LIST INCLUDED IN THE SECOND PARAGRAPH:

8. On the Disclosure of Investment Activities in Iran (Form DC-16) provided by the Department, certify pursuant to N.J.S.A. 52:32-58, that neither the bidder, nor one of its parents, subsidiaries, and/or affiliates (as defined in N.J.S.A. 52:32-56(e)(3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither is involved in any of the investment activities set forth in N.J.S.A. 52:32-56(f). If the bidder is unable to so certify, the bidder shall provide a detailed and precise description of such activities to the Department.

SECTION 104 – SCOPE OF WORK

104.01 INTENT
THE FOLLOWING IS ADDED:

An additional intent of this contract is to replace the existing fixed, rocker and roller nest bearings at concrete and steel spans with seismic isolation bearings to reduce forces imposed on the existing pier columns; reconstruct the pier columns

to assure adequate strength and stability under proposed load conditions and to accommodate the configurations of the proposed bearings.

Fabricate and install structural steel tub girders to supplement the existing concrete crossbeams.

It is intended to have the tub girders provide full load carrying capacity and structural stability during bearing replacement, pier reconstruction and superstructure and deck rehabilitations. Tub girders will be borne by temporary supports until such time the substructure work is completed and piers can accept the superstructure loads. Upon completion of the substructure reconstruction and bearing replacement, the superstructure will be jacked from the temporary supports then lowered onto the new bearings. The final condition will have the tub girders supported by new bearings on reconstructed piers. In turn, the tub girders will support the service loads of the concrete superstructures.

The suggested installation of tub girders includes torque controlled wedge (mechanical) anchors to be installed to hold individual tub girder channels stable over traffic until the entire tub girder assembly can be completed. Adhesive anchors will then be installed to provide anchorage and stability for the tub girders in the staged and final configurations.

CONTRACTOR ALERT
The Contractor is alerted that dimensions of the existing concrete cross beams to be encapsulated by the tub girders are somewhat irregular subject to the construction tolerances of 1950's cast in place concrete. Proportion the tub girder components to encapsulate the cross beams with a minimum of ½ inch space between the existing concrete and proposed tub girder steel. See Section 506.

Temporary supports will be installed at steel approach spans until such time the substructure work is completed and bearings are replaced. Upon completion of the substructure reconstruction and bearing replacement, the superstructure will be jacked from the temporary supports then lowered onto the new bearings. The final condition will have the existing steel cross girders and beams supported by new bearings on reconstructed piers.

Work includes the design, furnishing, assembly, erection, use, and removal of temporary jacking systems for the purposes of reconstructing pier shafts and replacing girder bearings with new seismic isolation bearings.

It is essential that the existing superstructure be supported by the proposed tub girders before being subjected to loads associated with the proposed deck and superstructure reconstruction operations. Staging shown on the Plans is suggested; the Contractor shall employ his own means and methods. The following is based on suggested sequences shown in the staging and contract plans:
At the Contractor's option,

- An alternative is that Stage 1 Southbound work at an individual unit may have an early start subsequent to Stage 1 Northbound Step 11. Stage 2 and 3 Southbound work in that unit may then be performed sequentially.
  In this option, stage 1, 2 and 3 work will be limited to a unit or units fully supported by tub girders.
- A second alternative is that that the contractor may elect to perform some Stage 1, 2 and/or 3 works on a unit by unit basis, with those units supported by tub girders, and delay other works until individual units or all units are available.
- A third alternative is the Contractor may delay the start of Stage 1 Southbound works until tub girders have been placed in all units. Stages 1, 2 and 3 would then be performed sequentially.

In all alternatives, Route 21 Northbound lanes below active work in the southbound roadway must be closed to traffic or shielded to prevent construction debris from falling into traffic. When works are performed on Northbound and Southbound concurrently, lane closures at NB and SB shall be coordinated to achieve this objective.

THE FOLLOWING IS ADDED:

Assign a supervisory-level employee experienced with community outreach, EEO, DBE and payroll programs and has good public speaking abilities as the contractor community affairs manager. Submit the name and applicable experience

of this employee to the RE for approval at least 15 days before beginning any construction operations on the Project. Submit written notification and obtain approval from the RE before changing the manager.

The contractor community affairs manager shall have the responsibility and sufficient authority for community outreach efforts and to provide assistance for public project communication and to insure the implementation of project EEO, DBE & payroll requirements. The contractor community affairs manager will work with the Department's Community Relation Manager, Civil Rights Union and the RE to help provide a uniform outreach to the impacted community. The contractor community affairs manager shall coordinate, oversee, and supervise all contractor outreach efforts to the public in conjunction with the Department's efforts. The contractor community affairs manager will provide coordination for all contractor EEO, DBE & payroll efforts on the Project. This includes both on-site and off-site activities, including those involving subcontractors.

The contractor community affairs manager shall attend all public, traffic, EEO and project progress meetings. Public outreach includes efforts as per the project special provisions related to Specification Section 107.03 and includes obtaining lists of local community groups and leaders, impacted businesses, residences and civic and local hiring organizations. The contractor community affairs manager shall submit a bi-weekly status report on community interaction and outreach efforts and EEO, DBE and payrolls status.

104.03.03 Types of Changes

3. Changes in the Character of Work.

a. Differing Site Condition.

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will make payment for increased costs resulting from a Type 1 or Type 2 Differing Site Condition as a change in the character of work; however, the Department will not consider making payment for a differing site condition unless the resulting change in cost exceeds $7,500. Except, if the Contractor incurs cost as the result of multiple differing site conditions, with the cost of each separate differing site condition having a value of at least $1,500 but not more than $7,500, the Department will consider making payment for such costs if the aggregate cost of the multiple differing site conditions exceeds $7,500. If the change in cost exceeds these amounts, the Department will base the modification on the total cost of the change, and the Department will not deduct the threshold amount of $7,500 from the cost of the change.

104.03.04 Contractual Notice

THE SECOND PARAGRAPH IS CHANGED TO:

Immediately provide written notice to the RE of a circumstance that is believed to be a change to the Contract. If notice is not provided on Contractual Notice (Form DC-161), include the following in the initial written notice:

1. A statement that this is a notice of a change.
2. The date when the circumstances believed to be a change were discovered.
3. A detailed and specific statement describing the nature and circumstances of the change.
4. If the change will or could affect costs to the Department.
5. If the change will or could affect Contract Time as specified in 108.11.01.C.

In addition to the hard copy of the notice, email the notice to the RE. It is not necessary to attach listed documents to the email.

104.03.08 Force Account

7. Equipment.

a. Contractor-Owned Equipment.

PART 1 IS CHANGED TO:

1 The Department will calculate the "rental" hourly rates by dividing the monthly rate by 176. The Department will not use weekly, daily, or hourly rates. The Department will apply rental hourly rates for every hour the equipment is in active use, except that for any 30-day period, the Department will limit the total amount paid for each piece of equipment to a maximum of the monthly rate.

THE FOLLOWING PART IS ADDED:

6. The Department will make payment for costs for transporting equipment to and from the work site, if said costs are solely required as a direct result of the Force Account activity.

THE SECOND PARAGRAPH IS CHANGED TO:

The payment established is full payment for all equipment costs, including the cost of fuel, repairs, maintenance, depreciation, storage and incidentals.

10. Subcontractors.

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will make payment for markup on subcontracted work at the rate of 5 percent applied on the total amount of all costs for subcontracted force account work up to $500,000 and 2% applied on the total amount of all costs for subcontracted force account work over $500,000.

104.03.09 Delay Damages

1. Non-Productive Activity.

e. Equipment.

THE FIRST SENTENCE IS CHANGED TO:

If as the result of the delay, equipment cannot be used for any active work, and is directed by the RE to remain on the work site during the delay, the Department will make payment as specified in 104.03.08.7.a.5.

SECTION 105 – CONTROL OF WORK

105.05 WORKING DRAWINGS

THE SECOND PARAGRAPH IS CHANGED TO:

Ensure that working drawing submissions also conform to the Department design manuals and other Department standards for the proposed work. Ensure that working drawings are signed and sealed by a Professional Engineer. After Award, the Department will provide additional formatting information, the number of copies required, and the address of the receiving designated design unit.

105.07.01 Working in the Vicinity of Utilities

A. Initial Notice.

ELECTRIC

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
PSE&G Gas & Electric Delivery Districts
4000 Hadley Road
South Plainfield, NJ 07080
Mr. L.A. Pannucci, PMP, Program Manager, Tel. # 908-412-2228 (Office), Fax # (973) 624-9047
Email: len.pannucci@pseg.com
Mr. Edward Elian, Senior Engineering Plant Superviser – Tel. # 973-365-2848, Fax # 973-546-6675
Email: Edward.Elian@pseg.com
150 Circle Avenues, Clifton, New Jersey 07011
Mr. Albert Nicol, Resource &Engineering Manager,
Mr. Bernhard Albrecht, Tel. # (973) 365-6923

TELEPHONE

VERIZON - NEW JERSEY, INC
6000 Hadley Road
South Plainfield, NJ 07080
Mr. Frank Antisell, Manager, Tel. # (908) 412-6152, Fax # (908) 753-5460
Email; frank.t.antisell@verizon.com
Ms. Sandra Cruger, Engineer. Tel. # 201-541-9969, Fax # 908-753-5369
Email: Sandra.L.Cruger@verizon.com

AT&T Communications
Netcong outside Plant
50 Patricia Drive
Flanders, NJ 07836
Mr. Louis J., Marello, Manager, Outside Plant Engineering.
Tel. # 973-927-1114, Cell # 914-671-5330, Fax # 973-584-0163 / 832-213-5874
Email: lm5215@att.com
Susan Knox, Manager Right of Way, Atlanta, Ga. Tel.# 678-627-5317 ,Fax # 281-664-3864
Consultants:
Dennis Smith, Michael Baker Jr. Inc.
Hamilton office: (609) 807-9504, Cell# (609)-722-1829, Fax # 609-807-9550
djsmith@mbakercorp.com

VERIZON BUSINESS (MCI COMMUNICATIONS)
One North Broadway-Suite 710
White Plains, NY 10601
Mr. Gary Pasqua, Construction Manager, TEL #914-461-2102, Fax # 914-286-3003
E Mail: gary.pasqua@verizonbusiness.com
Mr. Dean Boyer, MCI, Tel. # 972-729-6322

GAS
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
PSE&G Gas & Electric Delivery Districts
744 Broad Street
Newark, NJ 07102
Mr. L.A. Pannucci, PMP, Program Manager, Tel. # (973) 430-5135 (Office), Fax # (973) 624-9047
Email: len.pannucci@pseg.com

WATER

City Of Newark (Water)
Department of Water & Sanitary Sewer
City Hall
920 Broad Street, Room #3031-F
Newark, NJ 07102
Mr. Joseph Beckmeyer, P.E., Consultant, Dept. of Water /Sewer Utility, Tel. # (973) 733-6303,
Fax # (9730 733-4819.
Mr. Viorel V. Trusca, Principal Engineer /Hydraulics, Division of Water, Tel. # (973)733-8414,
Fax. # (973) 643-6286
239 Central Ave. Newark, NJ 07103

SANITARY SEWER

City Of Newark (Sanitary Sewer)
Department of Water & Sanitary Sewer
City Hall
920 Broad Street, Room #3031-F
Newark, NJ 07102
Mr. Joseph Beckmeyer, P.E., Consultant, Dept. of Water /Sewer Utility, Tel. # (973) 733-6303,
Fax # (9730 733-4819.
Mr. Ousama Mohamed, Principal Engineer Division of Sewer, Tel. # (973)733-5970, Fax. # (973) 643-6286
239 Central Ave. Newark, NJ 07103

Passaic Valley Sewer Commission (Sanitary Sewer Main)
600 Wilson Avenue
Newark, NJ. 07105
Mr. John S. Rotolo, P.E., Chief Engineer, Tel. # (973) 817-5962, Fax. # (973) 344-2951
Mr. Eric Granholm, P.E. / Civil Engineer II, Tel. # (973) 817-5802, Fax. # (973) 817-5995
E Mail EGranholm@PVSC.nj.gov

RAILROADS

NORFOLK SOUTHERN RAILWAY COMPANY (N.S. R.R.)
1200 Peachtree Street
Atlanta, Georgia 30309
Mr. Thomas M. Bracey, Senior Engineer Public Improvements
Tel. # 404-527-2536, Cell # 404-313-3138, Fax # 404527-2769
Email: thomas.bracey@nscorp.com
Mr. Jon Schmidt, PE, Project Manager Transportation, AECOM, NS RR Consultant
Tel. # 215-789-2108, cell # 215-684-9264, E mail: jon.schmidt@aecom.com
AECOM, NS RR Consultant
1700 Market Street, Suite 1600, Philadelphia, PA 19103
T 215.735.0832 F 215.735.0883
Name & TEL. / FAX # for Norfolk Southern RR Contact Person for NJ.
B&B Sup., Keith Rothermel, located in Bethlehem, PA, telephone
610-703-9082, is responsible for bridges on this track.

B. Locating Existing Facilities.

2.

Bureau of Traffic Operations, North Region (TOCN)
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 201-797-3575

3.

Bureau of Electrical Maintenance, North Region
200 Stierli Court
Mt. Arlington, NJ 07856-1322
Telephone: 973-770-5065

C. Protection of Utilities.

Location	Speed	Number Per Day	Time
Railroad Milepost 9.22 Newark Industrial Track	10 miles per hour	2 per weekday, M thru F	Anytime

THE SECOND PARAGRAPH IS CHANGED TO:

Protect and support existing Department electrical and ITS facilities and ensure that there is no interruption of service. Use hand tools only while working within two feet of the fiber optic network. At least 30 days before beginning the work, submit a plan to the RE for approval showing the method of support and protection.

THE FOURTH PARAGRAPH IS CHANGED TO:

Access within railroad right-of-way is restricted. Before beginning work within the railroad ROW or on railroad facilities, obtain the railroad's written approval for access, the method of construction, and the schedule of the work. Provide a copy of the submittal and approval to the RE. Comply with the railroad's requirements for working within the railroad right-of-way.

THE FOLLOWING IS ADDED TO THE SIXTH PARAGRAPH

Ensure that the work is performed following the railroad's access and safety restrictions.

105.07.02 Work Performed by Utilities
UTILITY WORK TO BE PERFORMED

AT&T Communications

Existing Facilities:

AT & T 4" Steel Conduit- F.O.

WORK TO BE PERFORMED BY UTILITY

AT&T has abandoned the existing (at the foot of retaining wall near NS RR track) fiber optic cable facilities in 4" steel pipe conduit within the Railroad ROW.

The new location of AT&T conduit is shown on the utility construction plan.

WORK TO BE PERFORMED BY STATE CONTRACTOR

The Contractor is advised that the design for this Contract did not identify any anticipated utility conflicts except the existing (at the foot of retaining wall near NS RR track) fiber optic cable (That has been abandoned). However, this Contract does require the Contractor to perform underground excavation and/or the driving of piles and is reminded to call the State's One Call System as specified in Subpart C., to verify that a conflict does not exist.

State contractor should protect all existing U.G. utilities facilities during proposed project construction.

VERIZON BUSINESS (MCI COMMUNICATIONS)

Existing Facilities:

MCI Fiber Optic Cable (Overhead)

WORK TO BE PERFORMED BY UTILITY

(1) No utility relocation work and no inspection work to be performed by Utility.

WORK TO BE PERFORMED BY STATE CONTRACTOR

The Contractor is advised that the design for this Contract did not identify any anticipated utility conflicts. However, this Contract does require the Contractor to use the specified construction method (The needle beams could be inserted from the east side of bridge fascia) to avoid a conflict with MCI fiber optic cable (overhead) on the line of poles along the easterly boundary.

State contractor should protect all existing. Utilities facilities during proposed project construction.

Passaic Valley Sewerage Commission (Sanitary Sewer Main)

Existing Facilities:

Passaic Valley Main Sewer line 14'-8" outside diameter (Non –reinforced, flat-arch ,concrete sewer installed via open cut trench method about 100-years ago with an interior height of 11'-3', a roof thickness of 14', and side walls 22" thick for an overall width of 14'-8" and approximately 18-20- feet deep with existing manholes shown on construction utility plans).

P.V.S.C.'s SS manholes with in project limits

WORK TO BE PERFORMED BY UTILITY

(1) Inspection work to be performed .

(2) Provide three (3) Sanitary Sewer M.H. frames, covers and energy absorbing grade rings at job sites prior to reconstruction. Please contact Mr. Eric Granholm, P.E. / Civil Engineer II, Tel. # (973) 817-5802, Fax. # (973) 817-5995, E Mail EGranholm@PVSC.nj.gov. PVSC regarding these items when the work starts.

WORK TO BE PERFORMED BY STATE CONTRACTOR

(1) Reconstruct (5'-6"± from existing grade as per NJ DOT Construction Details plans CD 4 and CD 5 and PVSC Dwg. # 2339-1and 2) three SS manholes. @ NB Station 217+29, 15' ± Rt. (construction plan sheet # C3.) and @ NB Station 229+33, 26'Rt. ((construction plan sheet # C5) and @ NB Station 241+36, 7'Rt. (Construction plan sheet # C5.) To meet final grade.

The manholes to be set at the proper elevation for the intermediate course and then reset for the surface course.

(2) All work on PVSC manholes shall be performed in accordance with PVSC's requirements.

(3) PVSC shall be notified three (3) days in advance of all construction work activities on any PVSC facilities. Provide five (5) weeks notice for ordering of m.h. frames, covers and energy absorbing grade rings.

(4) The contractor shall protect the undisturbed portions of the existing manhole and ensure that no debris resulting from the demolition work enters PVSC's main interceptor sewer.

NORFOLK SOUTHERN RAILWAY COMPANY (N.S. R.R.)

Existing Facilities

There are 2 tracks (main line & siding tracks) adjacent (east side) to the bridge that are used on a weekly basis as needed. Also, one of the tracks is used for storage of rail cars. Railroad's Newark IT track main line between Railroad miles posts MP NK-8.50 to NK-9.50 within the limit of this project. The existing SR 21 overhead bridge spans Railroad tracks at MP NK-9.34.

WORK TO BE PERFORMED BY RAIL ROAD

(1) Replace the existing NS RR siding track for use as main line prior to the start of the project From RT. 21 S.B. base line station 216+00 to station 244+00 (From switch to switch estimated total length is 2100 feet (Sheet UC1 to UC3). At the completion of construction, NS RR will restore the original mainline track back into service.

(2) N.S. RR will provide flagman if necessary (estimated 260 days duration) during proposed bridge structure construction work to be done by State Contractor. A flagman may be present during bridge repairs construction if necessary /required.

RR TRACK OUTAGES

Currently freight train runs on a weekly basis as needed schedule. Check with Railroad for updated current train schedule.

SCHEDULE:

The limit of work involved in the Rt. 21 SB Viaduct project and two railroad tracks adjacent (east side) to the bridge, as per the plan, is within the boundaries of the railroad right-of-way. Railroad requires 14 days notice (Railroad) to Norfolk Southern Railway Company (N.S. R.R.) (RAIL ROAD) for Track outages or access to Railroad ROW.

WORK TO BE PERFORMED BY STATE CONTRACTOR

NOTES TO STATE CONTRACTOR

1. Remove Any Debris from RR Track during bridge Construction work.
2 Working around the railroad tracks / railroad property will require Railroad Liability Insurance.

3. Provide Railroad liability insurance in the name of the railroad owner **NORFOLK SOUTHERN RAILWAY COMPANY (N.S. R.R.)**
4. Maintain a contact with the railroad for train activity when working in the area of the RR Tracks...
6 Discuss work schedules with the owner and if there is to be any train activity.
7. State Contractor will remove any debris from RR track during RT.21 SB Viaduct bridge repairs construction work.
8. RR flagman (260 days duration) will be provided by NS Railway Company. NS Railway Company requires 2 weeks' notice by State Contractor for track outage.
9. All dates and times for project construction will be reestablished and confirmed once RR Agreement Mod (RAM) and work order are in place.
10. **. . .** NS RR will utilize AECOM to provide construction engineering and inspection services during the construction period

105.08 ENVIRONMENTAL PROTECTION
THE FOLLOWING IS ADDED:

Diesel Emission Mitigation.

a. **Ultra Low Sulfur Fuel.** For all road and non-road diesel equipment used in the performance of the Work, use only Ultra Low Sulfur Diesel (ULSD) fuel that is certified to contain an average sulfur content of no more than 15 parts per million. This requirement applies to owned and rented equipment.

b. **Idling.** Ensure heavy duty diesel on-road vehicles and non-road diesel equipment operating within the Project Limits comply with the requirements of N.J.A.C. 7:27-14.1 et seq. and N.J.A.C. 7:27-15.1 et seq.

c. **Retrofit Filters**. Prior to use within the Project Limits, ensure non-road diesel equipment meeting the USEPA Tier 1 or higher emission standard for non-road diesel engines and having an engine horsepower rating of 100 HP or greater that will be in use for more than ten days on the project meet the USEPA Tier 4 non-road emission standards or be equipped with the best available emission control technology to reduce particulate emissions as certified by USEPA, the California Air Resources Board, or the Switzerland BUWAL program (VERT filter list).

1. **Inventory –** Prior to starting construction, provide the RE with a list of non-road diesel equipment that will be used within the Project Limits for more than 10 days on the project using forms provided by the Department. Provide the RE with contact information for an Equipment Manager responsible for coordinating the diesel emission mitigation compliance for the Contract.

   Provide the RE with an updated list of non-road diesel equipment that will be used within the Project Limits for more than 10 days as changes occur.

2. **Less effective retrofit –** If, for a piece of equipment, the Department determines that it is not technologically feasible to install emission control technology that will reduce particulate emissions by at least 85%, ensure the engine is equipped with emission control technology that reduces particulate emissions by 50% as certified by USEPA, the California Air Resources Board, or the Switzerland BUWAL program (VERT filter list). If, for a piece of equipment, the Department determines that it is not feasible to install emission control technology that will reduce particulate emissions by at least 50%, ensure the engine is equipped with emission control technology that will reduce particulate emission by a minimum of 25%.

   If, for a piece of equipment, the Department determines that no technology is feasible that will reduce particulate emissions by at least 25%, the Department will waive the requirement to equip that piece of equipment with emission control technology.

   If the Contractor believes that it is not technologically feasible to install emission control technology that will reduce particulate emission by at least 85%, submit a request to the RE using forms provided by the Department. The Department will evaluate the request and determine the feasibility of installing emission control technology.

3. **Safety exemption –** If, for a piece of equipment, the Contractor believes that the installation of emission control technology would create a safety hazard, submit a written request using forms provided by the Department to the RE for a waiver from the requirement to equip that piece of equipment with emission control technology. Ensure the request details the reasons why the installation of emission control technology would create a safety hazard. The Department will evaluate the request and if it determines the safety concern to be valid, the Department will waive the requirement to equip that piece of equipment with emission control technology.

4. **Rental Equipment –** For a piece of equipment rented from an equipment rental company for which the Contractor does not have a financial interest, the Contractor may submit a written request to the RE for a waiver from the requirement to equip that piece of equipment with emission control technology if the following is provided: documentation that the equipment rental company does not have equipment that meets the requirement of this Subsection; the equipment rental company does not consent to installation of retrofit filters; or the equipment rental company requires the retrofit to be removed prior to return of the equipment. The Department will evaluate the request and if it determines the conditions have been met, the Department will waive the requirement to equip that piece of equipment with emission control technology.

5. **Retrofit filters provided by the Department –** At the Contractor's request, the Department will provide and install emission control technology on non-road diesel equipment meeting the USEPA Tier 1 or higher emission standard for non-road diesel engines and having an engine horsepower rating of 100 HP or greater that will be in use for more than 10 days so that the equipment will meet the requirements of this Subsection. If approved by the Department, the emission control technology will be provided and installed by a vendor provided by the Department at no cost to the Contractor.

   Submit the request to the RE at least 10 days prior to the equipment's intended use within the Project Limits. If approved by the RE, contact one of the diesel retrofit installation vendors from the list provided by the Department. If the vendor is unable to provide a best available emission control technology for a specific piece of equipment, contact a second diesel retrofit installation vendor from the list provided by the Department. The vendor will assist the Contractor in selecting appropriate retrofit device for each piece of equipment.

   After selecting the diesel retrofit device, submit a request for approval to have the device supplied and installed by the vendor to the RE using forms provided by the Department. If the Department approves the installation of the device, contact the vendor and coordinate the installation of the emission control technology on the non-road diesel equipment. Make the equipment available to the vendor to conduct a technical evaluation of the equipment including exhaust temperature profiling and opacity testing. If the equipment operates within the retrofit parameters, the vendor will order the diesel retrofit device. Schedule and coordinate the installation of the retrofit device with the vendor. Equipment for which the Contractor submitted a request for a retrofit filter provided by the Department may be used within the Project Limits prior to the installation of the emission control device provided that the Contractor diligently works to secure the emission control device.

   The Department will provide and install emission control technology for a piece of non-road diesel equipment only one time. The Contractor is still responsible for meeting the requirements of this Subsection if the emission control device is removed or damaged.

   If at the sole discretion of the Department, it decides not to provide and install an emission control device on a piece of equipment, the retrofit filter requirements of this Subsection shall not apply to that piece of equipment.

   For emission control technology provided by the Department, operate and maintain the emission control device as per the manufacturer's recommendations. After installation, the

emission control device provided by the Department shall be considered the property of the non-road diesel equipment owner. Maintain the emission control device for a minimum of five years from the date of installation.

d. Reporting. Submit quarterly reports on NJDEP forms which can be obtained at www.stopthesoot.org within 10 days of the end of the quarters ending March 31, June 30, September 30 and December 31 by e-mail to the RE.

SECTION 106 – CONTROL OF MATERIAL

106.03 FOREIGN MATERIALS
THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

For steel and iron products incorporated into the Project, provide a certification from the manufacturer stating the country where the steel or iron product was melted and manufactured including application of coatings which protect or enhance the value of the material. Ensure that 4 copies of the manufacturer's certification are provided with each delivery of steel and iron products. Retain 1 copy and submit 3 copies to the RE. Ensure that the certification includes, materials description, quantity of material represented by the certification, country of manufacture, and notarized signature of a person having legal authority to bind the supplier. If a Certification of Compliance as specified in 106.07 contains a statement regarding the country of manufacture, a separate certification is not necessary.

106.04 MATERIALS QUESTIONNAIRE
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

For ITS systems as specified in Section 704, obtain approval of system working drawings including individual components and Electrical material instead of submitting a materials questionnaire.

SECTION 107 – LEGAL RELATIONS

107.04 NEW JERSEY CONTRACTUAL LIABILITY ACT
THE FOURTH PARAGRAPH IS CHANGED TO:

For purposes of determining the date of "completion of the contract" pursuant to N.J.S.A. 59:13-5, "completion of the contract" occurs on the date that the Contractor provides written notice to the Department of Acceptance or conditional Acceptance of the Proposed Final Certificate or the 30th day after the Department issues the Proposed Final Certificate, whichever event occurs first.

107.09 INDEPENDENT CONTRACTOR
THE ENTIRE SUBSECTION IS CHANGED TO:

The relationship of the Contractor to the State is that of an independent contractor. Conduct business consistent with such status. Do not hold out or claim to be an officer or employee of the Department by reason hereof. Do not make a claim, demand, or application to or for the rights or privileges applicable to an officer or employee of the Department, including, but not limited to, Workers Compensation Insurance, unemployment insurance benefits, social security coverage, or retirement membership or credit.

107.12.01 Satisfying the Notice Requirements
THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

Upon request, provide the RE with 3 copies of all documentation submitted in support of the claim.

107.12.02 Steps

3. Step III, Claims Committee.

THE SECOND PARAGRAPH IS CHANGED TO:

The Claims Committee will not review a claim or combination of claims valued less than $250,000 until after the receipt of conditional release as specified in 109.11. If the Contract is 75 percent complete or greater as measured by Contract Time or Total Adjusted Contract Price, the Claims Committee will not review a claim or combination of claims valued more than $250,000 until after receipt of conditional release as specified in 109.11. If the Claims Committee does not review a claim or combination of claims before Completion, the Claims Committee will review the claim or combination of claims at a single session of the Claims Committee after the receipt of the conditional release as specified in 109.11 and all claims have been reviewed at Steps I and II of the Claims Resolution Process. When reviewing a combination of claims, the Claims Committee will not review any individual claim valued less than $20,000.

THE FOLLOWING SUBSECTION IS ADDED

107.17 COMMUNICATION WITH THE NEWS MEDIA

Do not communicate with the news media or issue a news release without obtaining a prior written approval from the Department.

SECTION 108 – PROSECUTION AND COMPLETION

108.01 SUBCONTRACTING

1. Values and Quantities.

THE FOLLOWING IS ADDED TO FIRST PARAGRAPH

1.

Specialty Items are as listed below:

Above ground highway lighting items.

Viaduct lighting system item.

Electrical wire items.

ITS items, except for foundations, standards, and junction boxes.

THE THIRD PARAGRAPH IS CHANGED TO:

If a partial quantity of work for a unit price Item is subcontracted, the Department will determine the value of the work subcontracted by multiplying the price of the Item by the quantity of units to be performed by the subcontractor.

THE FOURTH PARAGRAPH IS CHANGED TO:

If only a portion of work of an Item is subcontracted, the Department will determine the value of work subcontracted based on the value of the work subcontracted as indicated in the subcontract agreement and as shown in a breakdown of cost submitted by the Contractor.

108.02 COMMENCEMENT OF WORK

THE SUBPART 4 IN THE FIRST PARAGRAPH IS CHANGED TO:

4. Progress schedule as specified in 153.03

108.04 WORK SITE AND STORAGE
THE FOLLOWING IS ADDED:

Mount Pleasant Cemetery

The Contractor shall not walk on or place tools, materials, and equipment on Mount Pleasant Cemetery grounds except for the following:

1. Landscape Planting on Cemetery Grounds
2. Construction Fence

The Contractor is advised that a 10' temporary aerial work area over Cemetery grounds and adjacent to the westerly parapet, as shown on the Traffic Control and Staging Plans, is provided to facilitate the following:

1. Clearing of Site Vegetation in Vicinity of Parapet
2. Placement of Scafolding for Safety Work Area Adjacent to Parapet
3. Removal of Existing Parapet
4. Placement of Proposed Parapet & Fence
5. Viaduct Rehabilitation

The Contractor is advised that a 3.25' construction and maintenance easement area exists beyond the existing Right of Way line which is located at the face of the existing bridge columns and parapet.

Norfolk Southern Railroad

The Contractor is advised that a permissible work area parallel to and adjacent to the east side of the Viaduct on railroad property, as shown on the Utility Construction Plan and the Traffic Control and Staging Plans, is provided to facilitate the Viaduct Rehabilitation Work.

The Contractor is advised that a 10' temporary aerial work area over railroad property is provided to facilitate the following:

1. Placement of Scafolding for Safety Work Area Adjacent to Parapet
2. Removal of Existing Parapet
3. Placement of Proposed Parapet
4. Viaduct Rehabilitation

108.06 NIGHT OPERATIONS

2. Visibility Requirements for Workers and Equipment.
THE FIRST PARAGRAPH IS CHANGED TO:

Ensure that workers wear a 360° high-visibility retroreflective safety garment meeting ANSI/ISEA Class 3, Level 2 standards.

108.08 LANE OCCUPANCY CHARGES
THE SECOND PARAGRAPH IS CHANGED TO:

The RE will keep record of each occurrence as well as the cumulative amount of time that a lane is kept closed beyond the lane closure schedule and provide the record to the Contractor. The Department will calculate the lane occupancy charge by multiplying the length of time of the delayed opening, in minutes, by the rate of $10 per minute per lane, unless otherwise specified in the Special Provisions. The total amount per day for the lane occupancy charge that the Department will collect will not exceed $10,000.00.

THE FOLLOWING IS ADDED:

The rate to calculate the Lane Occupancy Charge is as follows:

Description	**Rate**
Route 21 Northbound	
Overrun of "One Lane Maintained" Time Limits	**$40/minute**
Overrun of "Full NB Roadway Closure" Time Limits	**$90/minute**
Route 21 Southbound	
Overrun of "One Lane Maintained" Time Limits	**$10/minute**
Route 21 Ramps	
Overrun of "Ramp Closure" Time Limits	**$10/minute**

108.09 MAINTENANCE WITHIN THE PROJECT LIMITS

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

6. Access to ITS devices and their respective controllers and meter cabinets is maintained throughout the duration of the project.

108.10 CONTRACT TIME

A. Complete all work required for NB Pavement Reconstruction (Stage A & B) so traffic does not have to be reduced to one lane on Route 21 Northbound corridor for more than three (3) weekends and ten (10) nights.

B. Complete all work required for Viaduct Structural Work (Installation and Jacking of Tub Girders / Stage 1A & 1B) so traffic does not have to be closed in the NB direction on Route 21 for more than sixteen (16) weekends and sixty (60) nights.

C. Complete all work required for Viaduct Structural Work (Pier Reconstruction and Bearing Replacement / Stage 1A & 1B) so traffic does not have to be reduced to one lane on Route 21 northbound corridor for more than six (6) weekends and forty (40) nights.

D. Complete all work required for Ground Anchor Installation for Retaining Walls No. 1 and No. 2 so the Route 21 Southbound Ramp to Chester Avenue and Riverside Avenue does not have to be closed for more than two (2) weekends and six (6) days for each wall.

E. Complete all work required for Substantial Completion on or before November 4, 2016.

F. Achieve Completion on or before January 3, 2017.

108.11.01 Extensions to Contract Time

B. Types of Delays.

1. Non-Excusable Delays.

THE FOLLOWING IS ADDED:

For work performed by Utilities, delays up to 30 percent of the estimated duration specified in 105.07.02 are considered non-excusable. The duration includes both the advance notice and the completion of the work by the Utility.

For delays caused by Railroads, delays up to 30 percent of the estimated availability specified in 105.07 are considered non-excusable.

2. Excusable, Non-Compensable Delays.

b. Utilities.

THE FOLLOWING IS ADDED:

For delays caused by Railroads, when the availability to access is reduced by more than 30 percent greater than the estimated availability specified in 105.07.

108.14 DEFAULT AND TERMINATION OF CONTRACTOR'S RIGHT TO PROCEED

THE FOLLOWING IS ADDED AFTER THE 2ND PARAGRAPH:

If the Department directs the Surety to complete the Contract, and the Surety elects to use a completion-contractor to perform the Work, the Surety must promptly submit to the Department a request for approval of the proposed completion-contractor as a subcontractor as per Section 108.01. The Department has the right to reject a request by the Surety to use the Contractor as the completion-contractor, either directly or under the direction of a consultant to the Surety. In addition, the Department has the right to reject a request by the Surety to contract with employees of the Contractor, directly or under the direction of a consultant to the Surety, to complete the Contract. The Department's right to reject contained in this paragraph is based on the sole discretion of the Department.

108.20 LIQUIDATED DAMAGES

Liquidated damages are as follows:

A. For each calendar day the Contractor fails to complete Construction Operations as specified in Subsection 108.10, Paragraph A of these Special Provisions, the Contractor shall pay liquidated damages to the State in the amount of $ 10,000 / day.

B. For each calendar day the Contractor fails to complete Construction Operations as specified in Subsection 108.10, Paragraph B of these Special Provisions, the Contractor shall pay liquidated damages to the State in the amount of $ 10,000 / day.

C. For each calendar day the Contractor fails to complete Construction Operations as specified in Subsection 108.10, Paragraph C of these Special Provisions, the Contractor shall pay liquidated damages to the State in the amount of $ 10,000 / day.

D. For each calendar day the Contractor fails to complete Construction Operations as specified in Subsection 108.10, Paragraph D of these Special Provisions, the Contractor shall pay liquidated damages to the State in the amount of $ 6,000 / day.

E. For each day that the Contractor fails to complete the work as specified in Subpart E of Subsection 108.10 of these Special Provisions, for Substantial Completion, the Department will assess liquidated damages in the amount of $8,600.

F. For each day that the Contractor fails to achieve Completion as specified in Subpart F of Subsection 108.10 of these Special Provisions, the Department will assess liquidated damages in the amount of $1,300.

When the Contractor may be subjected to more than one rate of liquidated damages established in this Section, the Department will assess liquidated damages at the higher rate.

SECTION 109 – MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES
THE SECOND PARAGRAPH IS CHANGED TO:

The Department will designate Items as Measured Items or as Proposal Items by having a suffix of M or P in the Item number respectively. The Department will measure quantities of Measured Items for payment.

109.02 SCOPE OF PAYMENT
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Department will not make additional or separate payment for work or portion of work unless specifically provided for in the "Measurement and Payment" Subsection.

109.05 ESTIMATES
THE SECOND PARAGRAPH IS CHANGED TO:

The RE will provide a summary of the Estimate to the Contractor. Before the issuance of each payment, certify, on forms provided by the Department, that:

1. Each subcontractor or supplier has been paid the amount due from the previous progress payment and shall be paid the amount due from the current progress payment and that full payment for any retainage withheld from a subcontractor has been or will be made within 30 days after the subcontractor's work has been satisfactorily completed; or

2. There exists a valid basis under the terms of the subcontractor's or supplier's contract to withhold payment from the subcontractor or supplier, and therefore payment is withheld.

THE TENTH PARAGRAPH IS CHANGED TO:

The RE has the right to not process an Estimate when, in the judgment of the RE, the Work is not performed or proceeding as specified in the Contract or following the Department giving the Contractor and Surety notice of default as specified in 108.14.

109.07 BONDS POSTED IN LIEU OF RETAINAGES
THE FIRST PARAGRAPH IS CHANGED TO:

The Contractor may deposit negotiable bonds of the State or any of its political subdivisions, which have been approved by the Department, in an escrow account to secure release of all or a portion of the retainage withheld as specified in 109.05. Establish the account under the provisions of an escrow agreement to be entered into between the Contractor, the Department, and a bank located in the State that is an authorized depository with a trust department. Pay the charges of the bank for services rendered according to the terms and conditions of the escrow agreement.

109.09 AUDITS
THE FOLLOWING IS ADDED:

Pursuant to N.J.S.A. 52:15C-14(d), relevant records of private vendors or other persons entering into contracts with the Department are subject to audit or review by the New Jersey Office of the State Comptroller. Therefore, the Contractor shall maintain all documentation related to products, transactions or services under the Contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

DIVISION 150 – CONTRACT REQUIREMENTS

SECTION 151 – PERFORMANCE BOND AND PAYMENT BOND

151.03.01 Performance Bond and Payment Bond
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Submit the broker's fees, the certified rate schedule, paid invoices and the report of execution for the bond to the RE.

151.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM'S PAY UNIT IS REVISED TO:

Item	*Pay Unit*
PERFORMANCE BOND AND PAYMENT BOND	DOLLAR

SECTION 152 – INSURANCE

152.03.01 Owner's and Contractor's Protective Liability Insurance

A. Policy Requirements.
THE FOURTH SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Ensure that policies are underwritten by companies with a current A.M. Best rating of A- with a Financial Size Category of VII or better.

B. Types

3. Owner's and Contractor's Protective Liability Insurance.
THE ENTIRE TEXT IS CHANGED TO:

Procure a separate Owner's and Contractor's Protective Liability Insurance Policy with a minimum limit of liability in the amount of $4,000,000 per occurrence as a combined single limit for bodily injury and property damage. Ensure the policy is endorsed to include Severability of Interest/Separation of Insureds clause. Ensure the policy names the State, its officers, employees, and agents as additional insured. Provide documentation from the insurance company that indicates the cost of the Owner's and Contractor's Protective Liability Insurance Policy.

Ensure the policy is endorsed to include per project aggregate.

152.03.02 Railroad Protective Liability Insurance
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:
Ensure the policy is endorsed to include per project aggregate.

Procure and maintain insurance coverage for the following railroad(s):

Consolidated Rail Corporation (CONRAIL)

Norfolk Southern Railway Company (N.S.R.R.)

Mr. William Kaeser
Director Engineering
Consolidated Rail Corporation
1000 Howard Boulevard
Mt. Laurel, NJ 08054

Mr. Tom Bracey
Public Projects Engineer
Norfolk Southern Railway Company
1200 Peachtree Street
Atlanta, Georgia 30309

It is estimated that 50 percent of the Project cost is located within or adjacent to the railroad right-of-way.

152.03.03 Pollution Liability Insurance
SUBPART 9 IS ADDED TO THE THIRD PARAGRAPH:

9. Per project aggregate.

152.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS' PAY UNITS ARE REVISED TO:

Item	*Pay Unit*
OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE	DOLLAR
RAILROAD PROTECTIVE LIABILITY INSURANCE	DOLLAR
POLLUTION LIABILITY INSURANCE	DOLLAR

THE LAST PARAGRAPH IS CHANGED TO:

The Department will make initial payment for OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE, RAILROAD PROTECTIVE LIABILITY INSURANCE, and POLLUTION LIABILITY INSURANCE at the lesser of the bid amount, or actual costs as documented from paid invoices. If the Bid amount is greater than the amount indicated on the documented paid invoices, the Department will make payment for any remainder, up to the Bid amount, with the final monthly Estimate.

SECTION 153 – PROGRESS SCHEDULE

153.03.01 CPM PROGRESS SCHEDULE
THE THIRD PARAGRAPH IS CHANGED TO:

The Contractor may propose alternate staging. Ensure that proposed alternate staging does not interfere with work done by Others without written concurrence from the affected Others. The Department may reject the proposed alternate staging if it causes an increase to the cost of work done by Others. The Contractor is responsible for the cost of changes or additional work required as a result of completing the work according to the proposed alternate staging.

1. Preliminary Schedule Submission.
THE SECOND PARAGRAPH IS CHANGED TO:

The RE may require 3 color paper copies of the preliminary schedule, Gantt Chart, as specified in 153.03.02.2.e, and a network diagram (PERT) printed on 36 × 22-inch plans detailing the activity relationships.

2. Baseline Schedule Submission.
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The RE may require the Contractor to submit 3 color paper copies of the baseline schedule.

THE SECOND PARAGRAPH PART 3 IS CHANGED TO:

3. The RE may require 3 color paper copies of the tabular reports, as specified in 153.03.02.2, and a printed network diagram (PERT) on 36 × 22-inch sheets detailing the activity relationships.

153.03.02 CPM Progress Schedule Updates
THE LAST PARAGRAPH IS CHANGED TO:

If the project falls behind schedule for nonexcusable delays, so that the schedule indicates that the Work will not be completed by the Completion date, as specified in 108.10, take the necessary steps to improve progress. Under such circumstances, the RE may direct the Contractor to increase the number of shifts, begin overtime operations, work extra days including weekends and holidays, and supplement its construction plant. Furthermore, the RE may require the Contractor to submit for approval a recovery schedule showing how the Contractor proposes to meet the directed acceleration.

2. Tabular Reports.
THE FIRST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The RE may require 3 color paper copies of the longest path sort, total float sort, responsibility sort, area sort, and Gantt chart.

153.04 MEASUREMENT AND PAYMENT
THE THIRD PARAGRAPH IS CHANGED TO:

If the Contractor's CPM Progress Schedule update is not approved by the date of the progress meeting for the following update, the Department will assess liquidated damages to recover the Department's increased administrative costs. The Department will assess damages for each delinquent update as follows:

SECTION 155 – CONSTRUCTION FIELD OFFICE

155.03.01 Field Office

4. Communication Equipment.

a. Telephones. Provide _2_ cordless phones with auto-switching.

c. Cell Phones. Provide _5_ cellular phones. Ensure the cellular phone plan provides for unlimited mobile to mobile in-network usage, unlimited push-to-talk/ walkie-talkie usage and an anticipated monthly usage of 900 any-time minutes for each phone. Ensure the phones are on the same plan. Ensure the cellular phone plan has a home rate with no roaming charges within the state. Ensure each cellular phone has the following features:

1. Push to Talk / Walkie-Talkie capable
2. Camera with 1 megapixel picture capability
3. Battery life capable of 180 minutes of continuous use and 72 hours of standby use
4. Equipped with a hands-free headset
5. Base charger and car charger

d. Computer System. Provide a computer system meeting the following requirements:

_3__ computer configurations each meeting the following:

1. Processor having a clock speed of _3.5_ GHz or faster, _8_ GB RAM, _512_ MB Video RAM, _250_ Gigabyte hard drive designated as drive C, one DVD (+/-) Writer Drive, one CD-R Recordable Drive. Ensure the system is USB 2.0 compatible and has at least two front USB ports. Include Keyboard, optical mouse and 2 piece desktop speakers.
2. Wired Router with appropriate number of ports and cables and a print server. Ensure there is at least one wired Ethernet switch.
3. High-speed broad band connection and service with a minimum speed of _3_ Megabits per second (mbps) with dynamic IP address for the duration of the project.
4. 19 inch or larger Flat Screen LCD monitor with tilt/swivel capabilities.
5. _250_ Gigabyte or larger external drive with backup software for MS-Windows.
6. _1_ Flatbed USB version 2.0 or greater Color Scanner with automatic document feed.

7. Uninterruptible power supply (UPS).
8. Surge protector for the entire computer configuration to be used in conjunction with the UPS.
9. Computer workstation, chair, printer stand, and/or table having both appropriate surface and chair height.
10. One can of compressed air and screen cleaning solution every other month of the duration of the contract.

If more than one computer configuration is specified, provide one network interface card for the base computer configuration and hardwire connections between computer configurations as directed by the RE.

Also provide:
_8_ USB _32_ GB Flash/Jump memory drives
_50__ CD-R _700_ MB (or larger) recordable CD's compatible with the CD drive and _50__ recordable DVD's.
_2__ CD/DVD Holder (each holds 50)

_1__ color laser printers and supplies as follows:

1. Minimum of 192 Megabytes of expanded memory, printer cable, and legal size paper tray.
2. One set of printer ink cartridges every other month for the duration of the construction project for each printer.

Software as follows:

1. Microsoft Windows, latest version with future upgrades for the duration of the entire project.
2. Microsoft Office Professional, latest version.
3. Norton's System Works for Windows, latest version, or compatible software package with future upgrades and latest virus patches.
4. Anti-Virus software, latest version with monthly updates for the duration of the contract.
5. Visio Professional Graphics Software for Windows, latest version
6. Primavera Project Management, latest version
7. Adobe Acrobat Professional, latest version, or compatible software for Scanner

THE THIRD PARAGRAPH IS CHANGED TO:

When the computer system is no longer required by the RE, the Department will remove and destroy the hard drive, and return the computer system to the Contractor. The Department will retain other data storage media.

6. Office Equipment.

2. _2_ digital camera(s). Ensure each digital camera has auto-focus, with rechargeable batteries and charger, _256_ MB memory card, USB Memory Card Reader compatible with camera and field office computer, 1.5 inch LCD monitor, _5__ mega pixel resolution, _10_ X optical zoom lens, built in flash, image stabilization, computer connections, and a carrying case
3. __1_ video camcorder(s). Ensure each video camcorder is a mini DVD camcorder with _10x_ optical zoom, 2" LCD monitor, USB 2.0 compatible and includes USB 2.0 connections.
4. _10__ Mini DVD 2.8 GB (or larger) recordable DVD's compatible with the camcorder

7. Inspection Equipment.

1. _2_ Calculators with trigonometric capability
2. _1_ Date/ Received stamp and ink pad
3. _1_ Electronic Smart level, 4 foot
4. _1_ Electronic Smart level, 2 foot
5. _4_ Carpenter rulers

6. _1_ Steel tape, 100 feet
7. _1_ Cloth tape, 100 feet
8. _1_ Illuminated measuring wheel
9. _1_ Plumb bob and cord
10. _1_ Line level and cord
11. _1_ Surface thermometer
12. _1_ Concrete thermometer
13. _1_ Digital infrared asphalt thermometer
14. _0_ Direct Tension Indicator (DTI) Feeler Gage, 0.005 inch
15. _0_ Sledge hammer, 8lb
16. _1_ Self leveling laser level with range of 100 feet and an accuracy of ¼ inch per 100 feet
17. _5_ Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
18. _5_ Safety garments – orange, reflectorized, 360º high visibility safety garments according to ANSI/ISEA Class 3, Level 2 standards. To be replaced yearly for the duration of the contract.
19. _5_ Sets of orange rain gear with reflective sheeting
20. _5_ Sets of hearing protection with a NRR rating of 22 dB
21. _5_ Sets of eye protection according to ANSI Z87.1
22. _2_ Sets of fall arrest equipment according to ANSI Z359.1 standards consisting of a full body harness, lanyard and anchor.
23. _1_ Light meter - capable of measuring the level of luminance in foot-candles
24. _4_ Lantern flashlight, 6V with monthly battery replacements
25. _0_ Digital Psychrometer
26. _0_ Chain Drag according to ASTM D4580-86
27. _1_ Testing equipment and apparatus conforming to AASHTO T23, T119, T152
28. _4_ Hard Bound Daily Diaries, 5-½" X 8" minimum with one day per page. To be provided yearly for the duration of the contract.
29. _400_ Legal size hanging folders
30. _400_ Legal size manila file folders – three tab

155.03.03 Telephone Service

THE CONTENT OF THIS SUBSECTION IS DELETED

155.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
TELEPHONE SERVICE	LUMP SUM

THE THIRD PARAGRAPH IS DELETED.

SECTION 157 – CONSTRUCTION LAYOUT AND MONUMENTS

157.03.01 Construction Layout

THE SEVENTH PARAGRAPH IS CHANGED TO:

Provide the Utilities with the layout needed to install relocated utility facilities and coordinate the Work. Ensure that relocated facilities do not conflict with proposed construction, including High Voltage Proximity Act conflicts.

THE FOLLOWING IS ADDED AFTER THE NINTH PARAGRAPH:

For each bridge and sign structure within the Project Limits, provide the RE as-built measurements of the vertical under clearance at each lane line, shoulder line, curb line and edge of pavement line under a structure to the nearest inch. For each bridge structure, provide vertical under clearance measurements at each fascia beam.

157.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM'S PAY UNIT IS REVISED TO:

Item	*Pay Unit*
CONSTRUCTION LAYOUT	DOLLAR

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will adjust payment for CONSTRUCTION LAYOUT based on the final contract amount and will calculate as follows:

$$CL = \frac{CL_B \times (C_F - E_F)}{C_O - E_O}$$

Where:
CL = Adjusted payment for CONSTRUCTION LAYOUT.
CL_B = Bid price for CONSTRUCTION LAYOUT.
C_O = Original Contract Price.
C_F = Final Contract Price.
E_F = Total of CL_B and the final cost for PERFORMANCE BOND AND PAYMENT BOND, Incentive/Disincentives for completion/interim completion, and claim settlements.
E_O = Total of CL_B
E_O = Total of CL_B, and PERFORMANCE AND PAYMENT BOND.

SECTION 158 – SOIL EROSION AND SEDIMENT CONTROL AND WATER QUALITY CONTROL

158.03.02 SESC Measures

8. Inlet Filters. Provide Type 1 and Type 2 inlet filters as follows:

a. Type 1.
THE ENTIRE TEXT IS CHANGED TO:

For a new inlet structure without a casting, mold welded steel wire fabric around the inlet walls. Extend the welded steel wire a minimum of 6 inches down each side of the structure. Secure geotextile to the welded wire fabric. Place No. 2 coarse aggregate against the inlet structure to hold the inlet filter in place.

For an inlet structure with a casting and exposed exterior walls, place geotextile under the casting and extend it a minimum of 6 inches below the top of the exposed walls. Place No. 2 coarse aggregate around the drain hole opening.

For an existing inlet structure without exposed exterior walls, place geotextile under the grate and extend the geotextile for a minimum of 6 inches beyond the grate.

For an inlet with a curb piece and without exposed exterior walls, ensure that the opening in the curb piece has a height of 2 inches. If the opening is greater than 2 inches, achieve the 2 inch opening size by wrapping the geotextile around an appropriately sized piece of lumber. Place the lumber against the vertical opening.

19. Oil-Only Emergency Spill Kit.
THE SECOND SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Include Oil-only Emergency Spill Kit, Type 1 consisting of the following:

SECTION 159 – TRAFFIC CONTROL

159.02.02 Equipment

THE FOLLOWING IS ADDED TO THE LIST OF EQUIPMENT REFERENCES:

Portable Trailer Mounted CCTV Camera Assembly……..……1001.05

159.03.02 Traffic Control Devices

2. Construction Barrier Curb.

THE LAST PARAGRAPH IS CHANGED TO:

Provide top and side mounted flexible delineators on the construction barrier curb. For delineators located on the right side when facing in the direction of traffic, ensure that the retroreflective sheeting is white. For delineators located on the left side when facing in the direction of traffic, ensure that the retroreflective sheeting is yellow. Attach flexible delineators according to the manufacturer's recommendations.

Starting at the beginning of the construction barrier curb section mount top delineators at 100-foot intervals on tangent sections, curves of radii greater than 1,910 feet, and at 50-foot intervals on curves of radii of 1,910 feet or less.

Mount side delineators at the lead end of each barrier segment with the top of the delineator 3 inches from the top of the barrier.

6. Traffic Control Truck with Mounted Crash Cushions.

THE LAST SENTENCE IS CHANGED TO:

Submit drawings to the RE detailing the manner of securing the ballast, signed and sealed by a Professional Engineer, certifying that it is capable of withstanding the impact forces for which the impact attenuator is rated.

THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

9. Portable Trailer Mounted CCTV Camera Assembly (PTMCCA). Place the PTMCCA at the location directed by the RE. Ensure that a designated representative familiar with the operation and programming of the unit is available on the Project for initial installation. If the PTMCCA fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PTMCCA is not functioning.

Provide a system that includes a robotic network camera remotely controllable, including Pan, Tilt and Zoom (PTZ), and viewable over the internet through a password protected website. Provide for internet access through the website hosted by EarthCam for Department cameras. No substitution is permitted. Provide broadband communication service and On-Site Camera Configuration for remote operation and control from the web site to the field site. Provide continuous viewable image at a minimum of 320H x 240V resolution and 1 frame per sec (fps) through the web site. If required by the Traffic Operation Center (TOC) specified in 105.07.01.B, establish password level designations, camera presets, and camera image displays. Provide all incidental equipment or material required for successful remote operation and communications.

Provide for one week of testing by the TOC for remotely operating the PTMCCA before the start of construction operations that require lane or shoulder closures, or other impacts to traffic.

159.03.06 Temporary Traffic Stripes and Temporary Traffic Markings

THE ENTIRE TEXT IS CHANGED TO:

Apply temporary traffic stripes and markings when the ambient and surface temperatures are at least 45 °F and rising and the surface temperature is no more than 140 °F. Apply the traffic paint in a wet film thickness of 6 ± 1 mil. Apply glass beads to the wet paint in a uniform pattern and at the rate of 12 pounds per gallon of paint. Ensure TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN and TRAFFIC MARKINGS, THERMOPLASTIC are applied within 14 days of placing temporary traffic stripes and markings unless directed by the RE.

159.03.08 Traffic Direction

A. Flagger.
THE LAST SENTENCE IS CHANGED TO:

Ensure that the flagger is equipped with a STOP/SLOW paddle and follows MUTCD flagging procedures.

B. Police.
THE FOURTH PARAGRAPH IS DELETED.

159.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY	UNIT.

THE SECOND PARAGRAPH IS CHANGED TO:

For traffic control devices measured by the linear foot or unit basis that are specified in 159.03.02, the Department will make payment for the maximum quantity in service at one time as required by the Contract. For CONSTRUCTION SIGNS, the Department will make payment for the maximum quantity of specific sign types in service at one time as required by the Contract. If a particular sign type has more than one unique text, each sign with a unique text will be considered to be a specific sign type. The Department will make payment for 50 percent of the Contract bid price for traffic control devices specified in 159.03.02 that are measured on a linear foot, square foot or unit basis upon approved placement. The Department will prorate the balance of payment over the duration of the Contract.

THE FOLLOWING IS ADDED

If after being notified by the Department that the PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY has failed to function and the equipment has not been restored to good working order within 48 hours, the Department will make payment reductions as follows:

For each occasion the equipment was not restored within 48 hours the Department will assess a liquidated damage of $250 for every 48 hours period the equipment is not functioning.

The Department will make payment for TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN and TRAFFIC MARKINGS, THERMOPLASTIC as specified in 610.04.

SECTION 160 – PRICE ADJUSTMENTS

160.03.01 Fuel Price Adjustment
THROUGHOUT THIS SUBPART, TABLE 161.03.01-1 IS CHANGED TO TABLE 160.03.01-1

THE THIRD PARAGRAPH IS CHANGED TO:

If the as-built quantity of an Item listed in Table 160.03.01-1 differs from the sum of the quantities in the monthly Estimates, and the as-built quantity cannot be readily distributed among the months that the Item listed in Table 160.03.01-1 was constructed, then the Department will determine fuel price adjustment by distributing the difference in the same proportion as the Item's monthly Estimate quantity is to the total of the Item's monthly estimates.

THE 13 TH AND 15 TH LINE IN THE TABLE 160.03.01-1 IS CHANGED TO:

SOIL AGGREGATE BASE COURSE, ___ " THICK	1 Gallon per Cubic Yard
DENSE-GRADED AGGREGATE BASE COURSE, ___ " THICK	1 Gallon per Cubic Yard

THE 25 TH LINE IN THE TABLE 160.03.01-1 IS CHANGED TO:

HOT MIX ASPHALT ___ ___ ___ BASE COURSE	2.50 Gallons per Ton

THE FOLLOWING ARE ADDED TO TABLE 160.03.01-1

Items	**Fuel Usage Factor**
NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	2.50 Gallons per Ton
COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	2.50 Gallons per Ton

160.03.02 Asphalt Price Adjustment

NOTE 1 OF THE THIRD PARAGRAPH IS CHANGED TO:

1. The Department will determine the weight of asphalt binder for price adjustment by multiplying the percentage of new asphalt binder in the approved job mix formula by the weight of the item containing asphalt binder. If a Hot Mix Asphalt item has a payment unit other than ton, the Department will apply an appropriate conversion factor to determine the number of tons used.

THE FOURTH PARAGRAPH IS CHANGED TO:

$$A = B \times [(MA - BA)/BA] \times C \times M \times G$$

Where:
A = Asphalt Price Adjustment
B = Bid Price for Tack Coat/Prime Coat
MA = Monthly Asphalt Price Index
BA = Basic Asphalt Price Index
C = Petroleum Content of the Tack Coat and Prime Coat in Percent by Volume:
Use 100% for cutbacks and Tack Coat 64-22
60% for Polymer Modified Tack Coat
60% for RS or similar type emulsions
M = Percentage of Bid Price Applicable to Materials Only: Use 82%
G = Gallons of Tack Coat and Prime Coat Furnished and Applied

160.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS' PAY UNITS ARE REVISED TO:

Item	*Pay Unit*
FUEL PRICE ADJUSTMENT	DOLLAR
ASPHALT PRICE ADJUSTMENT	DOLLAR

DIVISION 200 – EARTHWORK

SECTION 201 – CLEARING SITE

201.03.01 Clearing Site
THE FOLLOWING IS ADDED:

Dispose of material and debris as specified in 201.03.09.

201.03.02 Clearing Site, Bridge and Clearing Site, Structure
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH.

Only the following equipment is permitted for the work:

1. **Pneumatic or Electric Equivalent Hand Operated Hammers.**

   a. When demolishing concrete not closer than 6 inches to structural members: hammers weighing no more than 90 lbs (exclusive of bit), equipped only with chisel point bits.

   b. When demolishing concrete within 6 inches of structural members: hammers weighing no more than 30 lbs (exclusive of bit).

2. **Saw Cutters.**

   a. When cutting concrete within 6 inches of structural members: concrete cutters and concrete saws. While using water in the cutting operation, provide shielding beneath the cutting operation to prevent water leakage. Continuously collect slurry and dispose of as specified in 201.03.09. Ensure that the slurry does not enter the structure or highway drainage system.

3. **Hydraulic Breakers.** Ram-hoe type breakers, hydraulic breakers, and demolition shears may be used with the following restrictions:

   a. Submit required data to the RE for Department's analysis of stresses induced to the girders.

   b. Delineate the centerline and limits of the top flange of girders before the equipment operation.

   c. Do not use equipment within 6 inches of the delineated flanges.

   d. Do not pull or twist the reinforcement steel.

4. **Hydraulic Splitters.** Hydraulic splitters.

5. **Other Equipment.** Obtain RE approval before use.

THE FOLLOWING IS ADDED:

The procedure is described below:

2. **Steel Stringers, Floorbeams, Cross Frames, and Diaphragms.**

   a. Repair procedures to tensile components in conformance with ASTM A 6/A 6M and the following:

      1 Repair gouges up to 1/8 inch by grinding flush in the direction of principal stress.
      2 Repair gouges deeper than 1/8 inch by first grinding; then, depositing weld metal and grinding flush with the surface of the metal in the direction of principal stress. Weld using low hydrogen electrodes conforming to current AWS Specifications A5.1 and A5.5.
      3 Repair kinks and deformations by flame straightening or a combination of flame straightening and jacking. Ensure flame straightening is performed by personnel having a minimum of three years of documented experience. Submit the names of the personnel to the RE for review and approval prior to performing the work.

b. Repair procedures to compression components for kinks and deformations as outlined in 2.a (3) above. Where more than five percent of the cross-sectional area of the member is damaged, submit a repair procedure to the RE for review and approval.

Clean and paint exposed existing top flanges of beams with prime coat as specified in Subsection 554.03.

201.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

The Department will not make payment for the Item CLEARING SITE in excess of $300,000 until Completion.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (0716-150) in excess of $657,000.00 until Substantial Completion.

The payment schedule for the item Clearing Site, Bridge (Structure No. 0716-150) shall be as follows:

10 percent of the bid price (or $65,700, whichever is less) upon acceptance of Pre-Stage 1.

40 percent of the bid price (or $262,800, whichever is less) upon acceptance of Stage 1.

15 percent of the bid price (or $98,550, whichever is less) upon acceptance of Stage 2.

35 percent of the bid price (or $229,950, whichever is less) upon acceptance of Stage 3.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (0716-151) in excess of $93,000.00 until Substantial Completion.

The payment schedule for the item Clearing Site, Bridge (Structure No. 0716-151) shall be as follows:

35 percent of the bid price (or $32,550, whichever is less) upon acceptance of Stage 1.

30 percent of the bid price (or $27,900, whichever is less) upon acceptance of Stage 2.

35 percent of the bid price (or $32,550, whichever is less) upon acceptance of Stage 3.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (0716-152) in excess of $95,000.00 until Substantial Completion.

The payment schedule for the item Clearing Site, Bridge (Structure No. 0716-152) shall be as follows:

35 percent of the bid price (or $33,250, whichever is less) upon acceptance of Stage 1.

30 percent of the bid price (or $28,500, whichever is less) upon acceptance of Stage 2.

35 percent of the bid price (or $33,250, whichever is less) upon acceptance of Stage 3.

The Department will not make payment for the Item CLEARING SITE, STRUCTURE (Retaining Wall No. 1) in excess of $36,000.00 until Substantial Completion.

The Department will not make payment for the Item CLEARING SITE, STRUCTURE (Retaining Wall No. 2) in excess of $25,000.00 until Substantial Completion.

The Department will not make payment for the Item CLEARING SITE, STRUCTURE (Retaining Wall No. 3) in excess of $75,000.00 until Substantial Completion.

SECTION 202 – EXCAVATION

202.02 MATERIALS
THE FIRST IN THE LIST IS CHANGED TO:
Coarse Aggregate (No. 57, or 67)..... 901.03

202.03.03 Excavating Unclassified Material

A. Excavating.
THE FIRST PARAGRAPH IS CHANGED TO:

The Department, as the generator, is solely responsible for the designation of excavated material. Unclassified excavation consists of excavation and management of material of whatever nature encountered, except for regulated material, pavement removal and acid producing soil.

202.03.04 Excavating Regulated Material

3. Temporarily Storing.
THE FIRST PARAGRAPH IS CHANGED TO:

Temporarily store regulated or hazardous material in stockpiles within the Project Limits and as shown on the Plans. Construct stockpiles on polyethylene sheeting. Contain stockpiles with haybales or silt fence placed continuously at the perimeter of the stockpiles. For hazardous material, if a stockpile area is not available within the Project Limits, sample and analyze materials in-situ for disposal. Excavate and place the hazardous regulated material directly into trucks, and haul it directly to the approved disposal facility.

SECTION 203 – EMBANKMENT

203.01 DESCRIPTION
THE FOLLOWING IS ADDED:
This section describes the requirements for installing geotextile for roadway subgrade stabilization and separation.

203.02 MATERIALS

203.02.01 Materials
THIS SUBPART IS CHANGED TO:

Provide materials as specified:

Soil Aggregate (I-7, I-9, I-10, I-11, I-13, and I-14) 901.11
Stabilization Geotextile 919.01

THE FOLLOWING IS ADDED:

The geotextile will conform to AASHTO M-288, Geotextile Specifications for Highway Applications and to Sections 1, 2, 3, 4, 5, 6 and Subsections 7.1, 7.2, 7.3 and 7.4 for Separation and Stabilization with a Class 2 or Class 1 Survivability Rating. The minimum permittivity will be 0.045 qt/sec./in. The geotextile will have high resistance to degradation from ultraviolet, chemical and organic conditions that may possibly be encountered in the subgrade soil or overlying subbase or base course material. The mechanical and structural properties of the geotextile will equal or exceed the requirements of this specification. Each shipment stating that the geotextile material conforms to the requirements of the approved submittal requires certification. A label clearly indicating the type and grade of material and the specification to which the material was manufactured is required for each roll.

203.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

Placing Geotextile

Installation of the geotextile will conform to Appendices A1 and A3 of the AASHTO M-288 Geotextile Specifications for Highway Applications and the following:

1. Check the geotextile upon delivery to ensure that the proper material has been received. During all periods of shipment and storage, protect the material from temperatures greater than 140 degrees F, or less than 32 degrees F, mud, dirt, dust and debris, or materials which may permanently affix to the geotextile. Follow the manufacturer's instructions regarding protection from direct sunlight. The RE will reject the material if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation or storage. The Contractor, at no cost to the State, will replace geotextile that is damaged during storage or installation.

2. Shape and compact the subgrade to within a tolerance of plus or minus ½ inch of grade and contour, with no areas consistently high, in accordance with Subsection 301.03.01.A prior to placing of any geotextile. Water pockets and sharp objects that may tear or puncture the geotextile are to be removed on the prepared surface prior to placement of geotextile. Placement of geotextile on soft, muddy, or frozen areas, is prohibited until all irregularities in the prepared areas, including soft areas in the foundation, have been corrected.

3. The subgrade will be inspected and approved by the Engineer prior to placement of the geotextile. Excavation of unsuitable material and replacement with suitable material, as directed by the RE, will be in accordance with Subsection 301.03.01.A. Place the geotextile material in continuous strips in the longitudinal direction of the roadway. Overlap all adjacent layers of geotextile material a minimum of one foot.

4. Verify the correct orientation (roll direction) of the geotextile. If the required length cannot be obtained with a single continuous length of stabilization a joint may be made, with the RE approval. This joint will be made for the full width of the strip. Joints will be pulled and held taut and free of wrinkles and lying flat during placement of the subbase or base course material.

5. Place only that amount of geotextile required for immediately pending work to prevent damage. After a layer of geotextile has been placed, tightly pull and hold in place by means of pins or small piles of aggregate until the subsequent layer of subbase or base course is placed and compacted.

6. Place, spread and compact the subbase or base course material in such a manner as to minimize the development of wrinkles and/or displacement of the geotextile material. Roll and grade the subbase or base course before the end of each workday to prevent ponding of water on the geotextile.

7. Do not operate vehicles or other construction equipment on the area until at least 6 inches of subbase or base course material cover the geotextile. Minimize turning of tracked vehicles to prevent displacement of the underlying geotextile or roadbed. Fill in ruts, with additional material, that may be created in the subgrade due to construction traffic.

203.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
GEOTEXTILE, ROADWAY STABILIZATION	SQUARE YARD

Payment will not be made for geotextile material used in the creation of overlaps.

DIVISION 300 – SUBBASE AND BASE COURSES

SECTION 302 – AGGREGATE BASE COURSE

302.02.01 Materials
THE FOLLOWING IS ADDED:

Coarse Aggregate No. 57…….. 901.03

302.03 Construction
THE FOLLOWING IS ADDED:

Do not exceed 8 inch lift thickness for the Coarse Aggregate, Size No. 57.

302.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
COARSE AGGREGATE, SIZE NO. 57	CUBIC YARD

DIVISION 400 – PAVEMENTS

SECTION 401 – HOT MIX ASPHALT (HMA) COURSES

401.02.01 Materials

EMULSIFIED ASPHALT UNDER TACK COAT IS REVISED TO:

Emulsified Asphalt, Grade RS-1, CRS-1, SS-1, SS-1h, Grade CSS-1 or CSS-1h 902.01.03

401.02.02 Equipment

THE LAST PARAGRAPH IS CHANGED TO:

When an MTV is used, install a paver hopper insert with a minimum capacity of 14 tons in the hopper of the HMA paver.

401.03.01 Preparing Existing Pavement

A. Milling of HMA.

Stage	Max. time interval allowed
A and 4	72 hours

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

Sawcut at the limit of paving in driveways and at other limits requiring a neat edge between new and existing HMA.

D. Repairing HMA Pavement.

THE ENTIRE TEXT IS CHANGED TO:

If potholes are discovered, notify the RE immediately. The RE may immediately direct repairs of small areas. The RE may require further evaluation of a large area to determine the need for additional milling and paving.

Sawcut existing HMA pavement to a maximum depth of 10 inches, or to the full depth of bound layers, whichever is less. Sawcut lines parallel and perpendicular to the roadway baseline and 3 inches away, at the closest point, from the damaged area to be repaired.

Remove damaged and loose material to a depth of at least 3 and no more than 10 inches below the level of milling within the boundary of the sawcuts to form rectangular openings with vertical sides. Shape and compact the underlying surface to produce a firm, level base. Ensure that the remaining pavement is not damaged.

Apply polymerized joint adhesive or tack coat to the vertical surfaces of the openings. Spread and grade HMA in the opening as directed by the RE. Ensure that the temperature of the HMA when placed is at least 250 °F, and compact as specified in 401.03.03.F. Compact areas not accessible to rollers with a flat face compactor. Compact until the top of the patch is flush with the adjacent pavement surface.

Reuse removed material as specified in 202.03.07.A.

401.03.02 Tack Coat and Prime Coat
TABLE 401.03.02-1 IS CHANGED TO:

Table 401.03.02-1 Tack Coat Application

Material	Spraying Temp, °F	Gallons per Square Yard	Season
Cut-Back Asphalt:			
RC-70	120 to 190	0.05 to 0.15	Oct 15 to Apr 15
Emulsified Asphalt:			
RS-1	70 to 140	0.05 to 0.15	All year
CRS-1	125 to 185	0.05 to 0.15	All year
SS-1, SS-1h	70 to 140	0.05 to 0.15	All year
CSS-1, CSS-1h	70 to 140	0.05 to 0.15	All year

TABLE 401.03.02-2 IS CHANGED TO:

Table 401.03.02-2 Prime Coat Application

Cut-Back Asphalt	Spraying Temp, °F	Gallons per Square Yard	Season
MC-30	85 to 150	0.1 to 0.5	Oct 15 to Apr 15
MC-70	120 to 190	0.1 to 0.5	Oct 15 to Apr 15
Emulsified Asphalt:			
CSS-1	70 to 140	0.1 to 0.50	All year

401.03.03 HMA Courses

D. Transportation and Delivery of HMA.
THE FIRST PARAGRAPH IS CHANGED TO:

Deliver HMA using HMA trucks in sufficient quantities and at such intervals to allow continuous placement of the material. Do not allow trucks to leave the plant within 1 hour of sunset unless nighttime lighting is provided as specified in 108.06. The RE will reject HMA if the HMA trucks do not meet the requirements specified in 1009.02. The RE will suspend construction operations if the Contractor fails to maintain a continuous paving operation. Before the truck leaves the plant, obtain a weigh ticket from a fully automatic scale. Before unloading, submit for each truckload a legible weigh ticket that includes the following:

1. Name and location of the HMA plant.
2. Project title.
3. Load time and date.
4. Truck number.
5. Mix designation.
6. Plant lot number.
7. Tare, gross, and net weight.

E. Spreading and Grading.
THE THIRD PARAGRAPH IS CHANGED TO:

The use of an MTV is optional for the construction of intermediate and surface course in the traveled way. If an MTV is used, ensure that the MTV independently delivers HMA from the HMA trucks to the HMA paver. Operate the MTV to ensure that the axle loading does not damage structures, roadway, or other infrastructure.

H. Air Void Requirements.
THE FOLLOWING IS ADDED TO THE THIRD PARAGRAPH:

Inside shoulders less than 6 feet in width will not be included in other lots unless requested by the RE.

THE FOLLOWING IS ADDED AFTER THE THIRD PARAGAPH:

If areas of existing shoulders are found to be insufficient to support the proposed HMA pavement and the required compaction cannot be achieved, notify the RE immediately. The RE may either direct additional milling and paving to provide a suitable base to pave the proposed HMA or waive coring and air void requirements in such shoulder areas.

J. Ride Quality Requirements.

The Department will not test the longitudinal profiles of the final riding surface for pay adjustment.

401.03.04 Sawcutting and Sealing of Joints in HMA Overlays

THE TEXT OF THIS SUBPART IS DELETED.

THIS SUBPART IS INTENTIONALLY LEFT BLANK

401.03.05 Core Samples

THE LAST SENTENCE OF THE 2ND PARAGRAPH IS CHANGED TO THE FOLLOWING:

Apply an even coating of tack coat to sides of the hole. Place HMA in maximum lifts of 4 inches in the hole and compact each lift. Ensure that the final surface is 1/4 inch above the surrounding pavement surface.

401.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
SAWING AND SEALING JOINTS IN HOT MIX ASPHALT OVERLAY	LINEAR FOOT

THE FOLLOWING IS ADDED:

The Department will make a payment adjustment for HMA air void quality by the following formula:

Pay Adjustment = Q x BP x PPA

Where:
BP = Bid Price
Q= Air Void Lot Quantity
PPA= air void PPA as specified in 401.03.03H.

The Department will make a payment adjustment for HMA thickness quality by the following formula:

Pay Adjustment = Q x BP x PPA

Where:
BP = Bid Price
Q= Thickness Lot Quantity
PPA= thickness PPA as specified in 401.03.03I

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J.

DIVISION 500 – BRIDGES AND STRUCTURES

SECTION 504 – STRUCTURAL CONCRETE

504.01 DESCRIPTION

ADD THE FOLLOWING:

This Section ~~also~~ describes the work included in the item Modification of Existing Piers. Work shall be as shown on the Plans and as described in the Standard Specifications and herein.

This Section also describes the work for applying paint on exposed concrete surfaces of walls (retaining walls and abutments).

504.02 Materials

504.02.01 Materials

ADD THE FOLLOWING:

Concrete for Modifications of Existing Piers shall be Class A in accordance with Subsection 903.03.

Painting of exposed concrete surfaces of walls (retaining walls and abutments), shall be of flat finish and beige color.

504.03 CONSTRUCTION

504.03.02 Constructing Concrete

G. Removal of Forms and Falsework.

Do not remove forms and false work until Class A concrete obtains a compressive strength of 4,000 psi.

Do not remove forms and false work until Class B concrete obtains a compressive strength of 3,000 psi.

504.03.04 Paint Application.

Remove old paint or stain by sanding, scraping or other means.

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow drying. Scrape and sand peeled or checked paint to a sound surface. Sand glossy surface dull.

Cure all freshly placed concrete surfaces for at least 7 days. Pressure clean to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, peeling and defective coatings, chalks, etc. Allow the surface to dry before proceeding.

Apply flat finish paint coating according to manufacturers recommendations.

504.04 MEASUREMENT AND PAYMENT

Item	*Pay Unit*
MODIFICATION OF EXISTING PIERS	CUBIC YARDS
PAINTING OF CONCRETE SURFACE	SQUARE YARD

All work associated with cleaning surface paint and painting concrete will be included in the pay item "**PAINTING OF CONCRETE SURFACE"**

Removal of existing pier shaft concrete and cutting existing reinforcement steel is included in the item, Modification of Existing Piers

Reinforcement Steel, Epoxy Coated will be measured separately, in accordance with Subsection 504.04 of the Standard Specifications.

SECTION 506 – STRUCTURAL STEEL

THE FOLLOWING IS ADDED :

506.01 DESCRIPTION

This section also describes the furnishing and installation of structural steel tub girders and bearing beams for concrete cross beams at concrete spans and structural steel repairs at existing stringers at structural steel approach spans.

This section also describes patching of existing concrete cross beams as incidental to the tub girder installation.

CONTRACTOR ALERT

The Contractor is alerted that dimensions of the existing concrete cross beams to be encapsulated by the tub girders are somewhat irregular subject to the construction tolerances of 1950's cast in place concrete. Proportion the tub girder components to encapsulate the cross beams with a minimum of ½ inch space between the existing concrete and proposed tub girder steel.

Extraordinary means and methods, equipment and construction to deliver, hoist and secure the tub girders, bearing beams and bearings and to perform structural steel repairs at stringers at structural steel approach spans shall be paid for under Section 556.

This work, under the item Girder Jacking, includes the design, furnishing, assembly, erection, use, and removal of temporary jacking systems for the purposes of reconstructing pier shafts and replacing girder bearings with new seismic isolation bearings. Girder Jacking includes jacking and temporary supports at tub girders, cross girders and cross beams.

This work also includes the design, furnishing and installation of sheeting, excavation, dewatering, or other earthwork and removal of existing concrete required to provide adequate bearing for any jacking support systems which may be founded either on the existing walls or structure footings or on earthen embankments.

Suggested jacking locations are shown schematically on the Plans. The Contractor shall propose locations of his preference. The Contractor shall present all proposed jacking locations to the Engineer as working drawings for approval, in accordance with Subsection 105.05 of the Standard Specifications.

The Contractor is hereby alerted to the fact that due to the presence of the Passaic valley Sewer Commission (PVSC) main sewer trunk line beneath the Route 21 Northbound roadway, no temporary supports shall be permitted to be founded on the roadway or in any manner that would impose loads on the sewer structure.

Also, the Contractor is alerted to the presence of an underground AT&T fiber optic line along the railroad and located above the footing toes of the easterly retaining walls of the Viaduct. It is known that AT&T is planning to relocate the existing facilities within the Railroad ROW and is in the process of preparing plans to submit to the railroad for approval,

Once approved AT&T will prepare plans and specifications and bid packages in order to obtain competitive pricing to complete required work. Upon selecting a contractor, AT&T will proceed with the construction work and obtain necessary equipment and supplies to complete the work.

It is estimated that the construction work will require two weeks to complete. The cable placement will take one week and splicing and testing work will require one week to complete.

Further information regarding this utility relocation will be released as it is developed.

At Piers 3N through 41S, temporary supports will be placed and jacking will be performed outside the Department right of way.

506.02 Materials

Tension and shear capacities of the anchors shall be sufficient to stabilize and maintain the alignment of the tub girders during the Contractor's operations and under service load conditions.

Mechanical expansion anchors shall be ¾" diameter, carbon steel, torque controlled wedge expansion anchors; anchor body, nut and washer shall be hot dip galvanized (ASTM A153). Expansion sleeve shall be AISI 316. Minimum embedment shall be 8".

Minimum Allowable Loads: Tension …….. 4500 pounds
Shear……... 5300 pounds

Hilti Kwik Bolt 3 and Power Fasteners Power-Stud meet project requirements.

Adhesive anchors shall be high strength carbon steel rods (ASTM A193, Grade B7) with nuts and washers to match. Adhesive shall be a two component epoxy. Minimum embedment shall be 8".

Minimum Allowable Loads: Tension …….. 8600 pounds
Shear……. 11500 pounds

Hilti HIT RE 500 Epoxy Adhesive Anchors and Power Fasteners PE1000+ meet project requirements.

At the east side, property belongs to Norfolk Southern Railroad (NSRR). Easements and rights of entry to railroad property are described herein. The Contractor may seek and acquire additional rights through independent negotiation with NSRR.

At the west side, property belongs to Mount Pleasant Cemetery, a site on the National Register of Historic Places. As such construction activities are regulated by a memorandum of agreement with SHPO. The Department will furnish that MOA to the bidders.

Steel materials shall be in accordance with Section 506 of the Standard Specifications.

Concrete materials shall be in accordance with Section 504 of the Standard Specifications.

Timber materials shall be in accordance with Section 510 of the Standard Specifications.

Jacks for bearing replacement jacking schemes shall be Enerpac CLL- Series Lock Nut Cylinder type jacks or approved equal. Jacks shall have a rated capacity equal to or greater than 1.5 times the anticipated jack load. The rated capacity shall be shown clearly on the jack.

506.03.01 Structural Steel

B. Erection Plan.
THE ENTIRE TEXT IS CHANGED TO:

At least 30 days before the pre-erection meeting, submit working drawings for certification regarding the plan of operations to the RE. Include, at a minimum, the following in the plan:

1. Number and type of manpower and equipment.
2. Shipping procedures.
3. Lifting procedures.
4. Beam erecting sequence, including method of setting bearings and diaphragms.
5. Temporary bracing.
6. Manufacturer's recommendations.
7. Procedures for employee safety.
8. Traffic control and protection.

D. Erecting
THE FOLLOWING IS ADDED:

Mechanical expansion anchors shall be installed to immediately stabilize tub girder channels during the erection process. After an individual tub girder channel is positioned and aligned on temporary supports, mechanical anchors shall be used at locations shown on the plans to stabilize the channel. Tub girder channels must be stabilized to allow traffic to flow beneath the crossbeams while the tub girder assemblies are completed.

Adhesive anchors shall be installed after each pair of tub girder channels are erected and stabilized. In conjunction with spacers and end tie rods, align the channels so as to permit assembly of tub girder components on proper alignment.

The anchors are to hold the tub girders in position during the grout injection between the tub girders and concrete cross beams.

The Contractor is alerted to the irregular shapes of the existing concrete cross beams that must be accommodated by alignments of tub girder components. Field measurements of the cross beams is required to determine actual sizes of those components. The final configurations of the tub girders shall be webs plumb and bottom plates 1/2 inch clear of bottoms of existing concrete cross beams.

Place spacers to provide ½ inch minimum between the tub girder and the existing concrete with the tub girder webs plumb.

The Plans show over size holes permitted for installation of the bottom plates at the tub girders. Locate bolt holes to connect the bottom plates with the tub girder webs plumb. Field drilling of holes may be required.

Shims shall be provided between the undersides of the concrete deck and the top flanges of the tub girders where shown on the Plans. Due to the inclines at the deck undersides, beveled shims will be required. Proportion shims to be 6 inches by 6 inches.

Prior to erecting tub girders, repairs to existing concrete cross beams shall be made where shown on the Plans and directed by the Engineer, in accordance with the recommendations of the manufacturer of the patch materials; surface preparation shall be limited to removal of loose concrete particles and clean reinforcement using hand and power tools – no pneumatic hammers or chisels shall be used to remove concrete or clean reinforcement. See Section 551.

E. Installing High-Strength Steel Bolts.
THE ENTIRE TEXT IS CHANGED TO:

Check galvanized bolts and nuts to verify that a visible lubricant is on the threads. Check black bolts and nuts to verify that they are oily to the touch.

Before beginning bolt installation, provide on the project site a Skidmore-Wilhelm calibrator or an acceptable equivalent tension measuring device. Ensure that the manufacturer's representative is present during the first full day of tensioning work to provide technical assistance.

Test assemblies as follows:

1. For bolt assemblies that do not require Direct Tension Indicators (DTI's), perform the rotational capacity test in accordance with 908.02.02.C, on 2 assemblies from each rotational-capacity lot.

2. For bolt assemblies requiring DTI's, install in accordance with the following, and perform the rotational-capacity test as specified in NJDOT S-3 on 3 assemblies from each rotational-capacity lot.

   Ensure that the bolt, nut, and washer are from the same rotational-capacity lot. If the DTI is used under the nut, place an additional washer between the nut and the protrusions on the DTI. If recommended by the bolt manufacturer, the Contractor may use wax lubricant, beeswax, or a water wax emulsion to aid in installation. Hold the bolt head stationary while tightening the nut.

   Install bolts in all of the holes of the connection and tighten to a snug-tight condition to compact the joint. Ensure that the number of spaces on DTIs in which a 0.005-inch feeler gauge is refused after snugging does not exceed the maximum snug-tight refusals as specified in Table 506.03.01-1. If the number of refusals exceeds the maximum, remove the assembly, insert a new DTI, and resnug.

   Tighten the assemblies successively from the most rigid part of the connection to the free edges by turning the nuts while holding the bolts stationary. Tension the assemblies until the number of spaces in which the 0.005-inch thickness gauge is refused meets or exceeds the minimum final tension refusals specified in Table 506.03.01-1.

Table 506.03.01-1 Criteria for DTI Spaces for A 325 Bolts

Bolt Diameter, Inches	**1/2**	**5/8**	**3/4**	**7/8**	**1**	**1-1/8**	**1-1/4**	**1-3/8**	**1-1/2**
Number of Spaces on DTIs	4	4	5	5	6	6	7	7	8
Maximum Snug Tight Refusals[1]	1	1	2	2	2	2	3	3	3
Minimum Final Tension Refusals[2]	2	2	3	3	3	3	5	6	7

1. If the DTI is coated and under the nut, the maximum snug tight refusals is the number of spaces on the DTI minus one.
2. If the DTI is coated and under the nut, the minimum final tension refusals is the number of spaces on the DTI.

   If an assembly is tightened so that there are no visible gaps remaining in any of the spaces on the DTI, the assembly has been over-tightened. Remove and replace over-tightened assemblies.

If assemblies do not meet the above rotational capacity requirements when tested at the work site, the Contractor may clean and relubricate the bolt assemblies in the rotational-capacity lot. After cleaning and relubricating, retest the assemblies for compliance to the above rotational capacity requirements.

For painted steel, apply 3 coats of an organic paint system, supplied by the same manufacturer as the originally applied inorganic zinc system, to the field bolted connections.

506.03.02 Bearings

C. Installing Bearings. Install bearings as follows:

1. Anchor Bolts.

THE SECOND SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

If using anchor bolt sleeves, ensure that they are circumferentially corrugated and are galvanized steel or plastic.

THE FOLLOWING IS ADDED:

D. Structural Bearing Assembly, Seismic

1. Design Seismic Isolation Bearings in conformance with the Guide Specifications for Seismic Isolation Design, Third Edition, July 2010, With Interims (The "Guide Specifications"). The NJDOT Standard Specifications, its Special Provisions and NJDOT Design Manual For Bridges and Structures shall be used to complement the Guide Specifications where specific details are absent; in the event of a conflict among specifications, the details of the Project Special Provisions and the Guide Specification shall govern.

2. Except as noted, all steel plates shall conform to AASHTO M270 Grade 50.

3. All steel plates shall conform to the flatness requirements of Section 18 of the AASHTO LRFD Bridge Construction Specifications.

4. Elastomer shall be Natural Rubber, Grade 3, per the NJDOT Standard Specifications and the design requirements.

5. PTFE, if used, is to be virgin, and etched on one side for bonding into machined recess. The maximum coefficient of friction shall not exceed the design value.

6. Stainless steel sheets, if used, shall conform to ASTM A240, Type 304, with a No. 8 Mirror Finish. Minimum thickness shall be 16 GA., but shall be thick enough to achieve a finished flatness of 0.001 x nominal.

7. All welding shall be performed in accordance with ANSI/AASHTO/ AWS D1.5 bridge welding code, except welding of stainless steel shall conform to D1.6. Stainless steel shall be seal welded by either fusion or rod welding (GTAW) at the manufacturer's option. In either case, no weld material shall protrude above the plane of the stainless steel.

8. Orientation, serial number, manufacturer, and date of fabrication shall be marked on each individual bearing and also on the shop drawings.

9. Isolation bearings shall be protected from damage as well as from airborne debris and contaminants at all times prior to installation.

10. Completed bearings shall be packaged appropriately for shipping and handling and shall be stored by the Contractor in a manner to avoid damage.

11. At no time may any bearing be disassembled without authorization from the bearing manufacturer.

12. All mill scale to be removed from bearing plates via sandblasting (SSPC-SP6).

13. External steel plates shall be coated per contract documents.

14. Lead-Rubber Type Seismic Isolation Bearings are shown for representative purposes. Alternate types of seismic isolation bearing may be designed, provided that they conform to the geometric criteria of the existing bearing seats.

15. Design sole and masonry plates and any necessary steel hardware. Dimensions are shown in Table 1 for representative purposes.

16. Adjust all proposed bearing seat elevations and dimensions to accommodate any deviation from the dimensions provided in Table 1. Any deviations from the dimensions provided in Table 1 may not interfere with any existing substructure reinforcement or structural components designated to remain. Concrete cover for the anchor bolts may not be reduced.

17. The isolation bearing manufacturer shall possess a current valid certification of AISC Simple Steel Bridge Structures (SBR) Or Major Steel Bridge (CBR). Preparation for paint, storage, and application of paint shall be performed by a shop certified under the appropriate AISC Sophisticated Paint Endorsement (p1, p2 or p3).

18. The performance characteristics shown in Table to are specified to derive satisfactory seismic performance of the global structural system during the design seismic event. Design the bearings to meet these characteristics. Where the proposed bearing design deviates by more than 10% from these characteristics, reanalysis of the global model by the Engineer is required. Approval of the bearing characteristics shall be pending the Engineer's acceptance of the reanalyzed model.

506.03.06 Repair Galvanizing
THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

If painting is directed, treat the galvanized surface according to the manufacturer's recommendations, then apply the epoxy intermediate and urethane finish coats only.

THE FOLLOWING IS ADDED:

506.03.07 Girder Jacking

Temporary jacking systems, including columns, beams, brackets, plates, shapes, shims, welds, bolts, rods and all other required appurtenant hardware, timbers, and materials shall be fabricated in accordance with Division 500 of the Standard Specifications.

The Contractor shall prepare and submit Shop Drawings for all temporary jacking systems. Temporary jacking support systems shall be designed by a Professional Engineer licensed in the State of New Jersey and must be approved for use by the RE.

All temporary jacking systems shall be designed to support 150% of the full design dead and live load and all anticipated construction loads at all bearing locations. All horizontal loads including wind, thermal, seismic, braking, acceleration and centrifugal effect shall be considered.

Where excavation, dewatering, or temporary sheeting is required to establish solid founding for the support of temporary jacking systems, this work shall be performed in accordance with Sections 158, 202, and 501 of the Standard Specifications. Shop Drawings shall be submitted for dewatering methods and temporary sheeting to be used, in accordance with Subsection 105.05 of the Standard Specifications.

No materials shall be ordered and no work shall be performed until the Engineer's written approvals have been obtained. Approval by the Engineer shall in no way relieve the Contractor of responsibility for the safety and adequacy of the temporary jacking systems. Any damage to any portion of the existing structure to remain in place resulting from the Contractor's use of the temporary jacking system shall be repaired to the satisfaction of the Engineer and at no additional cost to the Department.

No jacking shall be performed until the replacement bearing assembly and all appurtenant materials required for installation at each specific location are on-site and ready for installation.

At reinforced concrete superstructures, each contiguous unit shall be jacked and lowered at one time.

At structural steel girders at Piers 1, 2, 3, 41, 42 and 43 one end of the girder or girder pair shall be jacked at one time.

The amount of jacking movement used to release and replace each set of bearings and to reconstruct the pier shafts shall be kept to a minimum. The Contractor shall submit to the Engineer, at least 30 days prior to the start of jacking

operation, the methods to be used and the procedures to be followed for the jacking operation intended for the pier shaft reconstruction and removal of the existing bearings and the installation of the new bearings, in accordance with Subsection105.05 of the Standard Specifications. The Contractor must receive written approval of these methods before commencing work.

The following requirements and restrictions shall be closely adhered to by the Contractor during jacking operations:

1. At concrete superstructure three and four span units, each entire unit shall be jacked and temporarily supported at one time and then lowered at one time. Controlled jacking at end piers of adjacent units may be performed in conjunction with the whole unit jacking.
2. At structural steel units, only one end of a girder or girder pair may be jacked and temporarily supported at any time.
3. A girder may not be raised more than ¼" unless otherwise allowed by the written permission of the Engineer.
4. Jack hydraulics may not be used to support the loads after jacking the girder. All loads must be transferred to an approved temporary support mechanism or the jacks must have secured lock nuts.
5. Jacks with higher capacity than required may be allowed, but the Contractor shall be responsible for monitoring the jack loads to ensure the safety of the structure. The larger jack may alter loading distribution and eccentricity, and thereby require dimensional or design changes to the temporary jacking system.
6. The jack system shall be equipped with direct reading gages to read the jack force in pounds or kips. Jacks shall be calibrated within the past 90 calendar days. The Contractor shall furnish proof of calibration or shall calibrate the jacks in the presence of the Engineer.
7. The Contractor shall provide, at no additional cost to the Department, a Professional Engineer registered in the State of New Jersey, to be present at all jacking operations and to check pertinent dimensions and requirements set forth on the Plans, the approved Shop Drawings, and herein to certify that all stipulations are met before the actual commencement of jacking.

The Contractor is alerted to the facts that jacking forces may free bearings individually allowing differential movements at bearings of concrete superstructure units and that these differential movements at bearings will induce stresses that may cause damage to the superstructure that will be difficult and costly to repair. Repairs would be at the contractor's expense.

Contributing factors are that existing bearings may be locked and or "frozen" due to corrosion and pack rust, roller nests are quite weighty and bearings are anchored into the ends of the concrete cross beams. Be aware that existing sole plates are anchored into the concrete cross beams and are intended to be incorporated into the new construction. Points of separation at the bearings are between the sole plates and pins, pins and bearing pedestal, bearing pedestal and tops of rollers and bottoms of rollers and masonry plates. The masonry plates are anchored to piers.

Relief of loads from the existing bearings may not be readily apparent upon applying the prescribed jacking forces. Consider the following:

- Prior to jacking, make efforts such as cleaning, lubricating, etc to free potential separation points at all bearings.
- Apply jacking forces incrementally up to the required dead load force. Apply jacking forces in small increments and take measures to separate bearing components.
- Bearing components except sole plates may be flame cut away to clear the bearing areas under the following conditions:
    - Minimum jacking forces of 120% of prescribed dead loads have been applied
    - Jacks have been locked or blocking capable of carrying 150% of prescribed total load has been inserted
    - Hydraulic pressure on the jacks has been relieved

A temporary jacking system, when no longer required at one location, may be relocated and installed at another location. Re-use of jacks and jacking system components shall be subject to the approval of the Engineer. Temporary jacking system components and/or equipment which are damaged, in poor condition, or otherwise deemed unsuitable for use in the sole opinion of the Engineer shall not be used and shall be removed from the site.

The Contractor's attention is directed to the fact that it is of extreme importance to safeguard the temporary support systems. It will be the sole responsibility of the Contractor to provide and maintain adequate protection of the temporary support systems for the duration of the Contract.

506.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

Item	***Pay Unit***
STRUCTURAL BEARING ASSEMBLY, SEISMIC	UNIT
GIRDER JACKING	LUMP SUM

Under the item, Structural Steel, include payment for field measurement, shop and working drawings, fabricating, furnishing, painting, erecting, aligning and stabilizing tub girder channels and bottom plates, to include all fasteners, anchors, shims, spacers, tie rods, grout, backer rods, and plugs.

Patching Concrete cross girders and superstructure will be measured and paid under Section 551.

Under the item, Structural Bearing Assembly, Seismic, include payment for the furnishing, painting, erecting and stabilizing bearings, to include all fasteners, anchors and shims.

Girder Jacking will be paid for on a lump sum basis and will not be measured for payment. Temporary supports, and excavation, temporary sheeting, and dewatering, where required, shall be considered as incidental to the item, Girder Jacking, and will not be measured for payment.

Payment for this item shall be made as follows:

- 25 % upon approval of jacking scheme
- 5 % upon the completion of the installation of seismic isolation bearings at each of ten concrete superstructure units, where a unit is defined as the superstructure between existing deck joints (e.g., from Pier 3 to Pier 6, from Pier 6 to Pier 10, …), to a total of 50% of the Lump Sum
- 15% upon completion of jacking and installation of seismic isolation bearings at steel approach span units
- 10% upon acceptance of the project.

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

507.01 Description

THE FOLLOWING IS ADDED:

The Contractor shall furnish all labor, materials, tools, supervision, transportation, installation equipment, and incidentals necessary to complete the work specified herein and shown on the Contract Drawings. The work describes the requirements for constructing concrete moment slab.

507.03.02 Constructing Bridge Decks

A. Forms. Construct forms as follows:

2. Removable Forms.

THIS PART IS CHANGED TO:

Construct removable forms as specified in 504.03.02.B. Do not use shoring to support stringers along the span length where the superstructure, under live load and impact loads, is designed for composite action. Do not weld attachments required for placement of the removable forms to the beam.

L. Saw Cut Grooved Surfacing.

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Do not saw cut until after the Department performs Acceptance Testing as specified in Subsection 507.03.02 N.

N. Concrete Deck Surface Requirements

1. Acceptance Testing.

THE FIRST PARAGRAPH IS CHANGED TO:

Construct deck slabs so that less than 9 percent of the measured length of the lot exceeds 1/8 inch tolerance in 10 feet. The ME will test the surface of concrete bridge deck slabs with a Class I Walking Profiler prior to the performance of saw cut grooved surfacing. The ME will calculate the percent defective using a rolling straight edge simulator analysis of the profiler data.

507.03.05 Concrete Parapet and Barrier Curb

THE SECOND PARAGRAPH IS CHANGED TO:

Cure using curing compound as specified 504.03.02.F. If drilling is required for subsequent construction, allow the concrete to cure for a minimum of 14 days before drilling.

507.03.07 Concrete Bridge Approach

THE FOLLOWING IS ADDED:

Ensure the concrete conforms to the surface requirements as specified in 507.03.02 N, except each lot will be equal to the number of cubic yards of approach concrete placed in the lane.

THE FOLLOWING IS ADDED:

507.03.08 Concrete Moment Slab

Construct reinforcement steel as specified in 504.03.01. Construct concrete as specified in 504.03.02.

507.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS ADDED:

Item Pay	*Unit*
CONCRETE MOMENT SLAB	CUBIC YARD

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will include payment for epoxy coated reinforcement steel, 6" thick subbase, subbase outlet drain and all other associated work for the bridge approach under the item CONCRETE BRIDGE APPROACH; for other concrete items, the Department will make payment for reinforcement steel under REINFORCEMENT STEEL, REINFORCEMENT STEEL, EPOXY-COATED, and REINFORCEMENT STEEL, GALVANIZED as specified in 504.04.

THE FOLLOWING IS ADDED:

The Department will make a payment adjustment for concrete surface requirement quality in deck slabs and approach, by the following formula:

$$\text{Pay Adjustment} = Q \times BP \times PR$$

Where:
BP = Bid Price
Q= Surface Requirement Lot Quantity

PR= percent reduction as specified in Table 507.03.02-2

SECTION 508 – BRIDGE DRAINAGE

508.01 DESCRIPTION
THIS SUBSECTION IS CHANGED TO:

This section describes the requirements for constructing new scuppers in existing bridge decks.

This Section also describes the requirements for the construction of drainage pipes for surface drainage of bridge decks and the removal of existing drain pipes of any material.

508.02 MATERIALS
THE FOLLOWING IS ADDED TO LIST OF MATERIALS:

Fiberglass Pipe……909.02.09
Reinforcement Steel 905.01
Structural Steel.....906.01
Structural Steel Fabrication……..... 906.04.02

Add the following:

Use Fiberglass Pipes and Fittings that conform to ASTM D2992, RTRP-11AE-5112. Pipes and fittings with Class C or Class F liners are acceptable. Downspouts attached to piers may be Schedule 80 PVC pipe in accordance with Subsection 902.02.03.

Ensure that all fiberglass pipe, fittings and adhesives use pigmented resins throughout the wall and the color is concrete gray or designated color with UV stabilized resin. Painted gel—coat or exterior coating is not acceptable.

Ensure that adhesives are in accordance with the recommendations of both the pipe and adhesive manufacturers.

THE FOLLOWING SUBPART IS ADDED:

508.03 CONSTRUCTION

508.03.01 Inlet Frames, Grates, and Scuppers

THE FOLLOWING IS ADDED:

A. **New Scupper in Existing Deck:** Sawcut and remove existing deck. Construct removable forms as specified in 504.03.02B. Ensure reinforcement steel is installed as specified in 504.03.01. Place scupper in the horizontal and vertical position shown on the plans. Comply with the limitations of placing concrete as specified in 507.03.02.F. Clean and splice existing reinforcement steel that will remain as specified in 551.03.01.C.

   Ensure all concrete is placed without stoppages. Provide surface texture finish as specified in 507.03.02.I. Cure the concrete as specified in 507.03.02.J. Before allowing anything on the concrete, ensure that the concrete has cured for a minimum of 14 days.

508.03.02 Steel Alloy Pipe
Add the following:

Do not use Steel alloy pipe without approval of the RE.

THE FOLLOWING SUBPART IS ADDED:

508.03.03 Fiberglass Pipe and Fittings
Add the following:

508.03.03 Fiberglass Pipe and Fittings
Connect the fiberglass pipe to the superstructure and substructure elements as shown on the Plans, in accordance with the pipe manufacturer's recommendations and as directed by the RE. Ensure that pipe supports are located at spacings that do not exceed the pipe manufacturer's recommendations. Avoid supports that have point contact or narrow supporting areas – standard sling, clamp and clevis hangers and shoe supports designed for use with steel pile may be used. Ensure that the minimum strap width of all pipe hangers meets the pipe manufacturer's recommendations. Ensure that straps have a minimum of 120 degrees of contact with pipe. On pipe supported on surface with less that 120 degrees of contact use a split fiberglass pipe protective sleeve bonded in place with adhesive.

Where pipes are encased in concrete, wrap pipe in 1" thick closed cell polyethylene.

Ensure that all connections of pipes and fittings shown on the plans to facilitate future maintenance cleanout or flushing are made with a threaded, gasketed coupling or a bolted gasketed flange system. Use only female-male threaded plugs for cleanouts.

508.03.04 Removal of existing Drain Pipe

Remove existing drain pipes and pipe supports from superstructure units and piers as shown on the Plans. Do not damage existing piers or superstructures. Remove all discarded drain pipe from the work site and legally dispose of the pipes. Repair all damage to existing structures caused by the removal of the drain pipes.

508.04 MEASUREMENT AND PAYMENT
Add the following:

Item	***Pay Unit***
8" FIBERGLASS PIPE	LINEAR FOOT
12" FIBERGLASS PIPE	LINEAR FOOT
FIBERGLASS DRAIN PIPE	LINEAR FOOT
NEW SCUPPER IN EXISTING DECK	UNIT

The Department will make payment for pipes, fittings, couplings, plugs, adhesives, pipe supports of all types as necessary, bolts, nuts, washers, plates, and all equipment and labor under the item, FIBERGLASS DRAIN PIPE

The Department will make payment for pipes, fittings, couplings, plugs, adhesives, pipe supports of all types as necessary, bolts, nuts, washers and plates attached to the piers, and all equipment and labor under the items __" FIBERGLASS PIPE.

The Department will make payment for removal of existing pipes and pipe supports attached to the existing superstructure, and equipment and labor required under the item, FIBERGLASS DRAIN PIPE.

The Department will make payment for removal of existing pipes and pipe supports attached to the existing substructure, and equipment and labor required under the item, __" FIBERGLASS PIPE.

All work associated with the new scupper will be included in the item "NEW SCUPPER IN EXISTING DECK".

SECTION 509 – BRIDGE RAILING AND FENCE

509.03.01 Bridge Railing
THE THIRD PARAGRAPH SUBPART 2 IS CHANGED TO:

2. **Adhesive Type.** Do not drill for installation until the concrete has cured for at least 14 days. Install adhesive anchors according to the manufacturer's recommendations. When drilling, ensure that spalling does not occur and existing utilities are not damaged. Repair damage to the existing concrete, utilities, and reinforcement steel as a result of drilling. Clean and dry drill holes before and during installation of the adhesive anchors.

509.03.02 Chain-Link Fence for Bridge
THE ENTIRE SUBPART IS CHANGED TO:

At least 30 days before beginning the work, submit working drawings for certification. Indicate material specifications for adhesive, anchors, washers, and nuts on the working drawings.

Base the design embedment of the adhesive anchor bolts on a concrete compressive strength of 4000 pounds per square inch. Ensure that the embedment depth of the adhesive anchors shown on the working drawings is sufficient to obtain the required pullout strength as required for the proof load testing as specified in 908.01.04.

Do not use expansion type anchor bolts. Place anchors using one of the following:

1. **Cast-in-Place Type.** Set anchor bolts before placing concrete using a rigid template for each anchor assembly. When placing concrete, ensure that bolts do not move and spacing is maintained between the rigid templates. Ensure that the exposed threaded ends of the anchor bolts remain clean and protected from concrete. Clean the anchor bolts before installing the specified hardware.
2. **Adhesive Type.** Do not drill for installation until the concrete has cured for at least 14 days. Install adhesive anchors according to the manufacturer's recommendations. When drilling, ensure that spalling does not occur and existing utilities are not damaged. Repair damage to the existing concrete, utilities, and reinforcement steel as a result of drilling. Clean and dry drill holes before and during installation of the adhesive anchors.

Erect fencing as shown on the Plans.

509.04 MEASUREMENT AND PAYMENT
THE ENTIRE SUBSECTION IS CHANGED TO:

The Department will measure and make payment for Items as follows:

Item	*Pay Unit*
CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, 6'- 3" HIGH	LINEAR FOOT

THE ENTIRE SECTION IS REPLACED WITH THE FOLLOWING:

SECTION 511 – BULKHEAD, FENDER, AND DOLPHIN SYSTEMS

511.01 DESCRIPTION
THE FOLLOWING IS ADDED AT THE END OF FIRST PARAGRAPH:

This Section describes the requirements for installing Tie-Rod System.

511.02 MATERIALS

511.02.01 Materials
THE FOLLOWING IS ADDED AT THE END OF THE LIST:

The material for Tie Rod shall conform to ASTM A-615 Grade 75, ASTM A-722 grade 150.

Tie Rod shall have double corrosion protection.

Bearing Plate……906.01

511.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

511.03.02 Tie Rod System.

A. Working Drawings.

Tie Rod System:
At least 30 days before beginning work, submit working drawings and calculations for approval for the tie rod Tie-Rod System with the following information.

1. Plan, section and elevation details.
2. Corrosion protection system used.
3. Anchorage (bearing plate and trumpet)
4. Anchorage corrosion protection system (protection cap)
5. Drilled or formed hole size
6. Any revision to structure details necessary to accommodate the tie rod system intended for use
7. Total length of the tie rod
8. The grout mix design and procedures for placing the grout
9. Thread bar physical properties, maximum design, test and lock-off load

B. Anchorage and Coupler:

Ensure that couplers and anchorages develop maximum ultimate tensile strength of the tie rod steel.

Use hexagonal hex nut as anchorage device. Fit anchor nut into the countersunk hole in the bearing plate. Heavy-duty type anchor nuts or hex nut must conform to bar manufacturer's specifications.

C. Bearing Plate Assembly:

Effectively distribute the maximum testing load to the bearing plate to support the element (concrete and structural steel).

Attach a steel trumpet, made from weldable material, having an inside diameter equal to or larger than the hole in the bearing plate, to the bearing plate using seal weld. Use the steel trumpet with a minimum thickness of 0.20 inches. After fabrication, apply hot dipped galvanizing conforming to ASTM A153 on bearing plates and trumpet. After final stressing operations, fill all voids within the steel trumpet and bearing plate with corrosion inhibitor grease (restressable anchor) or cement grout.

D. Cover Cap:

Completely encase the anchor nut within a steel cap hot dipped galvanized per ASTM A-153 steel cap if the anchorage is not encapsulated in concrete. Ensure that the steel cap has a minimum thickness of 0.20 inches. Bolt the cover cap to the bearing plate with a minimum of four bolts. Place a neoprene gasket between cover cap flange and bearing plate. Fill all voids within the steel cap with corrosion inhibitor grease or cement grout.

E. Grout:

Ensure that the grout inside of the cover cap, trumpet and corrugated sheathing is a neat cement mixture using 5 gallons of water, 1% water reducer additive and 94lbs of Portland cement type II ASTM C150.

F. Tie Rod Fabrication:

Ensure that the bars are centered and fully encapsulated inside corrugated plastic sheathing and fill the annular space between bar and sheathing with cement grouted in the shop. If coupler is used, ensure that they will be field installed with double corrosion protection system as per manufacturer instructions or as shown in the shop drawings. Pre-assembled and pre-grouted the anchor prior to shipping to the jobsite.

Make sure that the corrugated sheathing is also covered by a smooth HDPE sheathing that fits snugly over it. Ensure that HDPE have a density between 0.940 and 0.960 gram/cm^3 measured in accordance with ASTM Designation: D 792, A-2. Provide high density polyethylene (HDPE) to the corrugated plastic sheathing. Ensure that the minimum sheathing wall thickness is 40 mils. Ensure that the sheathing is strong enough to prevent damage during construction operations, watertight, chemically stable without embrittlement softening, and nonreactive with concrete or grout. Ensure that the plastic sheathing form a gas and watertight barrier around the prestressing steel bar and shall provide resistance against chemical attack and aging.

Ensure that the cement grout used inside the corrugated sheathing and to fill steel trumpet and grout cap have 3,000-psi minimum compressive strength. Perform random sampling and testing of cement grout for test anchors as required by RE to verify strength. Test procedures shall conform to ASTM C109.

G. Product Handling and storage:

Ensure that handling, shipping and storage be such that the material is properly identifiable and protected against mechanical damage, corrosion, chemical attack and dirt. Place materials stored at site above ground on well-supported platform and covered with plastic or other approved material.

H. Tie Rod Installation:

Ensure that the tie rod anchor installation method selected be sufficient to achieve the loadings specified by contract plans. Insert the tie rods in such a manner that they are not damaged and the corrosion protection remains effective. Place bearing plate at each end normal to tie rod axis. Use couplers as shown on the shop drawing details.

I. Tie Rod System Stressing:

A minimum lock-off load (10 kips) of the nut against the bearing plate is required to prevent loosening of the nut. Perform stressing against permanent bearing plates, which bear against concrete or steel support facing. Ensure that a minimum concrete compressive strength at time of stressing be 3000 psi. Use hydraulic jack with calibrated gauge.

511.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

Item	***Pay Unit***
TIE-ROD SYSTEM	UNIT

The contract unit price for tie-rod system includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the tie-rod system (including stressing), complete in place, as shown on Plans, as specified in these Special Provisions, and as directed by the RE.

SECTION 513 – RETAINING WALLS

513.01 Description

THE FOLLOWING IS ADDED:

This section describes the requirements for constructing concrete coping and placement of coarse aggregate layer.

513.02.01 Materials
THE FOLLOWING IS ADDED:

For Concrete Moment Slab, use Coarse Aggregate, No. 57.

For the concrete coping, class B concrete must be used.

513.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

Item	*Pay Unit*
COURSE AGGREGATE LAYER	CUBIC FOOT
CONCRETE COPING	LINEAR FOOT

THE FOLLOWING SECTION IS ADDED:

SECTION 514 – TEMPORARY STRUCTURES

514.01 DESCRIPTION

This section describes the requirements for constructing and removing temporary supports.

514.03 CONSTRUCTION

514.03.01 Temporary Structures.
THE FOLLOWING IS ADDED:

D. Temporary Supports. Provide temporary supports including temporary cribbing under deck slab and beam as shown on the contract Plans. Design temporary supports in accordance with the latest version of the AASHTO Standard Specifications for Highway Bridges and the AASHTO Guide Specifications for Bridge Temporary Works, and the requirements shown on the Plans, and submit for approval.. Design temporary supports for the loads shown on the Plans. Adequately brace temporary supports for potential longitudinal and lateral loads when the bents are engaged. Closely monitor the shoring for signs of settlement and maintain positive contact at the superstructure/shoring interface with additional shimming as necessary. Monitor the temporary structure for any signs of the settlement and adjust the supports daily to ensure a tight fit before the concrete encasement removal work begins. Notify the RE if any settlement is observed and stop encasement removal if instructed by the RE until further direction from the RE is received.

Prepare areas below temporary supports and foundations or cribbing underneath columns to provide a firm level surface, including any vegetation removal, curb removal, grading, excavation, fill required for leveling, removal of obstacles in the way of the foundation or cribbing or any other item necessary to have a firm level base for the temporary supports. Ensure that temporary foundations are level and columns truly plumb. Restore the area in the vicinity of and under temporary supports after construction to the existing condition prior to construction, including landscaping or other item disturbed in the course of the work to the satisfaction of the RE. Remove and relocate temporary supports when approved by the RE. Do not remove the temporary supports in continuous spans until after the safetywalk and parapet

are removed and inspected by the RE. Also, do not remove the temporary support underneath the girders until bridge seat area is restored. The Contractor will be responsible for maintaining the temporary supports until they are no longer necessary, when the Contractor will be responsible for removing them.

514.04 MEASUREMENT AND PAYMENT

Item	***Pay Unit***
TEMPORARY SUPPORTS	LUMP SUM

The Department will pay 50 percent of the unit price bid when the first temporary support is completely installed. The Department will pay the remaining 50 percent unit price bid for the temporary support when the temporary supports have been completely removed up to a maximum of 100 percent of the unit bid price.

THE FOLLOWING SECTION IS ADDED

SECTION 520 - PERMANENT GROUND ANCHORS

520.01 DESCRIPTION

The Contractor shall furnish all labor, materials, tools, supervision, transportation, installation equipment, and incidentals necessary to complete the work specified herein and shown on the Contract Drawings. The work shall include but not be limited to mobilization, surveying, drilling, inserting, grouting, load testing, and wrench tightening of head nuts of ground anchors at the appropriate locations.

Protect the anchors from corrosion as shown on the Contract Drawings and in accordance with the requirements of this Specification.

A. Contractor Qualifications.

The Contractor shall have experience, or choose a subcontractor who has experience in the design and construction of permanent ground anchors, and meet the following qualifications:

1. Provide proof of at least 5 years of experience in the installation of permanent ground anchors.

2. Submit a list containing at least 5 projects that demonstrate installation experience in permanent ground anchors. Include a brief description of each project and the name and phone number of Department's representative knowledgeable in each project listed.

3. Provide drill operators and on-site supervisors having a minimum of 3 years of experience installing permanent ground anchors.

4. Do not use names of consultants or manufacturer's representatives to meet the requirements of this subsection.

B. Submittals.

1. The Contractor shall submit a list containing at least five (5) projects completed within the last five (5) years. For each project, the Contractor shall include with this submittal, at a minimum: (1) name of client contact, address, and telephone number; (2) location of project; (3) contract value; and (4) scheduled completion date and actual completion date for the project.

2. The Contractor shall prepare and submit to the RE for review and approval Working Drawings and a design submission describing the ground anchor system or systems intended for use. Submit the Working Drawings and design submission thirty (30) working days prior to the commencement of the work. The Working Drawings and design submission shall include the following:

1. Ground anchor schedule giving:
   i Ground anchor number;
   ii Ground anchor design load;
   iii. Type and size of Anchor;
   iv. Minimum total anchor length;
   v. Minimum bond length;
   vi. Minimum unbonded length.

2. A drawing of the ground anchor and the corrosion protection system including details for the following:
   i. Spacers and their location;
   ii. Centralizers and their location;
   iii. Unbonded length corrosion protection system;
   iv. Bond length corrosion protection system;
   v. Anchorage and trumpet;
   vi. Anchorage corrosion protection system;
   vii. Drilled or formed hole size;
   viii. Level of each stage of grouting; and
   ix. Any revisions to structure details necessary to accommodate the ground anchor system intended for use.

c. Certificates of Compliance for the following materials, if used. The certificate shall state that the material or assemblies to be provided will fully comply with the requirements of the contract.
   i. Anchor steel, strand or bar;
   ii. Portland cement;
   iii. Anchor hardware;
   iv. Bearing Plates; and
   v. Corrosion protection system.

3. The Contractor shall submit the design calculations for review. Design calculations shall include design of bonded length for each anchor, design load, the size of the anchor tendon (bars) for each anchor design load, size of the drilled hole and casing.

4. The Engineer will review the contractor's Working Drawings and design submission including detailed calculations within thirty (30) working days after receipt of the submission.

5. The Contractor shall submit to the RE for review mill test reports for the anchor steel and the bearing plate steel. The RE may require the Contractor to provide samples of any ground anchor material intended for use on the project. Do not incorporate the anchor steel and bearing plates in the work without the RE's approval.

6. The Contractor shall submit to the RE for review calibration data for each test jack, load cell, primary pressure gauge and reference pressure gauge to be used. Testing cannot commence until the RE has approved the jack, load cell, primary pressure gauge and reference pressure gauge calibrations.

7. The Contractor shall submit to the RE within twenty (20) calendar days after completion of the ground anchor work a report containing:
   i. Anchor steel manufacturer's mill test reports for the anchors incorporated in the installation;
   ii. Grouting records indicating the cement type, quantity injected and the grout pressures;
   iii. Ground anchor test results and graphs; and
   iv. As-built drawings showing the location and orientation of each ground anchor, anchor capacity, anchor type, total anchor length, bond length and unbonded length as installed.

C. Existing Conditions.

1. The Contractor is responsible for contacting a utility location service to verify the location of underground utilities before starting the work.

2. The Contractor shall survey the condition of adjoining properties and make records and photographs of any evidence of settlement or cracking of any adjacent structures. Deliver the Contractor's report of this survey to the Department before work begins.

E. References.

1. Latest version of American Society for Testing and Materials (ASTM) standards:
   a. ASTM A 36 Standard Specification for A36 Carbon Structural Steel.
   b. ASTM A 53 Standard Specifications for Steel Pipe.

   c. ASTM A 500 Standard Specification for Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
   d. ASTM A 572 Standard Specification for A572 High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
   e. ASTM A 615 Standard Specification for A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   f. ASTM A 709 Standard Specification for A709 Carbon and High-Strength Low- Alloy Structural Steel Shapes, plates, and Bars and Quenched and Tempered Alloy Structural Steel Plates for Bridges.
   g. ASTM A 779 Standard Specification for Steel Strand, Seven Wire, Uncoated, Compacted, Stress-relieve for Prestressed Concrete.
   h. ASTM C 109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm Cube Specimens).

2. Latest version of following standards from American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Transportation Materials and Methods of Sampling and Testing"
   a. AASHTO M 85 Standard Specification for Portland Cement.
   b. AASHTO M 169 Standard Specification for Steel Bars, Carbon, Cold Finished, Standard Quality.
   c. AASHTO M 183 Standard Specification for Structural Steel.
   d. AASHTO M 222 Standard Specification for High-Strength Low-alloy Structural Steel with 50,000 psi Minimum Yield Point to 4-inches Thick.
   e. AASHTO M 275 Standard Specification of Uncoated High-strength Steel Bar.

3. Latest version of Post Tensioning Institute (PTI) standards:
   a. PTI, "Post Tensioning Manual"
   b. PTI, "Specification for Unbonded Single Strand Tendons"
   c. PTI, "Recommendations for Prestressed Rock and Soil Anchors"

4. Latest version of American Association of State Highway and Transportation Officials (AASHTO), "Guide Specifications for Highway Construction"

5. Ground Anchor Inspector's Manual, from "In-Situ Soil Improvement Techniques", American Association of State Highway and Transportation Officials - Associated Contractors of America - American Road and Transportation Builders Association (AASHTO-AGC-ARTBA), Task Force 27 Report, 1990.

6. Latest version of the New Jersey Department of Transportation's (NJDOT) Standard Specifications for Road and Bridge Construction.

7. Occupational Health and Safety Administration (OSHA) Publication, 29 CFR 1926 Construction Industry Standards, Subpart P - Excavations.

520.02 MATERIALS

A. General.

A. The Contractor shall not deliver materials to the site until the RE has approved the submittals as specified in 520.01of this specification.

2. Protect the designated storage location or locations from theft, vandalism, passage of vehicles, and other potential sources of damage to materials delivered to the site.

3. The Contractor shall protect the materials from the elements by appropriate means. Store and handle the anchor steel strands and bars in accordance with manufacturer's recommendations and in such a manner that no damage to the component parts occurs. Protect all steel components from the elements at all times. Store cement and additives for grout under cover and protect from moisture.

4. Submit certified mill test reports for the anchor steel, the bearing plate steel, and the anchor assembly hardware and accessories, to the RE for review and approval. The RE will approve or reject the anchor steel and bearing plate steel within 5 working days after receipt of the test reports. Do not use anchor steel or bearing plates in the work without the RE's approval.

B. Admixtures.

Admixtures which control bleed, improve flowability, reduce water content and retard set may be used in the grout subject to the written approval of the Engineer. Expansive admixtures may only be added to grout used for filling sealed encapsulations, trumpets and anchorage covers. Do not use accelerators. Use admixtures compatible with anchor steels and cement being used, and mix in accordance with the manufacturer's recommendations.

C. Anchorage Devices.

1. Stressing anchorages shall be a combination of either a steel bearing plate with wedge plate (or bent plate), or a steel bearing plate with a threaded anchor nut. The steel bearing plate and wedge plate may also be combined into a single element. Anchorage devices shall be capable of developing 95 percent of the specified minimum ultimate tensile strength (SMTS) of the anchor steel tendon. The anchorage devices shall conform to the static strength requirements of Section 3.1.6(1) and Section 3.1.8(1) of the PTI "Guide Specification for Post-Tensioning Materials", 4th Edition.

2. Anchorage Covers. Fabricate anchorage covers from steel or ductile iron with a minimum wall thickness of 0.10 inch. Attach cover securely to the bearing plate. Grease filled covers must form a permanent watertight enclosure for the anchorage device.

3. Bearing Plates. Fabricate bearing plates from steel conforming to AASHTO-M183 unless otherwise specified.

4. Trumpet. Fabricate trumpet, which is used to provide a transition from the anchorage to the unbonded length, from a steel pipe or tube conforming to the requirements of ASTM A 53 for pipe or ASTM A 500 for tubing. Provide a minimum wall thickness of 0.20 inch.

D. Bondbreaker.

Provide a bondbreaker fabricated from a smooth plastic tube or pipe conforming to ASTM D 4101-82.

E. Cement Grout.

Nonmetallic, nonshrink or expansive. Use Type I, II or III Portland cement conforming to AASHTO M 85. Use Type II in detrimental environments, if indicated.

F. Centralizers.

Fabricate centralizers from plastic, steel or other material which is nondetrimental to the anchor steel. Do not use wood. Position centralizer to provide a minimum of 0.5 inch of grout cover and to permit free flow of grout.

G. Corrosion Inhibiting Grease.

Use corrosion inhibiting grease conforming to the requirements of Section 3.2.5 of the PTI, "Specifications for Unbonded Single Strand Tendons", 4th Edition.
Do not exceed the following allowable content of deleterious substances in the grease:
Compound Test Method Maximum Quantity (PPM)
Chlorides ASTM-D572 10
Nitrates ASTM-D992 10
Sulfides APHA "Sulfides in Water" 10

H. Grout Tubes.

Grout tubes shall have an adequate diameter to enable the grout to be pumped to the bottom of the drilled hole. Grout tubes shall be strong enough to withstand a minimum grouting pressure of 145psi. Postgrout tubes shall be strong enough to withstand postgrouting pressure.

I. Anchor Steel.

Fabricate ground anchor or anchors from single or multiple elements of the following anchor steels:
1. Steel bars conforming to AASHTO M 275;
2. Epoxy coated reinforcing steel bars conforming to ASTM A 775.

J. Anchor Steel Couplers.

Prestressing steel bar couplers shall be capable of developing 100 percent of the minimum specified ultimate tensile strength of the prestressing steel bar.

K. Sheath.

Use a sheath as part of the corrosion protection system for the unbonded length portion of the anchor. Fabricate sheath from one of the following:
A polyethylene (PE) tube pulled or pushed over the tendon (bar). Use polyethylene Type II, III or IV as defined by ASTM D 1248. Minimum wall thickness of 0.06+/- 0.01 inch for tubing.

A hot-melt extruded polypropylene tube applied over a corrosion inhibiting grease coated bar. Use polypropylene Type It 26500-D as defined by ASTM D 2146. Minimum wall thickness of 0.06 +/- 0.01 inch for tubing.

A grout-filled corrugated tube conforming to the requirements for bond length encapsulation. A heat shrinkage polyolefin tube coated with an elastic adhesive. Provide tube having a nominal wall thickness of 0.024 inch prior to shrinking. Provide elastic adhesive inside tube with a nominal thickness of 0.02 inch.

L. Spacers.

Use spacers to separate elements of a multi-element anchor. Fabricate spacers from plastic, steel or other material which is nondetrimental to the anchor steel. Do not use wood. A combination centralizer-spacer can be used.

M. Anchor Bond Length Encapsulation.

Encapsulate the anchor bond length to provide additional corrosion protection. Fabricate the encapsulation from one of the following:

- High density corrugated polyethylene (PE) tubing conforming to the requirements of AASHTO M252 and having a minimum wall thickness of 0.03 inch, or approved equal.
- Deformed steel tubing or pipe with a minimum wall thickness of 0.025 inch.
- Corrugated, polyvinyl chloride (PVC) tubing as provided by Dywidag Systems.
- International or approved equal. Dywidag Systems International's part numbers are 26E415, 32E415, 32E433 and 36E433.
- Handle and store the anchors in such a manner as to avoid damage or corrosion. Damage to the anchor steel as a result of abrasions, cuts, nicks, welds, and weld splatter is cause for rejection by the Engineer.

N. Portland Cement Concrete.

Furnish Class B encasement concrete for steel soldier pile sockets as indicated. Provide mix design for low strength encasement concrete above socket.

O. Fabricated Structural Steel.

Steel used to fabricate steel studs and other devices shall conform to the requirements of AASHTO M 169.

P. Water.

Water for mixing grout shall be potable, clean, and free of injurious quantities of substances known to be harmful to Portland cement or anchor steel.

Q. Structural Concrete.

Structural concrete shall conform to the requirements as specified in 903. Structural concrete shall be Class B with a minimum 28-day compressive strength of 3000 psi unless otherwise noted on the Contract drawings.

520.03 PRE-CONSTRUCTION MEETING

A pre-construction meeting will be scheduled by the Engineer and held prior to the start of the anchor installation. The Engineer, general Contractor and anchor specialty Contractor shall attend the meeting. Attendance is mandatory. The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the general contractor and Subcontractors.

520.04 CONSTRUCTION

A. Drilling Equipment.

Use drilling rigs of the proper type and capacity for the proposed work and maintain in good operating condition to the satisfaction of the Engineer. When drilling through hard material (concrete, boulder, etc.), use an auger head fitted with teeth specifically designed for cutting or coring the hard material efficiently. Do not use short drilling.

B. Drilling Holes for Anchors.

Drill holes for anchors within 6 inch of the locations shown on the approved drawings. Provide a minimum hole diameter of 8 inch. Provide casing where necessary to maintain an open hole until grouting begins. Extend the hole a minimum of 24 inch beyond the specified anchor length, but do not extend beyond the right-of-way limits shown on the approved plans unless otherwise directed by the Engineer. Drill holes to the inclination specified within a 3

degree tolerance. If this tolerance is not met, select another hole location within 12 inch of the original, or as directed by the RE, and provide computations to prove that the new location is adequate. Pressure grout the unused hole and have the grout attain the minimum required strength prior to drilling the new hole.

C. Anchor Insertion.

Fabricate anchors in the shop or in the field, from anchor steel and materials conforming to the requirements of the Materials subsection of this specification. Fabricate anchors in accordance with approved details and free of dirt, detrimental rust, or other deleterious substances. Handle and store in a manner to avoid corrosion and physical damage. Damage such as abrasions, cuts, nicks, welds, weld splatters, or heavy corrosion and pitting, will be a cause for rejection of the anchor. Replace rejected anchors at no cost to the Department in terms of material replacement and/or resulting time delays. Remove grease from the bond length and clean it thoroughly prior to installation to ensure bonding with the grout.

Insert anchor into the drilled hole to the desired depth without obstruction. When the anchor cannot be completely inserted, remove the anchor from the drill hole and clean or re-drill the hole to permit insertion. Do not drive or force anchor into the hole. Do not bend the anchor in order to enable the bearing plate to be connected to the supported structure.

Protect anchor steel if welding is to be performed in the vicinity. Grounding of welding leads to the anchor steel is prohibited. Protect anchor steel from dirt, rust or deleterious substances. Heavy corrosion or pitting is cause for rejection by the Engineer. A light coating of surface rust is acceptable if it can be removed completely from the steel by wiping with a cloth.

Use care in handling and storing the anchors at the site. Examine prior to inserting an anchor into the drill hole. Examine the anchor for damage to the encapsulation and the sheathing. Repair damaged encapsulation in accordance with the supplier's recommendation. Repair damaged smooth sheathing with ultra high molecular weight polyethylene (PE) tape. Spirally wind the tape around the anchor so as to completely seal the damaged area. Pitch the spiral to ensure a double thickness at all points. Provide equipment for fabricating, handling, and placing anchors such that it does not damage or deteriorate the anchor steel or the anchorages.

D. Grouting.

Use a neat cement grout or a sand-cement grout. Do not use cement which contains lumps or other indications of hydration. Mix approved admixtures in accordance with Department specifications and/or the manufacturer's recommendations.

Submit the grout mix design and test results along with pressure gauge calibration data for acceptance 30 days prior to construction.

Use grouting equipment that produces a grout free of lumps and undispersed cement. Use a helical screw type grout pump. Equip the pump with a pressure gauge capable of measuring pressures of a least 145psi, or twice the actual grout pressure used, whichever is greater. Size the grouting equipment to enable the grout to be pumped in one continuous operation. Provide mixer capable of continuously agitating the grout.

Inject grout from the lowest point in the drill hole. Pump grout through grout tubes or drill rods. Grout before or after insertion of the anchor as directed. Maintain a minimum grout pressure of 25psi, or as directed by the Engineer. Record the quantity of grout and the grout pressures. Measure grout-pressure at the top of the hole. Control grout pressures and grout takes to prevent excessive heave in cohesive soils, or fracturing of rock formations.

Use "Single Stage" grouting unless otherwise directed. Place grout above the top of the bond length at the same time as the bond length grout but do not place under pressure. Continue pumping grout until fresh grout flows from the

top of the hole. Remove sufficient grout so as to prevent the grout at the top of the drill hole from contacting the back of the structure or the bottom of the trumpet.

Upon completion of grouting, the grout tube filled with grout may remain in the hole.

Do not load the anchor for a minimum of 3 days after grouting, or until the minimum required grout strength is achieved. Replace failed anchors.

E. Installation of Trumpet and Anchorage.

Extend the corrosion protection surrounding the unbonded length of the anchor beyond the bottom seal of the trumpet, or 12 inch into the trumpet if no trumpet seal is provided. Extend the corrosion protection or lengthen the trumpet if the protection does not extend beyond the seal or sufficiently far enough into the trumpet.

Do not allow contact between the corrosion protection surrounding the unbonded length of the anchor and the bearing plate or the anchor head during testing and stressing. If too long, trim the corrosion protection to prevent contact.

Place the bearing plate and anchor head so that the axis of the anchor and the drill hole are both perpendicular to the bearing plate within 3 degrees, and the axis of the anchor passes through the center of the bearing plate.

Fill the trumpet completely with corrosion inhibiting grease or grout. Grease can be placed any time during construction. Place grout after the anchor has been tested. Demonstrate to the Engineer that the procedures selected for placement of either grease or grout will produce a completely filled trumpet.

Cover all anchorages permanently exposed to the atmosphere with a corrosion inhibiting, grease-filled or grout-filled cover. Demonstrate to the Engineer that the procedures selected for placement of either grease or grout will produce a completely filled cover. Use only corrosion inhibiting grease to fill the anchorage cover.

F. Testing and Stressing

1. General.

Submit, for review and approval, calibration data for each test jack, main pressure gauge, load cell and backup pressure gauge to be used. Calibration must have been certified within the last 30 days. The jack and pressure gauges are to be tested together as a system. Allow 5 working days after receipt of the data for the Engineer's approval. Do not begin testing until the Engineer has approved the calibrations.

Test each anchor in the presence of the Inspector. No load greater than ten (10) percent of the design load can be applied to the ground anchor prior to testing. The maximum test load shall be no less than 1.33 times the design load and shall not exceed 80 percent of the specified minimum ultimate tensile strength (SMTS) of the anchor steel of the anchor.

2. Testing Equipment.

Use dial gauge or vernier scale capable of measuring to 0.001 inch of ground anchor movement. Provide movement-measuring device having a minimum travel equal to the theoretical elastic elongation of the unbonded length plus one half the anchor bond length at the maximum test load plus 1 inch.

Use a hydraulic jack and pump to apply the test load. Use jack and a calibrated pressure gauge. Have jack and pressure gauge calibrated as a unit by an independent approved testing laboratory. Perform the calibration within 45 days of the test date. Do not begin testing until the Engineer has approved the calibration. Provide pressure gauges

graduated to accurately read 1% of the maximum load to be applied to anchors. Do not allow the ram travel of the jack to be less than the theoretical elastic elongation of the unbonded length plus the anchor bond length at the maximum test load plus 1 inch.

Calibrate the backup pressure gauge with the test jack and main pressure gauge.

Provide a calibrated load cell and readout to be used for all tests.

Place the stressing equipment over the anchor in such a manner that the jack, bearing plates, load cells and stressing anchorage are axially aligned with the anchor, and the anchor is centered within the equipment.

3. Performance Test

The number of ground anchors designated for the Performance Test are shown on the plan. Test remaining ground anchors in accordance with the Proof Test Procedure.

Conduct the Performance Test in the presence of the Inspector by incrementally loading and unloading the anchor in accordance with the following schedule. Raise the load from one increment to another as rapidly as possible. Measure and record the anchor movement to the nearest 0.001 inch (25 um), with respect to an independent fixed reference point, at the alignment loading and at each incremental loading. Place the backup pressure gauge in series with the main pressure gauge to monitor the load during each Performance Test.

Performance Test Schedule

LOAD	LOAD
AL	AL
0.25DL*	0.25DL
AL	0.5DL
0.25DL*	0.75DL
0.50DL*	1.00DL
AL	1.20DL
0.25DL	AL
0.50DL	0.25DL
0.75DL*	0.50DL
AL	0.75DL
0.25DL*	1.00DL
0.50DL	1.20DL
0.75DL	1.33DL*
1.00DL*	(Maximum Test Load)
Reduced to Lock-off load (10% of DL)	
* Hold for creep test (Short Term).	

Where AL - is the alignment load (5% of DL).
DL - is the anchor design load,
* - refers to 3rd paragraph below.

Recalibrate, at no additional expense to the Department, the jack, main pressure gauge and backup pressure gauge if the load determined by the backup pressure gauge and the load determined by the main pressure gauge differ by more than 10%.

At load increments other than the maximum test load, hold the load just long enough to obtain the movement reading.

Hold the maximum test load for 10 minutes in a Performance Test. Start the load hold period as soon as the maximum test load is reached. Measure and record the anchor movement with respect to a fixed reference at 1 minute, 2, 3, 4, 5, 6 and 10 minutes. If the anchor movement between 1 minute and 10 minutes exceeds 0.04 inch (1 mm), hold the maximum test load for an additional 50 minutes. If the load hold is extended, record the anchor movement at 15 minutes, 20, 25, 30, 45 and 60 minutes (Short Term creep test).

Plot the anchor movement versus load for each load increment marked with an asterisk (*) in the Performance Test Schedule, and plot the residual movement of the anchor at each alignment load verses the highest previously applied load using the attached Department approved forms.

4. Proof Test

Perform the Proof Test on all anchors, in the presence of the Inspector, by incrementally loading the ground anchor in accordance with the following schedule. Raise the load from one increment to another as rapidly as possible. Measure and record the anchor movement to the nearest 25um (0.001 inch), with respect to an independent fixed reference point, at the alignment loading and at each incremental loading. Place the backup pressure gauge in series with the main pressure gauge to monitor the load during each proof test.

Proof Test Schedule

LOAD	
AL	
0.25DL	
0.50DL	
0.75DL	
1.00DL	
1.20DL	Hold for creep test (Short Term). Reduce to lock-off load. (10% of DL)

Where: AL- is the alignment load.
DL- is the anchor design load.

Recalibrate, at no additional expense to the Department, the jack, main pressure gauge if the load determined by the backup pressure gauge and the load determined by the main pressure gauge differ by more than 10%. At load increments other than the maximum test load, hold the load just long enough to obtain the movement reading.

Hold the maximum test load for 10 minutes in a Proof Test. Start the load hold period as soon as the maximum test load is reached. Measure and record the anchor movement with respect to a fixed reference at 1 minute, 2, 3, 4, 5, 6, and 10 minutes. If the anchor movement between 1 minute and 10 minutes exceeds 1 mm (0.04 inch), hold the maximum test load for an additional 50 minutes, and record the anchor movement at 15 minutes, 20, 25, 30, 45, and 60 minutes. (Short Term Creep Test).

Plot the anchor movement verses load for each load increment in the Proof Test using Department approved forms.

5. Ground Anchor Load Test Acceptance Criteria.

A Performance or Proof Tested anchor, with a 10 minute load hold, is acceptable if the:

- Anchor carries the maximum test load with less than 0.04 inch (1 mm) of movement between 1 minute and 10 minutes;

• Total movement at any test load exceeds 80% of the theoretical elastic elongation of the unbonded length, calculated prior to testing and approved by the Engineer; and,

• Total movement at the maximum test load does not exceed the theoretical elastic elongation of the unbonded length plus 50% of the theoretical elastic elongation of the bond length.

A Performance or Proof Tested anchor with a 60 minute load hold is acceptable if the:

• Anchor carries the maximum test load with less than 0.08 inch (2 mm) of movement between 6 minute and 60 minutes;

• Total movement at any test load exceeds 80% of the theoretical elastic elongation of the unbonded length at that loading; and

• Total movement at the maximum test load does not exceed the theoretical elastic elongation of the unbonded length plus 50% of the theoretical elastic elongation of the bond length.

When an anchor fails, modify the design and/or the construction procedures. Modifications can include, but are not limited to, installing replacement ground anchors, reducing the design load by increasing the number of anchors, modifying the installation method, increasing the bond length, or changing the anchor type. Any modification which requires changes to the structure must have prior approval of the Engineer. No change in the contract price or contract time is allowed. Replace the anchor, at no additional cost to the Department, if the anchor fails to meet acceptance as determined by the Engineer.

6. Lock-off.

Upon completion of the test, reduce the load to the lock-off load and transfer the load to the anchor head by tightening the anchor head nut using proper wrench to the satisfaction of the Engineer, at no additional cost to the Department.

520.04 MEASUREMENT AND PAYMENT

Permanent Ground Anchors.

Permanent ground anchors will be measured per each anchor installed and accepted and payment will be on a unit each basis. Included in this item will be the anchorage devices, the soil testing necessary to determine the type of cement used for the grout.

Anchor Performance Load Test.

Anchor performance load test will be measured by the number of units for each performance test made but not including tests which fail to meet the acceptance criteria.

The Department will measure and make payment for Items as follows:

Pay Item	***Pay Unit***
PERMANENT GROUND ANCHOR	UNIT
GROUND ANCHOR PERFORMANCE LOAD TEST	UNIT

The Department will not make separate payment for furnishing all labor, materials, equipment, setup, mobilization and demobilization, proof testing, and incidentals necessary to satisfactorily complete the work as shown on the plans and specified herein, including proof test performance tests of anchors not meeting the project requirements as

shown on the plans and described in the specifications, concrete encasement, (bars), grouting, soils tests, and all other incidental work; the cost shall be included in pay item “Permanent Ground Anchors.”

DIVISION 550 – STRUCTURE REHABILITATION

THIS SECTION IS REPLACED WITH THE FOLLOWING:

SECTION 551 BRIDGE DECK REHABILITATION

551.01 DESCRIPTION

This work consists of type A repairs and applying a polyester polymer concrete overly to the bridge decks designated on the plans.

This section also describes miscellaneous concrete to be constructed at fill faces of existing retaining walls to provide encapsulation for downspout piping at new inlets, as shown on the Plans, described in the Standard Specifications and herein.

This section, under the item , Deck Edge Stabilization, describes the work to stabilize the advancing deterioration at the existing concrete deck fasciae adjacent to deck joints by stitching (intercepting) cracks with reinforcement bars drilled and grouted across potential propagation line and injecting existing cracks in accordance with the Standard Specifications.

This Section references the requirements for repairing cracks in concrete using pressure injection sealing and defines requirements for stitching cracks by drilling and grouting reinforcement bars into the deck.

This section also describes overhead concrete repairs to the superstructure deck and crossbeams in the item, Repair of Concrete Deck, Type B1.

551.02 MATERIALS

551.02.01 CERTIFICATION OF COMPLIANCE

The Department will accept materials, as specified, on the basis of Certificates of Compliance stating that the materials or assemblies fully comply with the requirements of the Contract.
The Department has the right to sample and test materials or assemblies accepted on the basis of Certificates of Compliance at any time. The Department will reject materials or assemblies, whether in place or not, if found not to be in conformance with the Contract requirements.
Ensure that 4 copies of the manufacturer's Certificates of Compliance are provided with each delivery of materials, components, and manufactured items that are accepted by certification. Retain 1 copy and submit 3 copies to the RE. With the Certificate of Compliance, provide a transmittal identifying the Item for which it is submitted. Ensure that Certificates of Compliance contain the following information:

1. Project Name.
2. Name of the Prime Contractor.
3. Material description.
4. Quantity of material represented by the certificate.
5. Means of identifying the consignment, such as label marking and seal number.
6. Date and method of shipment.
7. A statement that the material conforms to the Contract material requirements and that representative samples have been sampled and tested.
8. If the submission is for an assembly of materials, a statement that the assembly conforms to the Contract.
9. Signature of a person having legal authority to bind the supplier.
10. Signature attested to by a notary public or other properly authorized person.

The Department will not make payment for work for which material is accepted on the basis of a Certificate of Compliance until the RE has received the required Certificate of Compliance and inspected and accepted the material or assembly.

The Polyester Polymer Concrete (PPC) system consists of a particular brand of resin and a particular brand of primer, to be compatible with one another and with the aggregate specified herein, and which when mixed with other specified ingredients and applied as specified herein, is capable of producing a concrete overlay meeting the requirements of this specification.

Ensure that all components of the PPC systems are from the same manufacturer to assure compatibility of the material.

1. **Primer**. Provide the prepared surface with a wax-free low odor, high molecular weight methacrylate prime coat. Ensure that the prime coat is a resin and that it has a maximum volatile content of 30 percent prior to adding the initiator, when tested in accordance with ASTM designation D 2369, and conforming to the following:

Table **1** - High Molecular Weight Methcrylate (HMWM) Resin

Property	**Requirement**	**Test Method**
Viscosity*	0.025 Pa, maximum (4 X 10-6 psi) maximum (Brookfield RVT with UL adapter, 50 RPM at 77 degree F)	ASTM D 2196
Specific Gravity*	0.90, minimum, at 77degree F)	ASTM D 1475
Flash Point*	180 degree F, minimum	ASTM D 3278
Vapor Pressure*	.04 inch Hg, maximum, 77degree F	ASTM D 323
Tack-Free Time	400 minutes maximum at 77 degree F	ASTM C 679
PCC Saturated Surface-Dry Bond Strength	507 psi minimum, at 24 Hrs 70+_1 degree F)	BOND TEST

*Tested prior to adding initiator

Provide a prime coat promoter/initiator consisting of a metal drier and peroxide. If supplied separately from the resin, do not mix the metal drier directly with the peroxide. Store the containers in a manner that will not allow leakage or spillage from one material to contact the containers or material of the other.

2. Aggregate: Ensure that the aggregate for polyester concrete and finishing sand conforms to the requirements of JMF (Job Mix Formula) except the gradation meets the following:

Table 2 - Job Mix Formula Requirements for PPC

Combined Aggregate		
Sieve Size	⅜" Max. Percent Passing	#4 Sieve Max. Percent Passing
½"	100	100
⅜"	83-100	100
#4	65-82	62-85
#8	45-64	45-67
#16	27-48	29-50
#30	12-30	16-36
#50	6-17	5-20
#100	0-7	0-7
#200	0-3	0-3

Ensure that the aggregate retained on the #8 sieve has a maximum of 45 percent crushed particles when tested in accordance with AASHTO Test Method T27. Provide fine aggregate consisting of only natural sand.

Ensure that aggregate absorption does not exceed one percent as determined by AASHTO Test Methods T84 and T85.

Ensure that at the time of mixing with the resin, the moisture content of the aggregate, as determined by AASHTO Test Method T255, does not exceed one half of the aggregate absorption.

Provide finish sand as dry No. 8/20 commercial quality blast sand.

3. **Polyester Binder.** Provide polyester concrete consisting of polyester resin binder and dry aggregate. Provide an unsaturated isophthalic polyester-styrene co-polymer resin conforming to the following:

Table 3
Polyester Resin Binder

Property	Requirement	Test Method
Viscosity*	0.075 to 0.20 Pa (.1 x 10-5 to 2.9 x 10-5 psi) (RVT No. 1 Spindle, 20 RPM at 20 RPM at 77degree F)	ASTM D 2196
Specific Gravity*	1.05 to 1.10 at 77 degree F	ASTM D 1475
Elongation	35 percent, minimum Type I at 0.45"/min. Thickness=1/4"±0.04" Sample conditioning: 18/25/50 + 5/70	ASTM D 638 ASTM D 618
Tensile Strength	2538 psi minimum Type I at 0.45"/min Thickness =1/4" +- 0.04" Sample conditioning: 18/25/50 + 5/70	ASTM 638 ASTM D 618
Styrene Content*	40 percent to 50 percent (by weight)	ASTM D 2369

Silane Coupler	1.0 percent, minimum (by weight of polyester styrene resin)
PCC Saturated Surface Dry Bond	507 psi minimum at 24 hours and 70±1degree F

*Tested prior to adding initiator
Values are based on specimens or samples cured or aged at 77 degree F unless otherwise indicated.

Provide a silane coupler that is an organosilane ester, gammamethacryloxypropyltrimethoxysilane. Ensure that the promoter is compatible with methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxice (CHP) initiators.

3. **Initiator.** Ensure that the initiator system for the methacrylate resin consists of a metal drier and peroxide. If supplied separately from the resin, do not mix the metal drier with the peroxide directly. Do not store containers in a manner that allows leakage or spillage to contact the containers or materials of the other.

4 Accelerators; Inhibitors. Accelerators or inhibitors may be required to achieve proper set times. Use as recommended by the resin supplier.

Miscellaneous Concrete shall be Class B in accordance with Subsection 903.03.

Reinforcement bars shall be in accordance with Section 504.

Epoxy Injection Materials 919.11

Adhesive Anchor Systems

Prior to the start of drilling operations, submit for approval the material safety data sheets (MSDS) and manufacturer's specifications for all proposed bonding agents in accordance with Subsection 105.05. No drilling or grouting operations will commence prior to the approval of the bonding agents proposed for use by the Contractor.

Reinforcement bars shall be in accordance with Section 504.

Concrete patch materials for Repair of Concrete Deck, Type B1 shall be Type 2 in accordance with SubSection 903.07 of the Standard Specifications.

551.02.02 EQUIPMENT

General: Ensure that the equipment used for delivery and application of the product strictly adheres to the load limitations to avoid overloading the existing structure. Do not utilize equipment that introduces excessive vibrations during operation. Mobilize multiple work crews to complete the work within the required time. Prepare a detailed plan for delivery of materials and equipment required to complete the work and for coordinating work areas to ensure that access can be provided to all work areas at all times and for insuring that all weight limitations are also satisfied. Furnish and operate equipment as approved by resident Engineer

A. Surface Preparation Equipment: Provide power-driven concrete saws for sawing joints and as required for surface texture. Provide the saws and related equipment with proven adequacy and design to perform efficiently and to be subject to immediate replacement if the specified results are not obtained. Scarification of concrete deck will not be allowed. Only shot blasting of the concrete deck will be permitted.

B. Micro-milling equipment: Furnish rotary grinding machines with a gross operational mass of less than 32Mg using carbide cutting tools in a rotary drum. Provide equipment with tooth spacing of not more than .25 inch, capable of leaving a smooth, uniform pattern of striations. Limit forward speed to 2.5 ft/minute. Operate a drum speed of at least 120 rpm.

C. Shot blasters: Shot-blasting equipment must be capable of removing paste, residue, stains and oil and to conform to EPA air pollution requirements by all containing dust and steel abrasive media.

D. Mixing Equipment: Furnish mechanically operated continuous mixers specifically or modified for PPC concrete.

Mixers are to:
*Employ an augur screw/chute device.
*Be equipped with a positive-displacement pump connected to an adjustable catalyst pump.
*Be equipped with a metering device that automatically measures and records the aggregate mass and the corresponding resin mass.

* Have a readout gauge, visible to the engineer at all times, that displays the volume being recorded. Record the volume at no greater than five minute intervals along with the time and date of each recording. Furnish a printout of the recordings to the Engineer at the end of each work shift.

E. Finishing Equipment: Use slip-form finishing equipment with an automatic grade control device to strike off the polyester polymer (PPC) concrete to the established grade and cross section. Finishing equipment must be fitted with vibrators or other means of consolidating the PPC.

Furnish and operate miscellaneous equipment as approved by Resident Engineer.

Epoxy Resin Injection Equipment	1005.07

551.03 CONSTRUCTION

1. At least ten (10) days before start of work provide the Engineer with two (2) copies of the manufacturer's written instructions for the installation of the overlay system.

2. Ensure that the manufacturer's technical representative is made available for up to three (3) working days to make recommendations to facilitate the overlay installation. This includes, but is not limited to, surface preparation, overlay application and overlay cure.

3. Proposed testing procedures, forms and criteria for all PPC overlay system materials.

4. Specific instructions for storage and handling of material. Include confirmation from the contractor and the manufacturer that these instructions have been reviewed and appropriate equipment and other provisions will be provided.

5. During surface preparation and overlay application, take precaution to assure that traffic is protected from rebound, dust and construction activities. Provide appropriate shielding as required and directed by the Engineer.

6. During overlay application, provide joint blockout and suitable coverings (e.g. heavy duty drop cloths) to protect all exposed areas not to be overlaid, such as curbs, sidewalks, parapets, etc. Clean and, or repair all damage or defacement resulting from this application to the Engineer's satisfaction, and at no additional cost.

7. Storage of materials. Store all materials in accordance with the Manufacturer's recommendations to ensure their preservation until used in work. Applicable fire codes may require special storage facilities for some components of the overlay system.

Pre-Bid Meeting, Pre-construction Conference and Seminar

Prior to commencement of work, hold a job site meeting, including the Contractor, Engineer and the overlay Manufacturer's representative to verify all conditions. The purpose of the meeting is to examine and discuss all prints, drawings, specifications, and procedures affecting the work of this section.

At the pre-bid meeting, ensure that the Manufacturer stages a one-day installation seminar for attendance by the Contractor, Engineer, and representatives of the Department's Construction and Maintenance Divisions. Ensure that the seminar includes the following:

1. Description of required surface preparation techniques, including representative images of adequately prepared surfaces.
2. Review of proposed surface overlay procedures and recommended tools and techniques. Review various tests those need to be done to install this product.
3. Review of commonly occurring defects and methods for repair.
4. Hands-on fabrication of a sample panel, minimum size to be 10'-0"x10'-0". Provide adequate material, equipment, tools and labor to prepare each sample panel.

Provide the date, time, location and sample presentation documents for the proposed seminar within 2 days of the notice to proceed. Ensure that the seminar is at a location within the project area which is acceptable to the Department and that the date of the seminar is a minimum of (5) days after the notice to proceed.

Construction Procedures

1. General.

A. Delivery, Storage and handling of materials. Ensure that all materials are delivered in original sealed containers, clearly marked with the Manufacturer's name, product information and batch number. Store all materials in protected areas out of direct sunlight, possibility of getting wet and at a temperature between 35 degree F and 80 degree F. Follow all Manufacturer's specific instructions and prudent safety practices for storage and handling. Do not store any materials on the bridge.

B. Mix Design. At least 45 days before initial production, submit a JMF (Job Mix Formula) for the polyester polymer Concrete on forms supplied by the Department. Include a statement naming the source of each component and a report confirming the results meet the criteria specified in Tables 1 & 2.

C. Packaging and Shipment. Furnish a Material Safety Data Sheet prior to use for each shipment of polyester resin binder and high molecular weight methacrylateresin. Ensure that all components are shipped in strong, substantial containers, bearing the manufacturer's label specifying date of manufacture, batch number, brand name, quantity, and date of expiration or shelf life. In addition, ensure that the mixing ratio is printed on the label of at least one of the system components. If bulk resin is to be used, notify the Engineer in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 55 Gallons.

D. Basis of Acceptance. Project acceptance of the polyester overlay materials will be based on the following:

1. Delivery of the overlay materials to the project site in acceptable containers bearing all the label information as required stated above. Packaging and Shipment.

2. Receipt of a Manufacturer's certification stating the primer, aggregate and polyester binder meet the material requirements found under MATERIALS, 1-3.

3. Approval by the ME based on conformance with the Material requirements above.

2. **Surface Preparation.** Prepare all structural slab surfaces that will be in contact with the overlay as follows:

Determine the size of shot, flow of shot, forward speed of shot blast machine and number of passes necessary to provide a surface capable of a tensile bond strength greater than or equal to 250 psi or a failure area, at a depth of 1/8" or more into the base concrete, greater than 50% of the test area. Provide testing as per ACI 503R-93, Appendix.

The Engineer will designate the location of the test patches.

Before application of the primer, clean the entire deck surface by shot blasting and other means using the approved cleaning practice to remove asphaltic material, oils, dirt, rubber, curing compounds, paint, carbonation, laitance, weak surface mortar and other potentially detrimental materials, which may interfere with the bonding or curing of the overlay. Acceptable cleaning is usually achieved by significantly changing the color of the concrete and mortar and beginning to expose coarse aggregate particles. Mortar which is sound and firmly bonded to the coarse aggregate must have open pores due to cleaning to be considered adequate for bond. Remove areas of asphalt larger than 1 inch in diameter, or smaller areas spaced 6 inches apart. Consider traffic paint lines clean when the concrete has exposed aggregate showing through the paint stripe. Use a vacuum cleaner to remove all dust and other loose material.

If the Engineer determines that an approved cleaning practice has changed prior to the completion of the overlay application, return to the approved cleaning methods and re-clean the suspect areas or verify thorough tests at no additional cost to the State that the practice is acceptable.

Inspect all patching and cleaning operations and ensure that they are approved prior to placing the overlay. Remove any contamination of the deck occurring after initial cleaning. Apply the entire overlay system following the cleaning and prior to opening the area to traffic.

Do not expose cleaned pavement surfaces to vehicular or pedestrian traffic other than the required by the overlay operation. If the pavement is contaminated before being overlaid, re-clean it by abrasive blasting to the satisfaction of the Engineer. No additional payment will be made for re-cleaning work.

Ensure that the concrete is dry at the time of application of the overlay.

Clean all steel surfaces that will be in contact with the overlay in accordance with SSPC-SP No. 10, Near-White Blast Cleaning, and do not use wet blasting methods.

Ensure that after the cleaning operation is completed there is no visible evidence of oil grease, dirt, rust, loose particles, spent abrasives or other foreign material on any of the surfaces to be overlaid.

3. Application.

Prime Coat
Prior to applying the prime coat, dry the area and blow clean with oil-free compressed air. Ensure that the surface temperature is at least 50 degree F or as recommended by the manufacturer.

Uniformly apply the prime coat to completely cover the surface to receive the polyester concrete. Ensure that the rate of spread is approximately 1.28 ounces per square foot of deck surface or as recommended by the manufacturer. Allow the prime coat to cure a minimum of 15 minutes before placing polyester concrete.

Ensure that all new patches are repaired and patched with PPC system.

If existing patches on decks contains magnesium phosphate, the manufacturer's representative will make determination for the type of treatment to be used prior to application of PPC system. Either deck patches will be removed and re-patched with PPC system or use following treatment as determined by the manufacturer's representative:

Acid etch any patches that may contain magnesium phosphate in accordance with ASTM D 4260-5, "The Standard Practice for Liquid and Gelled Acid Etching of Concrete". After etching; thoroughly rinse with potable water, vacuum up all acid residues and rinse water and allow all areas to dry out or forced dried with heat, moisture and compressed air. Test the surface for bond strength in accordance with ASTM D4541. Prepare surface with shot blasting after the deck is treated with acid etch as described herein.

4. Polyester Polymer concrete

Test Patches
Prior to constructing the overlay, conduct one or more trial overlays on a previously constructed concrete base to determine initial set time and to demonstrate the effectiveness of the mixing, placing, and finishing equipment proposed as well as curing period. Provide each trial overlay measuring 12'wide, at least 6'long, and the same thickness as the overlay to be constructed. Ensure that the conditions during the construction of the overlay and equipment used are similar to those expected and to be used for the construction of the polyester concrete overlay. If the cleaning practice, materials and installation procedure are not acceptable, remove the failed test patches and make the necessary adjustments and test all test areas at no additional cost the Department until satisfactory test results are obtained.

Ensure that the test patch has minimum bond strength of 250 psi as determined by ACI 503R-93, Appendix A to assure that the overlay adheres to the prepared surface. Surface must be capable of tensile bond strength greater than or equal to 250 psi or a failure area, at a depth of 1/8" or more into the base concrete, no greater than 50% of the test area.

Take possession of all material used in the trail overlay, including the concrete test patch and remove (if required) and dispose it at no cost to the Department.

Place the polyester concrete within 3 hours after the prime coat has been applied. Allow the prime coat to cure a minimum of 15 minutes before placing polyester concrete.

Ensure that the polyester concrete contains approximately 12 percent polyester resin by weight of dry aggregate; the exact percentage will be determined by the Engineer during placement to enable proper finishing and texturing of the overlay surface.

Place the polyester polymer concrete overlay at a minimum thickness of ¾".

Termination edges of the overlay may require application and finishing by hand trowel due to obstructions such as a curb or to bevel vertical-faced edges. Follow all hand troweling by broadcasting aggregate or surface texturing while the resin is still wet to provide acceptable surface friction characteristics.

Adequately isolate all expansion joints prior to overlaying or saw within four hours after overlay placement, as approved by the Engineer. The exact time of sawing will be determined by the Engineer.

Ensure that the amount of initiator used in polyester concrete is sufficient to produce an initial set time between 30-120 minutes during placement. The initial set time can be determined by using an initial-setting time Gilmore needle in accordance with the requirements of ASTM Designation: C 266. Accelerators or inhibitors may be required to achieve proper set times and use them as recommended by the resin supplier.

Initiate and thoroughly blend the resin binder just prior to mixing with aggregate. Mix the polyester concrete as necessary prior to placing.

Place polyester concrete prior to gelling and within 15 minutes following addition of initiator, whichever occurs first. Discard polyester concrete that is not placed within this time.

Ensure that the surface temperature of the area to receive polyester concrete is the same as specified above for the prime coat, a minimum of 50 degree F.

Use the finishing and texturing equipment with vibratory screed to strike off the polyester concrete to the established grade and cross section. Fit the finishing and texturing equipment with vibrators and tines or other means of consolidating and texturing the polyester concrete to the required compaction. When specified, after the concrete is struck off and before the concrete becomes non –plastic, the surface then receives a transverse texture. Texturing is done by use of a wire broom having a single row of tines or a finned float having a single row of fins. The broom or float must produce transverse grooves that are spaced at intervals of approximately ½" to ¾" center to center. The grooves in the hardened surface are approximately .08 to .12" in width and 0.15 to 0.25" in depth. Ensure that the grooving is applied to the entire deck surface except that area within 18" from the face of the curb.

Apply the finish sand by either mechanical means or hand broadcasting immediately after strike-off, before gelling occurs, at a minimum rate of 2.75 ounces per square foot.

5. Surface and Thickness Requirements. The overlay surface will be checked at random by the Engineer immediately after it has hardened to assure that no depressions exists that will pond water. The smoothness of the polyester concrete surface will be tested with a straightedge.

Do not allow the surface to vary more than ¼" from the lower edge of a 12 foot long straightedge placed in any direction. Remove any surfaces which fail to conform to the above tolerance by diamond grinding, until the above tolerance is met.

To ensure adequate pavement friction, be sure the completed overlay surface is free of any smooth or "glassy" areas such as those resulting from insufficient quantities of surface aggregate. Repair any such surface defects in the manner recommended by the manufacturer and approved by the Engineer.

Check the thickness of the overlay prior to its initial set using a ruler. If the Engineer determines that the minimum thickness has not been attained, apply an additional layer after the overlay hardens. Ensure that this layer is a minimum of ¼" and is applied at no additional cost to the State.

After removal of the joint bock outs, provide ¼" chamfer at the joint edges.

6. Curing. Do not allow traffic and equipment on the overlay for a minimum of four (4) hours following final finishing. Protect the overlays from moisture for not less than four (4) hours after finishing. Allow the polyester overlay to reach final cure before subjecting it to traffic loads. Cure time is dependent upon the ambient and deck temperatures. Actual degree of cure and suitability of the overlay for traffic will be as determined by the Engineer.

551.03.01 Repair of Concrete Deck

B. Sawcut and Removal.

Remove concrete to the depth specified of the following type of repair.

3. Type A Repair. For type A Repair, remove delaminated, deteriorated and designated deck concrete to a minimum depth of ¾" from top of the deck or to a maximum depth of top layer of existing reinforcement steel as shown on the Plans.

4. Type B1 Repair. For Type B1 repair, remove delaminated, deteriorated, and designated deck concrete to sound concrete. Where greater than 50% of reinforcement bars are exposed, remove concrete to a minimum depth of 1 inch beneath existing reinforcement steel to sound concrete. The RE may require the Contractor to remove sound concrete to achieve the limits of the designated repairs.

For overhead Repair of Concrete Deck, Type B1, the limits of repairs are shown schematically on the Plans. The RE will delineate specific repair limits on site. Where additional spalling results from the Contractor's operations as a result of defects in existing concrete, make repairs as directed by the RE under the item Repair of Concrete Deck, Type B1.

This part shall be applied only as directed by the RE.

D. Patching.

THE FIRST PARAGRAPH IS REVISED AS FOLLOWS:

The Contractor may use Class A concrete or Type IA or IB quick-setting patch material, whichever is specified. **For Repair of Concrete Deck, Type B1 use Type 2 quick-setting patch material.** For Type C Repair, provide forms for placing the patch material.

2. Quick Setting Patch.

THE FOLLOWING PARAGRAPH IS ADDED:

For Type 2 quick-setting patch material, place and cure according to the manufacturer's recommendations.

E. Pressure Injection Sealing

Perform Pressure Injection Sealing in accordance with Section 552 of the Standard Specifications

F. Drill and Grout Reinforcement

Install grout and reinforcement bars in accordance with the grout manufacturer's instructions. At a minimum, the following procedures should be employed.
Drill hole in concrete using carbide tipped bit and rotary hammer drill or core drill.
Minimum hole depth to be one (1) diameter greater than the embedment depth.
During drilling operations, use a pachometer to avoid drilling into or through existing reinforcement steel.
Immediately prior to injecting adhesive material, clean hole with nylon or wire brush and remove dust from hole with oil free compressed air or vacuum.
Inject adhesive into hole as directed by the manufacturer.
Insert Reinforcement bar, twisting during installation, ensuring no voids exist between the reinforcing bar and the concrete. Remove any overflow and center the reinforcement bar in the hole. Adjust bars only during specified gel time.
Allow full cure time for bars to achieve full working load capacity (Full cure time as specified by the manufacturer, e.g. 24 hours at 50°F)

Ensure that the adhesive anchoring system conforms to the following proof loading requirements:

Concrete compressive strength of 2500 pounds per square inch is shown on plans for the existing bridge, perform proof loading on 10 percent of the installed adhesive bars at each location where bars have been placed. Provide calibration certificates for the test equipment before testing. Perform all testing in the presence of the RE. Tension test the anchoring system according to ASTM E 488 to 60 percent of the yield strength of the rebar. If the location of the rebar precludes the proof loading of anchor bolts according to ASTM E 488, propose an alternate testing method to the RE for approval. Repair all spalls or cracks caused by the testing to the satisfaction of the RE.

Based on satisfactory performance in proof loading, the RE will approve the adhesive installation. The RE will reject the rebar installation for failure to conform to the proof loading requirements. For those rebar installations which fail to

conform, with the approval of the RE, replace the adhesive installation by using larger size rebars, increasing the embedment depth, or using another anchoring system.

G. Construct Miscellaneous Concrete in accordance with Section 504.

Do not remove forms and false work until Class B concrete obtains a compressive strength of 3,000 psi.

551.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for the pay item of polyester polymer concrete overlay as follows:

Item	*Pay Unit*
POLYESTER POLYMER CONCRETE OVERLAY	CUBIC FOOT
MISCELLANEOUS CONCRETE	CUBIC YARD
DECK EDGE STABILIZATION	SQUARE FOOT
REPAIR OF CONCRETE DECK, TYPE A	SQUARE FOOT
REPAIR OF CONCRETE DECK, TYPE B1	SQUARE FOOT

The pay areas are defined as extending 12 feet horizontally along each fascia, in each direction (one direction at Piers 3 and 41) from each deck joint in the concrete slab superstructure units by the combined depths of the existing deck slab and sidewalk as shown on the plans. The RE may increase or decrease the limits of repair based on the examination.

Reinforcement bars will be paid under the item, REINFORCEMENT STEEL

THE FOLLOWING SECTIONS ARE ADDED:

SECTION 555 – SUBSTRUCTURE CONCRETE REPAIR

555.01 DESCRIPTION

This section describes the requirements for repairing existing concrete in substructures.

555.02 MATERIALS

555.02.01 Materials

Provide materials as specified:

Concrete .....903.03 Epoxy
Grout 903.08.02.B
Curing Materials..... 903.10
Reinforcement Steel, Welded Wire Reinforcement 905.01
Reinforcement Steel Couplers 905.04

555.02.02 Equipment.

Provide equipment as specified:
Vibrator 1005.04
Concrete Plant and Mixing Equipment..... 1010

Use pneumatic hammers, not heavier than 30-pound class and triple-headed tampers fitted with drills not less than 2 inches in diameter, to remove concrete.

555.03 CONSTRUCTION

555.03.01 Substructure Concrete Repair.

A. Limits of Repair.

The RE will examine the substructure to determine the repair limits.

B. Preparation. Sawcut repair areas to a depth of 1 inch around the perimeter of each repair area before removing the deteriorated concrete. Remove loose and disintegrated concrete from the areas to expose a sound concrete surface. Remove at least 1/4 inch of sound concrete. Clean the area. Ensure that the remaining concrete is not damaged. Use only pneumatic or hand tools to remove the disintegrated material and to prepare and shape the areas to be repaired. Do not use hammers that exceed 30 pounds. Remove concrete adjacent to exposed reinforcement steel by hand chipping. Do not damage or debond the reinforcement steel. Drill holes for installing dowels. Maintain alignment during drilling and do not damage existing concrete surrounding the hole.

C. Setting Forms and Dowels. Before installing the dowels, clean the holes to ensure proper bonding of the epoxy grout. Install the dowels using epoxy grout. Place the reinforcement in repair areas. Construct forms as specified in 504.03.02B for placing concrete in portions of repair areas ensuring that concrete can be consolidated.

D. Placing and Consolidating Concrete. Place and consolidate concrete as specified in 504.03.02.D. Cure the concrete as specified in 504.03.02.F. Remove the forms as specified in 504.03.02.G. Finish concrete surface as specified in 504.03.02.H.

555.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment as follows:

Item	*Pay Unit*
SUBSTRUCTURE CONCRETE REPAIR	SQAURE FOOT

SECTION 556 – FURNISH EQUIPMENT FOR SUPERSTRUCTURE REMOVAL AND ERECTION

556.01 DESCRIPTION

This section describes the special equipment required for the installation of structural steel tub girders, bearing beams and bearings for concrete cross beams at concrete spans and structural steel repairs at stringers and jacking at existing cross girders at structural steel approach spans.

Due to the restrictions to hoisting imposed by the limited vertical and horizontal underclearances at the superstructure of the existing bridge, it is anticipated that the Contractor must utilize extraordinary means and methods, equipment and construction (telescopic trucks, truck mounted fork lifts, rollers, pivots, jigs, etc) to deliver, hoist and secure the tub girders, bearing beams and bearings and to perform structural steel repairs at stringers and jacking at existing cross girders at structural steel approach spans.

556.02 EQUIPMENT

Equipment in this item is herein defined as any and all extraordinary items, including specialty equipment, site access from adjoining properties, lane closures, detours, etc, required to handle, hoist and secure the tub girders, bearing beams and bearings and to perform structural steel repairs at stringers and jacking at existing cross girders at structural steel approach spans.

Furnishing and delivering materials to the site shall be included in the individual pay items for those materials.

556.03 CONSTRUCTION

Construction shall include extraordinary means and methods associated with the handling, hoisting and securing the tub girders, bearing beams and bearings and to performing structural steel repairs at stringers and jacking at existing cross girders at structural steel approach spans.

The Contractor shall submit, for approval, an erection scheme for the installation of tub girders, bearing beams and seismic isolation bearings in accordance with Subsection 105.04 of the Specifications.

556.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

Item	***Pay Unit***
FURNISH EQUIPMENT FOR SUPERSTRUCTURE REMOVAL AND ERECTION	LUMP SUM

Payment for this item shall be made as follows:

- 20 % upon approval of erection scheme
- 5 % upon the completion of erection of tub girders at each of ten concrete superstructure units, where a unit is defined as the superstructure between existing deck joints (e.g., from Pier 3 to Pier 6, from Pier 6 to Pier 10, …), to a total of 50% of the Lump Sum
- 10 % upon the completion of the installation of bearing beams and seismic isolation bearings at concrete superstructure units
- 15% upon completion of jacking and installation of seismic isolation bearings at steel approach span units
- 5% upon acceptance of the project

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 601 – PIPE

601.02 MATERIALS
THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS:

Ductile Iron Pipe 909.02.08

601.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will measure and make payment for Items as follows:

Item	*Pay Unit*
16" DUCTILE IRON PIPE	LINEAR FOOT

THE FOLLOWING IS ADDED:

The Department will make payment for restoring the pavement structure for trenches in the traveled way and shoulder under various Items of the Contract.

SECTION 602 – DRAINAGE STRUCTURES

602.01 DESCRIPTION
THE FIRST PARAGRAPH IS CHANGED TO:

This Section describes the requirements for constructing, reconstructing and cleaning inlets, manholes and special drainage structures.

602.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

Special Inlet, Type B

Install Inlet Type B (modified "doghouse" inlets) at locations shown on the Plans. Ensure materials conform to the requirements of Subsection 602.02. Ensure construction conforms to the requirements of Subsection 602.03.02.

602.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will measure and make payment for Items as follows:

Item	*Pay Unit*
SPECIAL INLET, TYPE B	UNIT

SECTION 606 – SIDEWALKS, DRIVEWAYS, AND ISLANDS

606.03.02 Concrete Sidewalks, Driveways, and Islands

H. Protection and Curing.
THE LAST SENTENCE IS CHANGED TO:

Ensure vehicles and other loads are not placed on sidewalks, islands, and driveways until the concrete has attained compressive strength of 3000 pounds per square inch, as determined from 2 concrete cylinders field cured according to AASHTO T 23.

SECTION 607 – CURB

607.03.01 Concrete Barrier Curb

D. Placing Concrete.
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

To place concrete between November 1 to March 15, submit to RE for approval a plan detailing the method of protecting the concrete from salt for at least 30 days after placing.

607.03.02 Concrete Vertical Curb and Concrete Sloping Curb
D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical curb and sloping curb as specified in 607.03.01.D, except that consolidation may be achieved by hand spading or internal mechanical vibrators.

607.03.04 Concrete Vertical Curb and Concrete Sloping Curb, Dowelled

D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical and sloping curb as specified in 607.03.02.D.

SECTION 608 – NON-VEGETATIVE SURFACES

THE ENTIRE SECTION IS CHANGED TO:

608.01 DESCRIPTION

This Section describes the requirements for constructing non-vegetative surfaces of HMA; color-coated HMA; porous HMA; broken stone, and polyester matting.

608.02 MATERIALS

608.02.01 Materials

Provide materials as specified:

Broken Stone, Coarse Aggregate No. 3…….....……..901.03
HMA (9.5M64)…….....……...902.02
Asphalt-Stabilized Drainage Course…….....……..…….902.06
Non-Vegetative Surface Coating…….....……...912.02.04
Herbicide…….....…917.11.03
Polyester Matting…….....…….…..919.15

Provide Non-Vegetative Surface, Porous HMA conforming to the requirements of Asphalt-Stabilized Drainage Course.

608.02.02 Equipment

Provide equipment as specified:

HMA Compactor…… ..... ……..1003.05
Vibratory Drum Compactor……..... ……..1003.06
HMA Plant…… ..... ……1009.01
HMA Trucks…… ..... ……....1009.02

608.03 CONSTRUCTION

608.03.01 Non-Vegetative Surface, HMA

Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Deliver HMA as specified in 401.03.03.D. Construct non-vegetative surfaces 4 inches thick. Place and compact the material to produce a surface free of roller marks and ridges. Spread and grade the HMA as specified in 401.03.03.E. Ensure that the finished surface is smooth, even, and graded to drain away from the guide rail. Compact HMA as specified in 401.03.03.F. Spread, rake, and lute areas not accessible to pavers and rollers with hand tools and compact with dynamic compactors.

Repair non-vegetative surface damaged by guide rail installation with HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.02 Color-Coated Non-Vegetative Surface, HMA

Construct color-coated non-vegetative surfaces as specified in 608.03.01.

Uniformly apply the final color at the rate of 0.3 to 0.5 gallons per square yard by spraying, brushing, or squeegeeing over the HMA surface course. Ensure that the surface is clean and dry at the time of application. Reapply the coating to any missed spots or areas to obtain a uniform coating.

Avoid spilling the color coating on adjacent surfaces. If the color coating spills, immediately clean it with water before the coating dries. If the coating dries, repair as directed by the RE.

The RE will not allow traffic on the color-coated surface until it is dry.

608.03.03 Non-Vegetative Surface, Broken Stone

Ensure that areas to receive non-vegetative surface, Broken Stone, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both.

Apply a pre-emergent herbicide to the area before placement of broken stone. Spread broken stone, aggregate size No. 3, in a uniform layer, to prescribed thickness.

608.03.04 Non-Vegetative Surface, Porous HMA

Ensure that areas to receive non-vegetative surface, Porous HMA, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both. Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, porous HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Construct porous HMA surface course to prescribed thickness according to the requirements of Section 303 except for the application of prime coat. Repair non-vegetative surface damaged by guide rail installation with porous HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.05 Non-Vegetative Surface, Polyester Matting

Install polyester matting according to the manufacturer's requirements by manufacturer certified workers.

Ten days before installation, submit to the RE a list of manufacturer certified workers and one copy of the "engineering package" including demonstration compact discs and samples of product components; such as foot prints, finished seams, etc. The manufacturer may elect to train the workers and Department inspectors on a test section on the worksite.

Ensure that the surface areas to receive the matting are smooth, firm, stable and free of rocks, clods, foliage, roots or other material which might prevent the matting from lying in direct contact with the ground surface, free of wrinkles or bulges. Existing non-vegetative surface or HMA that is in the same location as proposed polyester matting may be left in place as long as its surface area is properly prepared as previously stated. Mow grass as low as possible prior to installation of matting. Install the matting immediately following installation of guide rail posts and prior to installation of the guide rail hardware by lifting the matting above the posts and allowing it to drop to the ground with the posts passing through prefabricated openings.

Stake the matting along its edges in accordance with the manufacturer's recommendations.

Seal matting openings with a separate prefabricated piece of matting that will provide a snug fit around the post and completely cover the opening. Ensure that seams are sealed.

Ensure that the matting surface is vegetation-free from installation until final acceptance. Vegetation removal may require herbicide treatment, mechanical removal, or both, as specified in 608.03.06.

608.03.06 Post-Emergent Weed Control of Non-Vegetative Surfaces

Manually remove or spray vegetation growing on the non-vegetative surface with a post-emergent non-selective herbicide treatment for total control of vegetation on the non-vegetative surface area, as directed by the RE. Select post-emergent herbicides for control of targeted vegetation based on the manufacturer's recommendations and product label. Begin the work associated with vegetation removal as early as the conditions permit. Herbicides must be applied by, or under the direct supervision of, a Certified Commercial Pesticide Applicator, according to the manufacturer's recommendations. Restore areas where herbicide has been applied and not intended to its prior existing condition at no cost to the State. Do not apply herbicide in the rain or when wet weather is expected within 24 hours. Do not apply herbicide after rain until approved by the RE.

The RE will notify the ME after Acceptance for inclusion of the non-vegetative surface in its herbicide spraying program including the date that the herbicide was last applied on the project section.

608.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

Item	*Pay Unit*
NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	SQUARE YARD
COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	SQUARE YARD
NON-VEGETATIVE SURFACE, BROKEN STONE,___THICK	SQUARE YARD
NON-VEGETATIVE SURFACE, POROUS HOT MIX ASPHALT,___THICK	SQUARE YARD
NON-VEGETATIVE SURFACE, POLYESTER MATTING	SQUARE YARD

When the RE directs undercutting of unstable material in the excavation area, the Department will make payment, as specified in 104.03.03, for the additional excavation. The Department will also make payment, as specified in 104.03.03, for the additional bedding if there is not an excess of excavated material available for use as bedding.

SECTION 609 – BEAM GUIDE RAIL

609.03.01 Beam Guide Rail
THE SEVENTH PARAGRAPH IS CHANGED TO:

Install flexible delineators with white retroreflective sheeting on the right side of the direction of traffic. Install flexible delineators with yellow retroreflective sheeting on the left side of the direction of traffic. Mount flexible delineators on the blockout of beam guide rail using either a "U" channel base on the I-beam blockout or a flat base attached to a wood, polymer, or other solid top blockout. Attach the base to the blockout using an adhesive recommended by the manufacturer of the base and panel.

609.03.03 Terminals and Anchorages
THE FOLLOWING IS ADDED:

Excavate cut slope as specified in 202.03.03 within the limits of the buried guide rail terminal. Drive beam guide rail posts for buried guide rail terminal to the required position. Ensure that posts are driven plumb, properly spaced, and to the line and grade shown. Attach the beam guide rail element to the spacer at every post. Attach the beam guide rail element and plate to the terminal posts. Align the top edge of the beam guide rail element in a straight line. Where a vertical transition is required, ensure that the top edge of the beam guide rail element forms the chords of a smooth vertical curve. Backfill with excavated material as specified in 203.03.02C.

SECTION 610 – TRAFFIC STRIPES, TRAFFIC MARKINGS, AND RUMBLE STRIPS

610.03.04 Removal of RPMs
THE ENTIRE TEXT IS CHANGED TO:

Remove RPMs as directed by the RE. Dispose of RPMs as specified in 201.03.09. If directed by the RE, fill the hole with HMA patch as specified in 159.03.07 except sawcutting is not required.

610.03.06 Ground Mounted Flexible Delineators
THE FIRST PARAGRAPH IS CHANGED TO:

Use white retroreflective sheeting for delineators located on the right side when facing in the direction of traffic. Use yellow retroreflective sheeting for delineators located on the left side when facing in the direction of traffic.

610.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
RPM, BI-DIRECTIONAL, WHITE LENS	UNIT

SECTION 611 – CRASH CUSHIONS

611.02 MATERIALS
THE SECOND PARAGRAPH IS CHANGED TO:

Ensure that the sand has a dry density of 90 to 100 pounds per cubic foot and a 3 percent maximum allowable moisture content. The RE may require the Contractor to test the moisture content of the sand according to AASHTO T 255 and to submit certified test results.

DIVISION 650 – UTILITIES

SECTION 652 – SANITARY SEWERS

652.03.01 Sewer Pipe

F. Thrust Blocks.

THE THIRD SENTENCE IS CHANGED TO:

Ensure that thrust blocks do not come in contact with other utilities or structures without the approval of the RE.

652.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

DIVISION 700 – ELECTRICAL

SECTION 701 – GENERAL ITEMS

701.03.01 Existing Systems
THE FOLLOWING IS ADDED:

If new cable or wire is designated to be installed into existing conduit systems, clean and swab the conduit system prior to installing the cable or wire. After cleaning, test each conduit by pulling through a metal ball with a diameter at least 85 percent of the nominal inside diameter of the conduit to ensure the conduit is free of any obstruction or foreign material. If the ball fails to pass through the conduit, repair or replace the defective conduit as directed by the RE. Restore disturbed areas to original condition.

701.03.15 Cable and Wire

A. Installing.
THE FOLLOWING IS ADDED

Test the existing tracer wire in the conduit for continuity. If there is no existing tracer wire in any of the conduits in the same trench, then install a continuous tracer wire between the adjacent junction boxes without any splice when installing the cable and wire as directed by the RE.

C. Connection and Coordination with Utility Services.
THE FOLLOWING IS ADDED TO THE FOURTH PARAGRAPH:

At Substantial Completion provide the RE with a letter requesting transfer of utility services providing the latest copy of the utility bill from each utility company. Such transfers are to be effective beginning the next monthly billing cycle after Substantial Completion or as directed by the RE.

THE FOLLOWING IS ADDED:

Obtain and provide for utility services required for testing and operation of ITS systems until interim acceptance of each system or device. Upon successful completion of level C testing and acceptance of any device, provide the RE with a letter requesting transfer of utility services providing the latest copy of the utility bill from each utility company. Such transfers are to be effective beginning the next monthly billing cycle after completion of successful ITS system testing as specified in Section 704.03.01C and interim acceptance of the device or as directed by the RE.

701.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

If restoration of disturbed areas includes pavement, curb, sidewalk, driveway or island, the Department will make payment for such work as specified in 104.03.03.

When the RE directs the installation of a new conduit or a repair to the defective conduit, the Department will make payment for this work as specified in 104.03.03.

When the RE directs the Contractor to install a tracer wire in existing conduit, the Department will make payment for this work as specified in 104.03.03.

SECTION 703 – HIGHWAY LIGHTING

703.03 CONSTRUCTION

703.03.07 Temporary Highway Lighting System

THE SIXTH PARAGRAPH IS DELETED:
THE EIGHTH THROUGH TENTH PARAGRAPHS ARE DELETED.

THE FOLLOWING IS ADDED:

Viaduct Lighting System

Provide the conduit, wiring, junction boxes, foundations, concrete sidewalk, meter cabinets, 2KVA transformer, lighting standards, lighting mast arms, luminaires, underdeck lighting units, underdeck lighting supports and all other incidentals necessary to provide a working lighting system.

Install the underdeck lighting units, lighting standards, lighting mast arms, luminaires, load centers and meter cabinets at the locations shown on the plans.

Install all items of the system in accordance with the Department's Standard Specifications and Standard Details. The Final System must be comprised on all new material within the limits of the project.

At least 30 days before commencing work, submit a complete set of working drawings (construction plans) for the system to the Bureau of Traffic Engineering for approval. Depict all wiring, conduits, luminaires, under deck lighting units, load centers, circuitry, mounting hardware and other items necessary to complete the system. Design is to be provided by a Professional Engineer with experience with Departmental Standards. A listing of all materials and quantities are required to be submitted along with the drawings.

Ensure that as-built drawings of the final system are provided at the completion of the project in accordance with Department CADD standards and sample plans.

703.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
VIADUCT LIGHTING SYSTEM	LUMP SUM

Payment for this item shall be made as follows:

- 25 % upon approval of working drawings.
- 65 % based upon a schedule of values submitted to and approved by the Department.
- 10 % upon acceptance of lighting system including as-built plans.

SECTION 704 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

704.02.01 Materials
THE FOLLOWING IS ADDED TO THE MATERIALS LIST:

Camera	918.13
Ethernet Switch	918.14
Hardened Video Encoder	918.15
Controller, Camera	918.16

Camera Lowering System	918.17
Communications Cable	918.18
Terminal Server	918.19

THE FOURTH PARAGRAPH IS CHANGED TO:

Provide materials as specified in the Contract and in the New Jersey ITS and Electrical Materials Specifications that are available on the Department's websites. A list of pre-qualified ITS material (QPL) and application forms to request listing of new products is also available at http://www.state.nj.us/transportation/eng/elec/ITS/qualified.shtm.

FIFTH PARAGRAPH IS CHANGED TO:

Submit the system working drawings in a complete package for approval. The complete package of the system working drawings includes but is not limited to the ITS System Block Diagrams, Fiber Assignment Diagrams, and Rack/Cabinet Equipment Layout Diagrams; Certified Structural Details & Calculations. All components must be approved in the system working drawings before use on the Contract. List the ITS and EE approval numbers of each component in the equipment list on the system block diagram when a pre-approved product from the QPL is proposed to be used. For all components that are proposed without a pre-approved number, submit eight copies of catalog cut sheets along with the working drawings. Submit all structural components that are not listed on QPL separately for structural review and approval with the required certification and include a copy of all approvals when submitting the system working drawings to meet the complete package requirement.

THE SIXTH PARAGRAPH IS DELETED.

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THE FIRST SENTENCE OF THE LAST PARAGRAPH IS CHANGED TO:

For materials furnished and installed, provide a minimum 2-year warranty from the latter date of Substantial Completion and Successful ITS System Testing against any imperfections in workmanship, components and materials.

704.03.01 General System (GS)

THE FOLLOWING IS ADDED BEFORE A. COMPONENTS

Networking Requirements. Provide all ITS network devices as directed by both the Department and the State Office of Information Technology (OIT) to ensure the efficient operation, security and diagnostic capability of the ITS network being installed or modified. The contractor is required to have the necessary personnel with the proper credentials (specifically with a Cisco Certified Network Professional certification) to properly interface and configure the ITS network to the State's network and to also interface with OIT and the Department's IT staff. These designated personnel are also required to obtain a VPN into the Department's network to set up and monitor the network they are constructing. This includes providing necessary Layer 3 configurations, obtaining and installing network assignments, security provisions, multiple VLAN's for IP switches, routers and ITS devices as directed. Settings and additional hardware that includes but not limited to enabling Rapid Spanning Tree protocols; IGMP, setting up VPNs, White lists, Black lists, NATting, providing hardened routers for broadband services and other settings and hardware configurations that are enacted at the behest of the Department and OIT. Ensure that all Internetwork Operating System (IOS) and protocols for the network devices are compatible across the network and as specified by NJDOT and OIT. As a condition of acceptance, ensure that the default IP addresses and passwords set from the manufacturer are changed for all electronic devices where applicable and forward that information to the RE for each device. This includes ITS devices, IP switches, routers, modems and wireless equipment. Provide a Networking Block Diagram that includes the aforementioned plus the descriptions of device type, IP address, and corresponding switch port and other requirements subsequently noted as it pertains to Ethernet networking.

B. Installation.

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

When installing a new system or modifying an existing system, ensure the respective manufacturer certified field representative of ITS components and related equipment is on site to put the equipment into operation.

1. Junction Box ITS.

THE ENTIRE TEXT IS CHANGED TO:

a. Installation. Excavate as specified in 202.03.02. Install junction boxes only in areas where the slope is not less than 22H: 1V. Place junction boxes on 10 inches of coarse aggregate No. 57. With each junction box, provide 6 coiling brackets, inserts and fasteners, and a ground rod and clamp. A ground rod is only required for locations where electrically conductive material is present. Backfill and compact using the directed method as specified in 203.03.02.D. Restore disturbed areas to the original conditions, the conditions specified in the Contract, or as directed by the RE.

b. Relocation. Submit plans showing the proposed method of relocation of junction box including any provisions for maintaining network operation and/or cut-over during the process to the RE for approval. Remove existing ITS junction box by excavating around the junction box, cutting back conduits, pulling the cable slack equally to adjacent junction boxes and notching the portion of junction box below the conduits sufficient to slide the fiber optic cable. After removal of the junction box, re-couple the conduit(s), and terminate them using approved conduit repair kits and backfill with approved material and compact using the directed method as specified in 203.03.02.D. Install the Junction Box after approval by the RE. Ensure that the cut conduit ends are terminated at the entrance of the junction box wall using a manufacturer recommended kit depending upon the type of conduits. Ensure that the fiber optic cable is pulled back from the adjacent junction boxes in equal length to maintain the required slack for any immediate or future splicing.

4. Controller ITS.

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

5. Communication Hub.

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

6. Control Center System.

THE FOLLOWING IS ADDED:

Ensure the ITS System Network working drawing is submitted in a format acceptable to the Department. Sample Working Drawings are available at:

http://www.state.nj.us/transportation/eng/elec/ITS/pdf/sampledrawings.pdf

Ensure the working drawing contains the following information:

1 Affected network nodes are shown in nodal format with Latitude/Longitude
2. Each node shows equipment type and the proposed communication links between them.
3. Distances between Ethernet switches and calculated dB loss between them.

4. A Communication Network Assignment Table specifying Equipment Location (Node, Site ID, Lat/Long, Plan sheet reference, Route, Mile Post), Equipment Information (Item No., Description, Function, VLAN No., Subnet Mask, and IP Address)

Supply and install equipment, software, software revisions, firmware, miscellaneous wiring and cabling, at the specified Control Centers to ensure the remote operation and control of all ITS field devices from the Traffic Operation Centers. Comply with building installation requirements, restrictions, access, and security requirements in the performance of work. The material and work required for the integration of the various ITS installations into the various existing operating systems or subsystems used by the Department includes, but is not limited to, the following:

1. At least 6 days in advance of requiring access to the designated Control Center, submit a written notice to the RE requesting access.
2. Ensure complete functionality with field devices. Coordinate with the Department for access, rack space, and LAN connections to Client Workstations, respectively.
3. Ensure CCTV encoders are compatible with approved camera system especially for PTZ and focus control and CCTV Controller Software.
4. Ensure CCTV Controller Software is updated by integrating new cameras installed and ensure video and control is available to all necessary Traffic Operations personnel.
5. Ensure DMS signs are integrated and remotely operable by the DMS Controller Software.
6. Ensure Transmit Devices are integrated and operational in accordance with Contract requirements. Develop the required travel time routes and the appropriate travel time sign messages as directed by the Department.
7. Ensure CTSS components are fully integrated and all the necessary functionality is demonstrated in the designated CTSS Controller Software.
8. Secure and provide all necessary Network configurations and assignments as directed by the Department.
9. Provide and install any other electronic equipment that may become necessary as a result of network protocol translation, electrical signal transmission degradation or communications media translation (fiber optic, coax, DSL interface, network interface, etc.)
10. Provide for software support to integrate new ITS devices into new and existing platforms for all workstations and servers utilized by DOT operators. This includes any required work from each of the software suppliers for workstations located remotely from the Traffic Operation Centers. The Department will provide information regarding the respective system, on particulars for authorized remote users.
11. Provide for the installation of network assignments for all field devices as well as enabling the network and device management protocols as directed by the Department.
12. Ensure that network support requests through the RE to the Department are made at least 60 days prior to the installation of any device to be included in the network.
13. For RWIS, integrate weather station(s) into the appropriate password protected website as directed by the Department.
14. For WIMS, integrate the system for live data retrieval by the designated staff with password protected web site as directed by the Department.

THE FOLLOWING IS ADDED:

7. ITS Conduits. Install Flexible Nonmetallic Conduits as specified in 701.03.07 with the following exceptions:

a. Do not install mechanical joints on conduit runs between junction boxes.

b. Obtain RE approval for fusion joints that may be permitted under special circumstances on conduit runs between junction boxes.

c. Provide an as-built list indicating the location of all joints to the RE.

d. Install a continuous tracer wire without any splice in the conduits and from junction box to a termination point in the field cabinet.

e. Ensure that all conduits and ducts entering a junction box, foundation, cabinet, hub, or building are terminated based on manufacturer's recommendation and are rodent proofed and sealed around cables, or plugged if conduit is built for future use.

f. Ensure that the ITS Conduits facilitate the various means of cable and wire installations including but not limited to pulling, jetting, and blowing of Fiber optic cable and electrical wires.

g. When lateral ITS conduits are installed under a roadway, install a Schedule 80 rated protective sleeve around the group of conduits.

C. Testing.

THE FIRST PARAGRAPH IS CHANGED TO:

Perform wiring and cable testing, as specified in 701.03.15.D, before performing any other testing. Complete the device and system testing as specified on the Department provided forms and instructions. The contractor is responsible for having the proper personnel test the system and subsystems. This may include having manufacturer certified representatives present to ensure complete functionality of said systems and subsystems.

1. Device Testing.

b. Level B.

THE FIRST SENTENCE IS CHANGED TO:

Demonstrate that each device is fully operational from the designated control center to the work site with the original equipment manufacturer's software

c. Level C.

THE FOLLOWING IS ADDED

Upon successful completion of level C testing of any device, the Department will accept the device on an interim basis and will pick up the cost of all associated utility services for that device as specified in section 701.03.15.

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2. Project Testing.

THE FIRST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

After the Contractor's verification test, the Department will conduct a 14-day observational and functional test period of all systems on the Project.

D. Maintenance.

1. Regular Maintenance.

THE FIRST SENTENCE IS CHANGED TO:

Perform regular maintenance and repairs as specified in 108.09 after interim acceptance of a device and/or project testing until acceptance of the project.

E. Final Documentation.

THE FOLLOWING IS ADDED AT THE END OF FIRST PARAGRAPH:

Place one set of all manuals of each device in the respective controller cabinet installed in the field, and provide a set to the RE. Also, send an electronic set to the RE. Provide all documentation listed under this section at or prior to Substantial Completion of the project.

THE FOLLOWING IS ADDED TO THE FOURTH PARAGRAPH:

10. Certification of successful deployment of ITS components from the respective equipment manufacturers with complete details of any repair work performed under warranty.

THE FOLLOWING IS ADDED:

G. Warranty. In addition to the provisions set forth in Section 108.21, document all repairs made by the manufacturer or its designated representative to the device under warranty during construction. Include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number. Provide all necessary equipment for safe access to the installed device along with traffic control promptly upon request by the manufacturer to perform the repairs under warranty during this period. Provide the Department with a complete record of the repairs made to each device as part of the Final Documentation. Ensure that a minimum two year warranty certificate by the manufacturer is provided and transferred to the Department with documentation as set forth in Section 704.02.01 for any repairs to be performed by the manufacturer after substantial completion.

704.03.02 Camera Surveillance System (CSS)

B. Installation.

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH :

If directed by the RE, provide a bucket truck with safety equipment that can reach the height of the camera. Operate the bucket truck for the Department to use to determine the camera's final location and orientation, and for testing.

1. Foundation CSS.

THE FOLLOWING IS ADDED:

Ensure that the anchor bolts are placed after verifying the orientation of the camera lowering system to minimize the obstruction of desired camera view by the Camera Standard.

2. Camera Standard.

THE FOLLOWING IS ADDED:

At least 30 days before beginning construction, submit working drawings for approval that include structural calculations meeting the specified criteria. Ensure the calculations are signed and sealed by a Professional Engineer.

3. Camera

THE FIRST PARAGRAPH IS CHANGED TO:

Mount the camera housing and camera according to the manufacturer's recommendation. Ensure that the camera's field of view is unobstructed. Perform tree trimming and site clearing to provide an unobstructed field of view as directed by the RE. Set up "On Screen Display" to indicate the quadrant views with directional titles (e.g. NB view, EB view, SB view, WB view) displayed in the bottom right corner of the screen for each camera. Leave the display blank for any quadrant not representing any highway view. For a camera with multiple highway views, include route and directional title (e.g. Rt 1 NB view). Also, establish a pan and tilt zones system and set up 4 presets for quick pan-tilt-zoom views prior to level B testing. At least 6 days prior to Level C testing, submit a request to the RE for the Department to integrate each camera into the designated control center CSS control software management system in use at the time of construction.

THE FOURTH PARAGRAPH IS CHANGE TO:

Provide a drill, a drill adaptor assembly and a manual crank assembly with handle for each impacted TOC when a CSS Type A or B standard is installed

4. Controller, Camera.

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

F. Equipment Training.

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

704.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
DMS STANDARD GROUND MOUNTED	UNIT
FIBER CROSS CONNECT CABINET	UNIT
ITS CONDUITS, TYPE _____	LINEAR FOOT
METER CABINET ITS	UNIT
FOUNDATION CSS	UNIT
FOUNDATION DMS GROUND MOUNTED	UNIT
JUNCTION BOX ITS, RELOCATION	UNIT
CONTROL CENTER SYSTEM, LOCATION TOCN	LUMP SUM

THE FOLLOWING ITEMS ARE DELETED:

Item	*Pay Unit*
DMS STANDARD TYPE _____	UNIT
FOUNDATION CSS TYPE_____	UNIT
FOUNDATION DMS TYPE_____	UNIT

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will consider ITS CONDUITS, TYPE ____ as a single conduit comprised of multiple individual conduits as shown in details and will make payment as one unit.

The Department will accept either drilled shaft foundation method or alternate spread footing method for the installation of ground mounted DMS sign structures and will make payment under FOUNDATION DMS GROUND MOUNTED.

THE TABLE UNDER SECOND PARAGRAPH IS REVISED TO:

Work Completed	**Payment**
Installing the Item	60% of Total Contract Price
Successful completion of Level A testing	10% of Total Contract Price
Successful completion of Level B testing	10% of Total Contract Price
Successful completion of Level C testing	10% of Total Contract Price
Successful completion of Project testing	10% of Total Contract Price

DIVISION 800 – LANDSCAPING

SECTION 811 – PLANTING

811.01 DESCRIPTION:
THE FOLLOWING IS ADDED:

Plant the Deciduous Shrub material 30-36" high b&b (Snowmound Nippon Spirea), which is Item number 811061M (300 units), along Rt 21 Northbound above the retaining wall in the Mount Pleasant Cemetery as an if and where directed item. Layout will be provided by the Office of Landscape Architecture in coordination with the cemetery association.

811.03.01 Planting

E. Excavation for Plant Pits and Beds.
THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Obtain RE approval before reusing topsoil from the excavated pits.

I. Watering.
THE FIRST PARAGRAPH IS CHANGED TO:

Water plants with sufficient frequency and quantity to ensure that the soil surrounding the root system remains moist but not saturated.

811.03.02 Plant Establishment Period
THE THIRD AND FOURTH PARAGRAPHS ARE CHANGED TO:

The Department will reinspect the plants annually for 2 years, beginning approximately 1 year after the start of the plant establishment period. If the Department determines that plants need to be replaced after each inspection, replant plants as specified in 811.03.01 within 3 weeks of notification. If replacing outside of the optimal planting season as specified in Table 811.03.01-1, only use containerized or balled and burlapped plants that are certified as being dug dormant.

2. Maintenance Bond.

Provide a bond to the Department in the amount of $5,000.

DIVISION 900 – MATERIALS

SECTION 901 – AGGREGATES

901.11 SOIL AGGREGATE

1. Composition of Soil Aggregate.

THE FOLLOWING IS ADDED TO THE LAST PARAGRAPH:

For Designation I-14, the Contractor may use up to 30 percent steel slag by weight of the coarse aggregate portion of the soil aggregate. Obtain steel slag from a source listed on the QPL as specified in 901.01. Use steel slag that was produced as a co-product of the steel making process. Ensure that the steel slag consists of tough, durable pieces that are uniform in density and quality. Stockpile steel slag as specified in 901.02. Ensure steel slag for blending with I-14 Soil Aggregate does not exceed 0.50 percent expansion from hydration when tested according to ASTM D 4792.

SECTION 902 – ASPHALT

902.02.02 Composition of Mixtures

TABLE 902.02.02-2 IS CHANGED TO:

Table 902.02.02-2 Additional Fine Aggregate Requirements for HMA

Tests	Test Method	Minimum Percent
Uncompacted Void Content of Fine Aggregate	AASHTO T 304, Method A	45
Sand Equivalent	AASHTO T 176	45

902.02.04 Sampling and Testing

B. Sampling.

THIS ENTIRE PART IS CHANGED TO:

The ME will take a random sample from each 700 tons of production for volumetric acceptance testing and to verify composition.. The ME will perform sampling according to AASHTO T 168, NJDOT B-2, or ASTM D 3665.

SECTION 903 – CONCRETE

903.03.06 Tables

Table 903.03.06-2 Requirements for Structural Concrete Items

THE SEVENTH LINE UNDER CAST-IN-PLACE ITEMS IS CHANGED TO:

Table 903.03.06-2 Requirements for Structural Concrete Items

	Concrete Class	Slump[1] (inches)	Percent Air Entrainment for Coarse Aggregate[1]	
			No. 57 & No. 67	No. 8
Decks, Sidewalks, Curbs, Parapets, Concrete Patch	A	3 ± 1	6.0 ± 1.5	7.0 ± 1.5

903.05.04 Control and Acceptance Testing Requirements
THE SUPERSCRIPT REFERENCE NO. 4 UNDER TABLE 903.05.04-1 IS CHANGED TO:

4. For chloride permeability testing, the ME will mold 4 additional cylinders, taking 2 cylinders each from 2 randomly selected delivery trucks for testing at 56-days.

THE FOURTH PARAGRAPH IS CHANGED TO:

If, upon testing at 56 days, 1 or more individual test results exceed 2000 coulombs, the RE may:

1. Require that the Contractor remove and replace the defective lot, or
2. Allow the Contractor to submit a corrective action plan for approval.

SECTION 904 – PRECAST AND PRESTRESSED CONCRETE

904.01.02 Fabrication
THE LAST SENTENCE OF PART 2 IS CHANGED TO:

If using SCC, minimize or eliminate the use of vibrators to prevent segregation.

904.02.06 Quality Control and Acceptance Requirements
STEP 2 IN THE THIRD PARAGRAPH IS CHANGED TO:

2. Dimensions not conforming to the tolerances specified in Table 904.02.02-1.

SECTION 905 – REINFORCEMENT METALS

905.01.03 Welded Wire Reinforcement
THE SECOND PARAGRAPH IS CHANGED TO:

When approved as an alternate to galvanized reinforcement bars, use galvanized welded wire reinforcement that meets the requirements of ASTM A 641, Table 1, Class 1.

905.01.05 Dowels
THE ENTIRE SUBPART IS CHANGED TO:

Use plain reinforcement bars according to ASTM A 615, Grade 60. Galvanize according to ASTM A 123.

905.03.03 Dowel Bars
THE FIRST PARAGRAPH IS CHANGED TO:

For dowel bars in transverse joints, use epoxy-coated, Grade 60, plain reinforcement steel according to ASTM A 615. If shown on the Plans, use dowel bars fitted with end caps. Ensure that the end caps are non-metallic and designed to prevent the entrance of grout or mortar into the expansion void.

SECTION 909 – DRAINAGE

THE FOLLOWING SUBPART IS ADDED:

909.02.09 Fiberglass Pipe for Bridge Storm Drainage

Fabricate fiberglass pipe conforming to ASTM D2996, RTRP-12EA1-2122 and fiberglass pipe fittings conforming to ASTM D3840.

Ensure that all fiberglass pipe, fittings and adhesives use pigmented resin throughout the wall and the color is concrete gray or designated color with UV stabilized resin. Painted gel-coat or exterior coating is not acceptable.

Ensure that adhesives are in accordance with the pipe manufacturer and adhesive manufacturer's recommendations.

SECTION 911 – SIGNS, SIGN SUPPORTS, AND DELINEATORS

911.02.02 Breakaway Sign Supports for Ground Mounted Signs
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate and construct breakaway sign supports for ground mounted signs using materials conforming to the requirements in Table 911.02.02-1.

Table 911.02.02-1 Materials for Breakaway Sign Supports

Item	Test Method	Type or Grade	Galvanizing
Aluminum Materials (other than bracket)	911.01.01		
Bracket	B308	6061-T6	
Structural steel shapes	ASTM A709	Grade 36	ASTM A123
Steel Sheet	ASTM A1011	Grade 36	ASTM A 653
Bolts (except special bolt for coupling)	ASTM A325		ASTM A153
Special bolt for coupling	ASTM A449		ASTM A153
Cap Screw	ASTM A307		ASTM A153
Lock Washer	ANSI B18-21-1		ASTM A153
Nut	ASTM A563	Grade DH	ASTM A153
Coupling	AMS 6378 F		ASTM A153
Steel Hinge Plate	AISI 4130		ASTM 123
Anchor Rod	AISI 1045		
Anchor Coil	AISI 1008		
Anchor Washer	908.04		
Anchor Ferrule	908.04		

Submit mill certificates for the component materials.

911.02.03 Non-Breakaway Sign Supports for Ground Mounted Signs
THE TEXT OF THIS SUBPART IS DELETED.

THIS SUBPART IS INTENTIONALLY LEFT BLANK

911.03 FLEXIBLE DELINEATORS

1. Delineator Dimensions.

b. Guide Rail Mounted.
THE ENTIRE TEXT IS CHANGED TO:

Ensure that the unit for beam guide rail mounted flexible delineators has a minimum width of 3 inches and a minimum thickness of 0.100 inch. Use units of a height that will ensure that the top of the reflective area is 5 ± 2 inches above the top of post.

Design the base of the unit to mount over the I-beam blockout or to the top of a wood or synthetic blockout, of the beam guide rail.

c. Barrier Curb Mounted.
THE ENTIRE TEXT IS CHANGED TO:

For barrier curb mounted flexible delineators, use a delineator that is 3-1/2 × 3-1/2 inches, with a minimum thickness of 0.100 inch, and that has a base that forms a "T" shape with the panel for mounting on the side of the barrier curb, and is flexible or hinged so as to return to its original position after being struck.

THE FOLLOWING IS ADDED:

d. Construction Barrier Curb Mounted. For construction barrier curb top mounted flexible delineators, use a delineator that is 6 x 12 inches with a minimum thickness of 0.100 inch. For construction barrier curb side mounted flexible delineators, use a delineator that is 3-1/2 x 3-1/2 inches with a minimum thickness of 0.100 inch, and that has a base that forms a "T" shape with the panel for mounting on the barrier curb and is flexible or hinged so as to return to its original position after being struck.

4. Retroreflective Sheeting.

b. Guide Rail Mounted.

THE ENTIRE TEXT IS CHANGED TO:

Ensure that the sheeting is a minimum of 3 inches square and is mounted on the upper portion of the delineator.

THE FOLLOWING IS ADDED:

d. Construction Barrier Curb Mounted. Ensure that the sheeting for top mounted flexible delineators is 6 x 12 inches and the sheeting for side mounted flexible delineators is 3-1/2 x 3-1/2 inches.

Submit a certification of compliance, as specified in 106.07, for delineators.

SECTION 912 – PAINTS, COATINGS, TRAFFIC STRIPES, AND TRAFFIC MARKINGS

912.03.01 Epoxy Traffic Stripes

B. Glass Beads.

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

912.03.02 Thermoplastic Traffic Markings

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

912.04.01 Latex Paint

THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

SECTION 913 – GUIDE RAIL, FENCE, AND RAILING

913.01.05 Miscellaneous Hardware

SUBPART 3 OF THE FIRST PARAGRAPH IS CHANGED TO:

3. Use plates for guide rail on bridges and buried guide rail terminals conforming to ASTM A 36 and galvanized according to ASTM A 123.

SECTION 914 – JOINT MATERIALS

914.04.01 Preformed Elastomeric (Compression Type)

B. Joint Sealer.

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

If splicing of a sealer is allowed, ensure that the sealer at the splice point has no significant misalignment at its sides or top and that misalignment at the bottom does not exceed half of the bottom wall thickness.

SECTION 917 – LANDSCAPING MATERIALS

917.10 PLANT MATERIALS

H. Inspection.

THE SECOND PARAGRAPH IS CHANGED TO:

The Department may inspect plant materials before delivery to the Project Limits and upon delivery to the Project Limits before installation. The Department may seal the inspected plant materials. For plant material originating from nurseries farther than 100 miles from the Project Limits, stock plant material at a Contractor-provided holding yard that is acceptable to the Department. The Department may inspect plant material originating from nurseries within 100 miles of the Project Limits at the nursery. Ensure that all plant material is untied and located so that trunk or stem and branch structure can be easily inspected. Provide sufficient notice to allow Department inspection at the nursery or holding yard and to allow time for Contractor reordering of rejected material. Notify the RE at least 7 days in advance of delivery to the Project Limits for installation. The Department will reject materials arriving with broken or missing seals, broken or loose balls, broken or pruned leaders, insufficient protection, or that have been damaged in transit. The Department may randomly inspect the root system of the plant material by breaking open the earth balls. Provide necessary assistance during Department inspections.

SECTION 918 – ELECTRICAL MATERIALS

918.01 CONDUIT AND FITTINGS

4. Flexible Nonmetallic Conduit.

THIS SUBSECTION IS CHANGED TO:

Use Coilable HDPE conduit made from virgin HDPE resin according to the minimum standard of PE345440E according to ASTM D3350. Ensure conduit are circular and of uniform cross sectional area to the dimensions in accordance with ASTM F2160. Ensure conduit is of continuous length containing no welds or joints coiled on a reel. Additionally, conduit inner and outer walls are to be smooth and inner wall is lubricated with manufacturers recommended lubricant. Conduit colors are to be integrally extruded throughout the conduit in the manufacturing process. Ensure conduit is permanently marked with a laser ink imprinter or heat embossed black lettering showing the diameter, size, sequential length marks, owners name, ASTM , SDR, and/or Schedule rating. Additional markings of date-of-manufacture, shift , and lot-of-resin can be identified and referenced to certifications and quality control test results. Ensure manufacturer provides certification of the properties specified and that the reels are marked/labeled with purchase order, project name and/or other information for tracking and receiving. Applicable material standards are required based on the following applications:

a. **Direct Burial**. Use conduit material with a rating of Schedule 80 conforming to ASTM F2160, NEMA TC-7 EPEC-80 and is listed for its intended use.

b. **Innerduct**. Use conduit material with a rating of Schedule 40 conforming to ASTM F2160, NEMA TC-7 EPEC-40.

For ITS conduit used for the installation of Fiber Optic Cable including tracer wire, the conduit(s) are to be extruded integrally colored orange to indicate its use for Communications.

For ITS Conduit Type __, one or more of the conduits are designated for electrical use are to be extruded integrally colored red to indicate its use for Electrical wiring.

THE FOLLOWING IS ADDED:

918.13 CAMERA

SECTION 1 - GENERAL

1-1 GENERAL

Ensure that the camera:

- Is a dome or positional type as specified in the contract.
- Is compatible with encoder.
- Has Electronic Image Stabilization
- Has Compass Direction

1-2 STANDARDS

- NEMA Type 4X
- As a minimum, IP 66 Environmental Rating
- EIA RS-232, RS-422/485
- UL Listed for outdoor use
- NEC

1-3 POWER SUPPLY

Power**:**	24 VAC
Input voltage:	120 or 240 volt user selectable.

UL listed and meeting NEMA 4X and IP66 standards.

1-4 POWER AND COMMUNICATIONS CABLES

Ensure that the unit is provided with all power, control, and communications cables. Ensure they are suitable for burial underground in a duct and able to withstand wet environments.

Ensure power cables provide power to Camera & PTZ equipment, including ancillary equipment to provide proper functionality and for testing purposes. Ensure cables are of proper length as shown in the contract plans.

1-5 HEAD END COMPATIBILITY

Ensure the provided equipment is compatible from the camera to the head end Genetec controller software and meets applicable NTCIP requirements. Code translators may be required to be installed for communicating the PTZ data from the NJDOT video operating system to the camera. This requirement is solely determined by the Contractor' System Integrator based on the proposed system submitted for approval. Provide the necessary power supplies for code translation equipment that are suitable for installation in an outdoor cabinet enclosure. Input voltage for the power supplies are to be 120 Volt, 60 Hz and output voltage meeting code translation requirements. Ensure that the units are UL listed and meet NEMA 1 standards.

1-6 REMOTE MONITORING SYSTEM

Ensure that the remote monitoring system includes the necessary kits, ports and cables designed to provide ground level, local interface to the field installed system. Ensure conformity to NEMA 4X, UL, and FCC Class B Ratings where they apply,

Ensure that the unit meets the following general requirements:

a. The outdoor CCTV remote data port allows for the control and setup of camera when used with compatible remote monitor kit or remote monitor cable.
b. The remote data port allows for new operating code and language files to be uploaded to camera system.
c. The remote data port is able to receive commands from standard personal computers and PDA devices utilizing serial communications between the remote data port and camera system.

d. The enclosure and data port meets or exceeds the following design and performance specifications:

Port Enclosure:

1.	Size:	large enough to accommodate multiple ports, wiring, and terminal blocks and adapters.
2.	Door latch:	Stainless steel; means for locking with a padlock
3.	Input Voltage:	24 VAC
4.	Power Consumption:	1 VA
5.	Operating Range:	-50° to 122°F
6.	Weight:	6.5 lbs max.

Data port:

1. At least one RJ-45 and other ports that may be necessary for control, programming, and viewing
2. Video transmission from camera system to control equipment over coaxial cable or unshielded twisted pair (UTP)
3. Lock out control from head end when cable is plugged into RJ-45 jack
4. An audible alarm sounds when the door is open until cable is plugged into RJ-45 jack and the audible alarm sounds again when cable is removed to remind operator to latch the door closed
5. Each remote data port controls only one camera system

SECTION 2 - DOME CAMERA

Ensure that the Dome Camera is an outdoor environmental CCTV camera dome system with a discreet, miniature camera dome system consisting of a dome drive with a variable speed/high speed pan and tilt drive unit with continuous 360° rotation, 1/4-inch high resolution EXview HAD™ camera, motorized zoom lens with optical and digital zoom and auto focus; and an enclosure consisting of a back box, lower dome, and a quick-install pole adapted mounting. Ensure that the unit meets NEMA Type 4X and IP66 environmental standards and is suitable for outdoor installation atop poles up to 75′ high. Ensure that the unit operates at 24 VAC nominal with maximum 110 Watt power consumption.

Ensure that the unit meets or exceeds the following design and performance specifications:

2-1 DOME DRIVE

1.	Pan Speed:	250° per second
2.	Vertical Tilt:	Unobstructed tilt of +2° to -92°
3.	Manual Control Speed:	Pan speed of 0.1° to 80° per second, Tilt operation range from 0.1° to 40° per second
4.	PTZ Protocol:	Mandatory NTCIP 1205 Camera Control, Genetec PTZ protocol supported
5.	Automatic Preset Speed:	Pan speed of 250° and a tilt speed of 100° per second
6.	Presets:	Sixty-four preset positions with a 20-character label available for each position; programmable camera settings, including selectable auto focus modes, iris level, and backlight compensation, for each preset; command to copy camera settings from one preset to another; preset programming through control keyboard or through dome system on-screen menu
7.	Preset Accuracy:	0.1°
8.	Proportional Pan/Tilt Speed:	Speed decreases in proportion to the increasing depth of zoom
9.	Automatic Power-Up:	User-selectable to the mode of operation the dome will assume when power is cycled, including automatically returning to position or function occurring before power outage

10. Zones:	Eight zones with up to 20-character labeling for each, with ability to blank the video in the zone
11. Motor Operating Mode:	Microstep to 0.015° steps
12. Motor:	Continuous duty, variable speed, operating at 18 to 30 VAC, 24 VAC nominal
13. Limit Stops:	Programmable for manual panning, auto/random scanning, and frame scanning
14. Alarm Inputs:	N.O./N.C. dry contacts
15. Alarm Outputs:	One auxiliary Form C relay output and one open collector auxiliary output
16. Alarm Output Programming:	Auxiliary outputs can be alternately programmed to operate on alarm
17. Alarm Action:	Individually programmed for three priority levels, initiating a stored pattern or going to a pre-assigned preset position
18. Resume after Alarm:	After completion of alarm, dome returns to previous programmed state or its previous position
19. Window Blanking:	Eight four-sided, user-defined shapes, with each side being of different lengths; window blanking setting to turn off at user-defined zoom ratio; window blanking set to opaque gray or translucent smear; blank all video above user-defined tilt angle; blank all video below user-defined tilt angle
20. Patterns:	Four user-defined programmable patterns including pan, tilt, zoom, and preset functions; pattern programming through control keyboard or through dome system on-screen menu
21. Pattern Length:	Four patterns of user-defined length, based on dome memory
22. Auto Sensing:	Automatically sense and respond to protocol utilized for controlling unit; including NTCIP compliant control protocols and translators
23. Menu System:	Built-in for setup of programmable functions in English
24. Auto Flip:	Rotates dome 180° at bottom of tilt travel
25. Password Protection:	Programmable settings with optional password protection
26. Clear:	Clear individual, grouped, or all programmed settings
27. Diagnostics:	On-screen diagnostic system information
28. Freeze Frame:	Freeze current scene of video during preset movement
29. Display Setup:	User-definable locations of all labels and displays; user-selectable time duration of each display
30. Azimuth/Elevation/Zoom:	On-screen display of pan and tilt locations and zoom ratio
31. Compass Display:	On-screen display of compass heading; user- definable compass setup
32. Video Output Level:	User-selectable: normal or high to compensate for long video wire runs
33. Dome Drive Compatibility:	All dome drives are compatible with all back box configurations
34. RJ-45 Jack:	Plug-in jack on dome drive for control and setup of unit and for uploading new operating code and language file updates. Compatible with personal computers.
35. Remote Data Port Compatibility:	Ability to control and setup unit and to upload new operating code and language file updates through optional remote data port that is located in area with easy access. Compatible with personal computers.
36. UTP Compatibility:	Ability to plug into back box an optional board that converts video output to passive, unshielded twisted pair transmission
37. Fiber Optic Compatibility:	Ability to plug into back box an optional third-party board that converts video output and control input to fiber optic transmission

38.	Third-Party Control Systems:	Ability to plug in optional board that converts control signals from selected third-party controllers
39.	Power Consumption:	Maximum 110 W

BLACK-WHITE OPTIC SYSTEM (35X)

1.	Image Sensor:	1/4-inch high resolution EXview HAD™
2.	Scanning System:	2:1 interlaced output
3.	Effective Pixels:	NTSC 768 x 494
4.	Horizontal Resolution:	NTSC 540 TVL
5.	Lens:	f/1.4 (focal length, 3.4~119 mm; 35X optical zoom with Electronic Image Stabilization, 12X digital zoom)
6.	Zoom Speeds:	Minimum two settings; Fast Setting response 3.2 seconds; Slow Setting 6.6 seconds
7.	Horizontal Angle of View:	55.8° at 3.4 mm wide zoom, 1.7° at 119 mm telephoto zoom
8.	Focus:	Automatic with manual override
9.	NTSC Sensitivity :	0.00018 lux at 1/2 sec shutter speed (BW) @ 35 IRE 0.55 lux at 1/60 sec shutter speed (color) @ 35 IRE 0.018 lux at 1/2 sec shutter speed (color) @ 35 IRE 1.0 lux at 1/60 sec shutter speed (color) @ 50 IRE 0.05 lux at 1/2 sec shutter speed (color) @ 50 IRE 0.01 lux at 1/4 sec shutter speed (BW) @ 50 IRE
10.	Synchronization System:	Internal/AC line lock phase adjustable through remote control, V-sync OR Crystal
11.	White Balance:	Automatic with manual override
12.	NTSC Shutter Speed:	up to 1/30,000
13.	Iris Control:	Automatic with manual override
14.	Gain Control:	Automatic/ off
15.	Video Output:	1 Vp-p, 75 ohms
16.	Video Signal-to-Noise:	>50 dB
17.	Wide Dynamic Range:	minimum 80X
18.	Motion Detection:	User-definable motion detection settings for each preset scene, can activate auxiliary outputs, and contains 3 sensitivity levels per zone

2-3 BACK BOX AND LOWER DOME

Heavy Duty Pendant Environmental

1.	Connection to Dome Drive:	Quick, positive mechanical and electrical disconnect without the use of any tools
2.	Trap Door:	Easy-access trap door that allows complete access to the installation wiring and, when closed, provides compete separation of the wiring from the dome drive mechanics
3.	Terminal strips:	Removable with screw-type terminals for use with a wide range of wire gauge sizes
4.	Auxiliary Connections:	One Form-C relay output at <40 V, 2 A maximum, and a second open collector output at 32 VDC maximum at 30 mA
5.	Alarm inputs:	Seven
6.	Installation:	Quick-mount wall, corner, pole, parapet, or ceiling adapter
7.	Cable Entry:	Through a 1.5-inch NPT fitting
8.	Environmental Features:	Factory-installed heaters, blowers, and sun shroud
9.	Operating Temperatures:	Continuous operating range of -29.2° to 122°F

10.	Memory:	Built-in memory storage of camera and location- specific dome settings such as presets and patterns. If new dome drive is installed in back box, all settings to download automatically into new dome drive
11.	Color:	Gray, baked-on enamel powder coat
12.	Construction:	Anti-impact, vandal resistant, dual wall aluminum enclosure with a min, 0.090-inch thick, clear polycarbonate lower dome and aluminum trim ring
13.	Disconnect:	Quick to dome drive
14.	Dimensions:	Pendant 10.6-13.74-inch overall length (including dome) by 8.6-11.05-inch diameter
15.	Weight:	14.0 lbs. max

SECTION 3 - POSITIONAL CAMERA

3-1 CAMERA WITH PTZ UNIT

Ensure that the Positional Camera conforms to the aforementioned requirements in Section 2-2 with an integrated environmental PTZ control unit with receiver/driver. The Positional Camera is to be mounted on the pole top plate.

Ensure that the unit meets NEMA 4X and IP 66 environmental standards and that the unit includes, meets, or exceeds the following design and performance specifications:

1.	Mounting:	Internal cabling and easy attachments for quick mounting.
2.	Camera/lens package:	Pre-installed and manufactured tested camera/lens
3.	Heater/defroster:	Suitable for outside environment with heater/defroster package.
4.	Pan/tilt drive unit:	High speed, utilizing high speed stepper motors, capable of pre-set pan speeds of up to 100° per second and tilt speeds of 30° per second in wind speeds of up to 50 mph, and pre-set speeds of 50° per second in wind speeds up to 90 mph.
5.	Pan speeds:	Variable standard up to 40° per second while sustaining wind speeds of up to 90 mph.
6.	Tilt speeds:	20° per second while sustaining wind speeds of up to 90 mph.
7.	Weight:	Up to 25 lbs.
8.	Pre-wired:	Power input, camera, lens, heater, and window defroster functions.
9.	Operating voltage:	24VAC from a 120VAC 60Hz source.
10.	Power consumption:	Maximum of 160W
11.	Operating temperature:	-29°F to 122°F and capable of de-icing and operating at an ambient temperature of -13°F within two hours of power on.
12.	Pan rotation:	360° continuous and a tilt range of +40° to -90° from horizontal.
13.	Pre-sets:	64 positions with a preset accuracy of 1/2° utilizing electronic limit stops.

14.	PTZ Protocol:	Mandatory NTCIP 1205 Camera Control, Genetec PTZ protocol supported
15.	Construction/Finish:	extruded and sheet aluminum; stainless steel hardware; powdered coated aluminum finish
16.	Viewing window:	0.23" min. thick, optically clear impact and scratch resistant coating

918.14 ETHERNET SWITCH

Ensure Ethernet Switches are compatible with existing architecture.

A. Standards and Certifications

-	IEEE 802.3:	10 Base T
-	IEEE 802.3u:	100 Ethernet Base TX, 100 Base FX
-	IEEE 802.3ab:	1000 Base T
-	IEEE 802.3z :	1000 Base LX
-	IEEE 802.3x:	Flow Control
-	IEEE 802.1q:	Virtual Local Area Network (VLAN) tagging
-	IEEE 802.1d:	Spanning Tree Algorithm
-	IEEE 802.1w:	Rapid Spanning Tree Algorithm
-	IEEE 802.1x:	Port Based Network Access Control
-	IEEE 802.1p:	Quality of Service (QOS), 8 level transmission priorities.
-	IP Multicast:	Filtering through Internet Group Management Protocol (IGMP) Snooping.
-	Product Safety:	Underwriters Laboratories (UL) Standard 1950 or 60950 or UL 508.
-	Electromagnetic Emissions:	Federal Communication Commission (FCC) Part 15, Class A.
-	Environmental:	National Electrical Manufacturers Association (NEMA) TS1/TS 2 – Environmental Requirements only.
-	IP Routing (Type A Switch)	Inter-VLAN IP routing for full Layer 3 routing between two or more VLANs. IP Unicast routing protocols including v6 – Static, RIP, RIPng, OSPF, IGRP, EIGRP, PIM, BGP, PBR, HSRP, Supports 1000 multicast groups, VRF, DHCP Snooping

B. Functional Requirements

- Minimum of 12K Media Access Control (MAC) addresses for Type Hub configuration (Type A Switch)
- Minimum of 8K MAC addresses for Type Field configuration (Type B Switch)***
- Port Mirroring
- MAC Based Port Trunking
- Store-and-forward Switching Method

Non-blocking full wire speed forwarding rate:

-	10 mbps:	14,880 pps (packets per second)
-	100 mbps:	148,800 pps (packets per second)
-	1000 mbps:	1,488,000 pps (packets per second)

C. Management
- Direct console port access via RS-232
- Management Application available through HTML Web Browser
- Remote configuration by Telnet
- SNMP v1, v2, v3 - Bridge Management Information Base (MIB), VLAN MIB, Private MIB, RMON MIB - for alarm monitoring & diagnostic.
- IGMP v1, v2, v3 (IGMP Snooping)
- Security ACL's (Not Applicable for Type B Switch)

D. Interface and Connectors

Designation	Typical Distance	Nominal Wavelength	Fiber Type	Connector	Optical Budget
1000Base-LX	10km	1310 nm	10/125 SM	LC/SFP	10 dB
1000Base-LX	20km	1310 nm	10/125 SM	LC/SFP	15 dB
1000Base-LX	40km	1310 nm	10/125 SM	LC/SFP	20 dB
1000Base-LX	70km	1550 nm	10/125 SM	LC/SFP	15 dB
100Base-FX	20km	1310 nm	10/125 MM	SC/SFP	19 dB
100Base-FX	40km	1310 nm	10/125 MM	SC/SFP	34 dB
100Base-FX	60km	1310 nm	10/125 SM	SC/SFP	33 dB
10Base-T	300'	N/A	N/A	RJ-45	N/A
100Base-TX	300'	N/A	N/A	RJ-45	N/A
1000Base-T	300'	N/A	N/A	RJ-45	N/A

Number of ports and port specifications are to be as specified in the bid documents.

Provide connectors as follows:
- Copper: RJ-45 F Female 8 Position 8 Contact (8P8C)
- Fiber: SC, LC

E. Indicators
- LED Indicator showing Power Status.
- LED Indicators showing status and activity of each port.

F. Mechanical Specifications
- Maximum Dimension: 19" (W) X 10" (D) X 10" (H)
- Maximum Weight : 15 lbs
- Ensure unit is capable of being mounted in standard 19" rack without custom modifications.
- Contractor to ensure that the switch fits in the cabinet.

G. Environmental Specifications

Meet or exceed the following criteria as specified in NEMA TS2. Values listed below for reference only, as excerpted from most recent version of NEMA TS2.
- Operating Voltage: 120 VAC ± 5VAC
- Operating Frequency: 60 Hz ± 3 Hz
- Power Interruption: Comply with NEMA TS2
- Operating Humidity: 10% to 95% relative humidity non-condensing
- Transients, Input/Output: Comply with NEMA TS2
- Non-destruct Transient Immunity: Comply with NEMA TS2
- Vibration: Comply with NEMA TS2
- Shock: Comply with NEMA TS2

H. Electrical Power

Equip the power supply with a minimum of a six (6) foot power cord terminating in a standard three (3) prong line plug. Maximum power requirement must not exceed 80 watts for each unit. Two (2) power supplies are required for Type A switches.

I. Software

Provide Software License(s) with each unit.

J. Identification

Identify Ethernet Switch with a metal plate containing the serial number with bar code identification. Provide phenolic nameplate with switch designation shown on Contract Documents. Provide manuals and training documentation, and electronic version of custom configurations on compact disc media.

K. Standard Configuration

Unless otherwise specified in the contract plans, use the following port configuration:

Switch Type	Switch Function	Minimum # of Required Ports			Temperature	
		10 Base-T 100 Base -TX	100 Base-FX	1000 Base-LX	Operating Range	Storage Range
Type A	HUB*	12	12	1	32°F to 104°F	0°F to 158°F
Type B	Field**	4	4	0	-40°F to 167°F	-13°F to 167°F
Type C	Broadband ISP****	4	0	0	0°F to 104°F	-4°F to 149°F

T/TX ports to have user-selectable speed setting (10/100 Mbps).
* Cisco Product Only
** Cisco Only
***When Type B switch has a layer 3 configuration including IP routing requirements; it shall have a minimum 2K MAC addresses
**** Type C must use Cisco 819 Series or newest Integrated Services VPN Router with 4-Port 10/100 Mbps Managed Switch with the following options.

L. List of Equipment

Provide the following with each Ethernet Switch:

- Documentation
- External power supply (if required)
- All required custom connections
- Mounting brackets/shelf (if required)

918.15 HARDENED VIDEO ENCODER

Hardened Video Encoder/Decoder Pair consists of one encoder unit and one decoder unit. Each unit is to conform to the following specifications:

1-1 Standards and Certifications

- IEEE 802.3 10 Base T
- IEEE 802.3u 100 Base TX
- IEC60068-2-1:1990 + A1:1993 + A2: 1994
- IEC60068-2-1:1974 + A1:1993 + A2: 1995
- ISO/IEC 13818
- ISO/IEC 14496-2
- FCC

1-2 Functional Requirements

Provide the following capabilities:

- Ensure the video encoder/decoder pair is capable of transporting NTSC video and serial data from one location to another location over the Ethernet network by encoding/decoding the video and data streams. Each video channel and data channel is to have the capability to configure to independent IP address and port number. Encoder is to provide for conversion of NTSC video and serial data to digital video (MPEG-4) and digital data for transmission over Ethernet based communication system. Decoder is to provide for conversion of digital video (MPEG-4) and digital data back to NTSC video and serial data.

- Transparent serial port supporting any asynchronous serial protocol.
- Compression: MPEG-4 simple profile .
- MPEG-4 Resolution: Scalable from 176x128 to 704x480 pixels 1CIF, 2CIF, 4CIF, 1-30 FPS user selectable for each stream.
- Bandwidth: 30 Kbps to 6Mbps user selectable for each stream.
- Transport Protocols: RTP/IP, TS/UDP/IP, SAP, TCP/IP, Multicast IP DNS, NTP, HTTP, FTP and DHCP client, Unicast.
- JPEG capture, Motion detection, Text overlay

1-3 Management

- Web configuration, telnet
- Network
- HTTPS for secure Web based management
- Single Sign In and password protection

1-4 Interface and Connectors

- Serial Interface: EIA RS-232/RS-422/RS-485, DB9 connector.
- Video Interface: 1 Composite, 1Vpp into 75 ohms (NTSC), BNC Female connector.
- Ethernet Network: 10/100Base-T Cat5e, RJ 45 connector.

1-5 Indicators

- LED Indicator showing Power Status.
- LED Indicators showing status and activity of each port.

1-6 Mechanical Specifications

- Max. Dimension not to exceed 9.3" L X 19"W x 1.75" H
- Max. Weight not to exceed 8 Lbs

1-7 Environmental Specifications (Field device in cabinet)

- Operating Temperature: -22°F to +140°F
- Operating Humidity: 95% non-condensing at 122°F

1-8 Electrical Power

Equip the power supply with a minimum of a 6 foot power cord terminating in a standard three (3) prong line plug. Maximum power requirements are not to exceed 16 watts for each unit.

1-9 Software

Provide Software License(s) with the unit.

1-10 Identification

Identify each hardened unit with a metal plate containing the serial number with bar code identification. Provide phenolic nameplate with switch designation shown on Contract Documents. Provide manuals and training documentation, and electronic version of custom configurations on compact disc media.

1-11 Standard Configuration

Encoder/Decoder			
Type	Minimum Number of Required Ports		
	NTSC Video	RS232/422/485	10/100 Base Tx
Type A	1	1	1
Type B	2	2	2
Type C	8	3	2

Each video channel and data channel is to have the capability to configure to independent IP address and port number.

1-12 List of Equipment

Provide the following with each Hardened Video Encoder/Decoder Pair:

- Documentation
- External power supply (if required)
- All required custom connections
- Mounting brackets/shelf (if required)

918.16 CONTROLLER, CAMERA

Ensure that the controller is compatible with the camera specified under NJDOT material specifications ITS-Camera.

SECTION I – GENERAL

Ensure that the controller camera consists of a ground mountable cabinet enclosure with all necessary equipment as designed and hardware as a fully assembled unit:

- Controller Cabinet
- Video encoder
- Media converter / Ethernet switch / Communications modem
- Terminal server
- Fiber optic patch panel
- Communications, video, and power cables connectors
- Fiber optic jumper cables
- Power Distribution Unit (PDU)

SECTION II – CONTROLLER CABINET

2-1 General Requirements

Ensure the following:

a. The Controller Cabinet conforms to NJDOT electrical details for Meter Cabinet Type"M" Fabricated with the exceptions noted in the controller camera detail. Ensure the Controller Cabinet is equipped with pullout shelves for installing equipment.
b. A fluorescent fixture is supplied with a lens or shield and a 15 watt type T-12 lamp with rapid start, high power factor ballast and installed in the top front and rear of the cabinet. A switch shall be installed on the inside of the cabinet doors to manually disable the lamps.
c. All Controller Cabinet terminals, outlets, circuit boards, and other components are labeled using silk screening or a similar permanent process.
d. The Controller Cabinet has space for installing Code Translator and low voltage power supplies.

2-2 Power Distribution Equipment

Provide power distribution equipment that is NEMA and UL compliant and includes the following as a minimum:

a. Main Circuit Breaker. 2-Pole, 60 amperes, 240 volt, S/N, NEMA 1 enclosure with a minimum short circuit rating of 22k AIR.
b. Distribution Panelboard. Single Phase, 3-wire (#14 to 4 AWG), 120/240 Vac, Neutral Installed, 12 – circuit breaker min., fixed main bus rated at 100 ampere and enclosure; each circuit breaker is to be 1-pole, 120 volt, 15 ampere with a minimum short circuit rating of 22 k AIR
c. (4)-Duplex NEMA 5-15R receptacle for electronic equipment
d. (1)-Duplex NEMA 5-15R GFCI convenience receptacle
e. Terminal blocks as required or specified
f. Surge Suppressors. 10 kA Surge Current rating min. for protection of CCTV and networking equipment. Ensure surge protectors protect all communication signals connecting the control equipment from off-site sources.

2-3 Environmental Systems

a. Furnish and mount one (1) thermostatically controlled fan with a minimum 100 CFM air flow for ventilation, screened against the entrance to remove dust and foreign matter in the top of the cabinet completely wired and interconnected. Provide and install a contact closure with wiring to indicate that

cabinet ventilation has failed. A failure of the ventilation is to be reported when the temperature in the cabinet exceeds a preset temperature selected from an adjustable range from 70 °F to 130 °F.

b. Filtered air intake ports are to be located on the bottom third of the access door.
c. Ensure that the fan and air filters are removable and replaceable from inside the cabinet.
d. Mount a 400 watt blower heater inside the cabinet on one side. Ensure that the heater is controlled by a thermostat which is designed to operate the heating system only when required. Set the low temperature to activate heating at 35 °F. Ensure that the unit turn-off is at 60 °F. Provide a contact closure capable of indicating a low temperature alarm. Ensure that the sensor is adjustable in the range of 41 °F to 5 °F and set to 20 °F.

SECTION III – VIDEO ENCODER

Ensure that the video encoder conforms to NJDOT material specification Hardened Video Encoder/Decoder Pair.

SECTION IV – MEDIA CONVERTER/ ETHERNET SWITCH

4-1 Ensure that the Media Converter conforms to NJDOT material specification ITS-Media Converter.
4-2 Ensure that the Ethernet Switch conforms to NJDOT material specification ITS- Ethernet Switch.

SECTION V– TERMINAL SERVER

Ensure that the Terminal Server conforms to NJDOT material specification ITS –Terminal Server.

SECTION VI– FIBER OPTIC PATCH PANEL

Ensure that the controller assembly contains a 12 port fiber-optic patch panel assembly suitable for terminating 12 single mode fibers using SC connectors. Ensure that the patch panel is suitable for mounting inside the outdoor enclosures and is mounted on the side of the cabinet. Ensure that the Patch Panel conforms to the applicable Material Specification.

SECTION VII– FIBER OPTIC JUMPER CABLES

Provide and install 12-6′ long standard full duplex single mode loose tube fiber optic jumper cables with factory installed connectors on both ends. Provide the connector at one end of Type SC and the other end as specified or required to connect to communications equipment. The jumper cable is to be suitable for installation inside the outdoor cabinets. The fiber material characteristics are to be in conformance with the Fiber Optic Cable material spec.

918.17 CAMERA LOWERING SYSTEM

These specifications describe the minimum acceptable design and operating requirements for the individual components of Camera Lowering System.

SECTION I - Camera Lowering Device

Ensure that the Camera Lowering Device is designed to support, raise and lower a pole mounted dome type camera complying with the following:

Standards

a. AASHTO - Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, with Latest Interim.
b. National Fire Protection Code (NFPA), NFPA 70, National Electrical Code (NEC)

Basic Design

Ensure that the Camera Lowering Device consists of the following:

a. A suspension contact unit
b. Divided support arm
c. A pole adapter and suspension contact unit fitter
d. Control Cable and Pulleys
e. Camera junction box
f. Communications composite cable

Performance and requirements

Design wind velocity:	100mph with a 30 percent gust factor
Design safety factor:	1.50-Safety factor
Minimum effective projected area:	Exceeds unit with attached camera
Load capacity:	200 lbs. with a 4:1 Safety factor

Environment

Operating temperature range:	-20°F to +158 °F
Relative humidity:	0 to 95 percent non-condensing

Electrical Power

Operating voltage:	120 volt AC
Voltage range:	105 to 125 volts AC at 60 hertz

Materials

a. Structural components are to be heavy-duty cast aluminum alloy or stainless steel unless otherwise noted on contract plans.
b. Housing seals are to be flexible polymer water-tight gaskets
a. All dissimilar metals are to be protected from corrosion for the life of the device.
b. All external components are to be made of corrosion resistant material and protected from the environment by industry-accepted coatings to withstand exposure to the environment.

Suspension Contact Unit

Basic Configuration

a. Load capacity is required to be 200 lbs. with a 4:1 safety factor.
b. Suspension contact unit housing is to be weatherproof with gasket seal.
c. The camera lowering junction box is to accept an NPT 1.5” pipe mount.
d. Provide locking mechanism between the fixed and moveable components.
e. The fixed unit is to have a heavy duty cast tracking guide.

Electrical Contacts

a. Mated pin and socket contacts
b. Self aligning contact molded housing
c. All provide a rain tight seal when mated

Connection

The composite communication cable (up to 150 ft unless otherwise specified or required) is to be continuous run to the ground mounted controller camera and sized for the camera pole height to which it is mounted.

Divided Support Arm

a. Minimum 2 inch divided connecting arm.
b. Provide rigid connection between the suspension contact unit and pole adapter fitter.
c. Separate cable runs for electrical and signal wires.
d. Supports the suspension contact unit and camera assembly.

Suspension Contact Unit Fitter

Suspension contact unit fitter is to rigidly connect the suspension contact unit to isolate the moving lowering cable from the electrical and video cables.

Material :	Heavy-duty cast aluminum alloy.
Pulleys:	High strength and low resistance.

Pole Adapter Fitter

Pole adapter fitter is to rigidly connect the pole to the divided arm support and to isolate the moving lowering cable from the electrical and video cables.

Material:	Heavy-duty cast aluminum alloy.
Pulleys:	High strength and low resistance

Control Cable & Pulley

Ensure that pulleys have sealed, self lubricated bearings, oil tight bronze bearings or sintered bronze bushings.

Ensure that:

a. Lowering control cable is a minimum 1/8-inch diameter stranded stainless steel cable.
b. Minimum breaking strength is 1740 lbs.
c. Control cable guides are located within the pole.

Camera Junction Box

Ensure that:

a. The camera junction box that connects the camera to the lowering device has a two-piece design with a 1.5" NPT pipe receptacle for easy camera mounting.
b. Material is corrosion resistant cast aluminum.
c. It contains a large capacity-splicing compartment for camera power, signal leads, and connectors.
d. There is ample room for securely mounting and accessing lightning protection devices for power, data and video, isolated from the junction box itself.
e. It is provided with weights and /or counterweights to assure the alignment of pins and connectors.
f. The power and signal connectors are provided for attachment to the bare leads in the junction box or camera dome to make the system operational.

Composite Cable

Provide the camera lowering device with a direct continuous run (no splices) of composite cable (up to 150' unless otherwise specified or required), wired and sealed from the top connector to the ground mounted controller camera sized for the camera pole height to which it is mounted. Standard cabling will consist of RG-6 coax cable, low capacitance data cable with individually shielded pairs with a common shield and drain and 16 gauge low voltage power cable. Ensure the cables are suitable for wet environments, burial underground in duct and are certified to same.

Test Cable

Supply a control cable and harness to plug into the suspension contact unit to provide the capability to fully test the camera and its functions while being serviced on the ground before the camera is hoisted to the locked position at the top of the pole.

SECTION II - Winch Assembly and Accessories

Provide a built-in permanent winch assembly with cable mounted inside the pole that is accessible via a hand hole. Ensure that it operates using portable electrical drill and also by using a manual crank handle. Provide a Portable Drill and a Drill Adaptor Assembly for operating the lowering device. Also provide a Manual Hand Crank Assembly with crank handle to operate the lowering device manually without a drill as a backup. The built-in winch is to have a quick release cable connector and an adjustable safety clutch. The portable drill is to be an adequately sized variable speed, industrial-duty reversible motor electric drill.

Ensure that the built-in winch is:

a. Accessible through the pole hand hole for repairs, operation or replacement.
b. Securely attached inside the pole.
c. Supporting itself and the load assuring lowering/raising operations.
d. Preventing freewheeling when loaded.
e. Provided with reducing gear to reduce the loading effort.
f. Ready for quick connect/disconnect of Drill Adaptor Assembly for portable drill operation.
g. Ready for quick connect/disconnect of Manual Hand Crank Assembly for manual operation.

2-1 Winch Assembly Specifications:

- Gear Ratio: 15:1
- Vertical lift max.: 1,000 lbs.
- Pulling capacity single line: 1,000 lbs
- Pulling capacity double line: 1,900 lbs
- Drum capacity for 1/8 in. cable: 140 ft.
- Drum capacity for 3/16 in. cable: 61 ft.
- Gear ratio: 15:1
- Length: 7-1/2 in.
- Width: 11-13/16 in.
- Height: 15-19/32 in.
- Weight: 21 lbs max

2-2 Drill Adapter Assembly and Portable Electric Drill

Portable Electric Drill with Overload Clutch

- 1/2” drill chuck
- Variable speed up to 500 rpm max.
- Heavy duty reversible motor

Drill Adapter Assembly

- 7/16” drill motor adapter
- Torque limiter
- 7/16” hex drive adapter
- Extension shaft
- 1-1/8 in. hex impact socket with part release access

2-3 Manual Hand Crank Assembly

- 1-1/8 in. hex socket with part release access
- Extension shaft
- Arm with rotating handle to steady assembly

918.18 COMMUNICATIONS CABLE

The various types of communication cables (unless specified otherwise in the contract) shall be suitable for outdoor installations in harsh environments and conform to the following:

SECTION 1 – TELEPHONE GRADE TYPE

For providing telephone grade service to ITS field devices, the cable shall meet the subsequent criteria:

1-1 The cable shall consist of 6 pairs of No. 19 AWG solid, annealed copper conductors assembled in a single group conforming to RUS 7CFR 1755.390 (REA PE-39) standards.

1-2 Each conductor shall be insulated with a color coded high density polyethylene material.

1-3 The insulated conductors shall be twisted into pairs with varying lay lengths to minimize crosstalk with no pair lay greater than 6″.

1-4 The entire core assembly shall be completely filled with ETPR (Extended Thermo Plastic Rubber) compound, filling the interstices between the pairs and under the core tape.

1-5 Core Wrap shall consist of Non-hygroscopic dielectric tape applied longitudinally with an overlap.

1-6 Copper shield shall consists of corrugated, copolymer coated, 0.005″ min. applied longitudinally with an overlap. The sheath interfaces shall be flooded with an adhesive water-blocking compound.

1-7 The cable shall be provided with an outer jacket. The outer jacket shall be black linear low density polyethylene material.

1-8 The cable outer jacket shall have a thickness of 0.06″ nominal and the outer diameter of the cable shall not exceed 0.6″.

1-9 Environmental Requirements

Storage temperature:	-40°F to +167°F (-40°C to +75°C)
Installation temperature:	-22°F to +140°F (-30°C to +60°C)
Operating Temperature:	-40°F to +167°F (-40°C to +75°C)

1-10 Maximum pulling tension: 22.1 lbs per pair

1-11 The cable shall be painted with manufacturer's name, pair count, conductor size, and year of manufacture at 2 feet intervals on the outer jacket.

SECTION 2 – ETHERNET GRADE TYPE

The Ethernet cable shall be suitable for harsh installations and conform to the following requirements:

2-1 The cable shall consist of 4 pairs of No. 24 AWG solid bare annealed copper conductors for harsh environmental applications.

2-2 The cable shall conform to the following standards:

- ANSI/TIA/EIA 568B.2-1 Cat6
- ISO 11801 Cat6
- NEMA WC-63.1 Cat6
- CMR, CMX-outdoor, UL 444

2-3 Each conductor shall be insulated with polyolefin material

2-4 The inner jacket shall be PVC with a nominal wall thickness of 0.2". A ripcord shall be provided longitudinally under the inner jacket.

2-5 The outside jacket shall be unshielded industrial grade PVC of wall thickness 0.035". A ripcord shall be provided longitudinally under the jacket.

2-6 The cable normal outer diameter shall be no greater than 0.5".

2-7 The cable shall meet or exceed the following Mechanical Characteristics:

- Operating Temperature: -40°C To +75°C
- Installation Temperature: -25°C To +75°C
- Max. Pull Tension 40 pounds
- Min. Bend Radius >0.5"

918.19 PORT SHARER

The Port Sharer specification is for the listed components to be used in the Control Center pay Items. Each unit includes up to (8) serial RS-232 async signal user channels. The following functionality is included in the device:

- Flow control – software
- User channels – 8
- Interface RS-232
- Power – 115 AC @ 50 mA, 60W
- Dimensions – 1.5"H x 5.5"W x 8.5"D
- Connectors – RJ11
- Model: Black Box TL159A or approved equal

DIVISION 1000 – EQUIPMENT

SECTION 1001 – TRAFFIC CONTROL EQUIPMENT

1001.05 PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY

Provide a Portable Trailer Mounted CCTV Camera Assembly (PTMCCA) with the following:

A. Trailer Platform

1. Maximum size, including tongue, 14 feet long by 7 feet wide by 8 feet high.
2. NJDOT approved lighting package to include electrical brake and marker lights with wire connections.
3. Primed and painted with powder coated orange color.
4. Fitted with manual telescoping outriggers with adjustable jacks sized to counter full mast extension.
5. Four 3500 pounds, drop leg, top wind screw jacks.
6. All equipment secured to prevent theft or separation from platform.
7. 24/7 operation in all weather conditions.
8. One locking NEMA-4 equipment box for operational controls.
9. Removable wheels (with wheel locks) when trailer is in deployed position.
10. Operation manual with a copy placed in the storage bin.

B. Mast

1. 150 pounds payload capacity.
2. 29 feet to 32 feet of extension with capability to mount antenna at 20 feet, 25 feet or at the top, 10 feet maximum nested length of mast - 3 to 9 sections.
3. Un–guyed.
4. Driven by galvanized steel cable.
5. Spiral conduit for cables.
6. Compactly retractable when nested into storage container at the bottom & foldable for easy transport.
7. Operated by a power winch with a safety brake.
8. Capable of being raised or lowered during sustained wind speeds of 30 miles per hour.

C. Power Source

Equip the PTMCCA with either a diesel charged or a solar charged battery system. Ensure that the PTMCCA is also capable of operating on 120-volt AC electrical service. The Department may require a solar charged battery system in noise sensitive areas. Provide the power with a battery backup system capable of providing continuous operation when the primary power source fails. Ensure that the power source meets the following requirements:

1. Diesel. Ensure that the fuel tank is capable of operating the sign for a period of 72 hours without refueling. Equip with an exhaust muffler and a United States Department of Forestry approved spark arrester. Ensure that the engine is shock mounted to reduce vibration and locked in a ventilated enclosure.
2. Solar. Provide solar panels capable of recharging the batteries at a rate of 4 hours of sun for 24 hours of camera usage. Ensure that the battery capacity is capable of operating the sign for a period of 18 days without sunlight.

D. Electronics

1. Cellular (CDMA), microwave, or 802.11 bandwidth option.
2. Work lights in all cabinets.
3. Remote trailer diagnostics (battery level, charging output, etc.).

E. Camera and Software

Ensure that the camera has the following characteristics:

1. Dome Camera in a heavy duty plastic dome or with a weather resistant case.
2. Impact resistant viewing window.
3. Minimum resolution of NTSC 704 (H) x 480 (V).
4. Backlight compensation.
5. Image stabilization.
6. Light Sensitivity 0.02 lux NIR Mode.
7. Auto Focus with Manual Focus capability.
8. Auto White Balance with Manual White Balance capability.
9. Motorized Zoom up to 16x optical, 10x digital.
10. Motorized Pan-Tilt, pan 360°, tilt 180°.
11. Thermostatically controlled heater and defroster -50° to 140°F operating range.
12. Windshield wiper.
13. 24/7 operation in all weather conditions.
14. Time and date stamp.

Ensure the software provides the following functionality:

1. Remote control of pan, tilt and zoom.
2. Display of streaming video in MPEG format, motion-JPEG, and single snapshot JPEG images, remotely interchangeable by using central software.
3. Preset controls of pan/tilt/zoom combinations. Ensure all presets are accessible from a drop-down menu with descriptive name of preset. Set first 8 presets with quick- launch icons with graphical representation of the preset views.
4. Display of all the project's web cams in a single view screen.
5. Display of local time and weather conditions including temperature and humidity.
6. Saving images and sending e-mail images.
7. Viewing archived images via a graphical calendar control and storing archived images at least every five minutes.
8. Three levels of password protection: administrator, user, and guest, individual user accounts.
9. Monitoring and controlling the cameras using web access.

SECTION 1009 – HMA PLANT EQUIPMENT

1009.01 HMA PLANT

A. Requirements for HMA Mixing Plants.

THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAGH:

The HMA producer is required to have a quality control (QC) program plan approved annually by the ME as per Materials Approval Procedure MAP-102. The HMA producer is required to ensure that the QC plan conforms to the requirements outlined in the report entitled “Hot Mix Asphalt Quality Control Program Plan” prepared by the Department of Transportation and New Jersey Asphalt Paving Association. Failure to follow these requirements will result in rejection of HMA materials supplied by the HMA producer and removal of the HMA supplier from the QPL.

NJDOT TEST METHODS

THE FOLLOWING TEST METHODS ARE ADDED:

NJDOT B-10 – OVERLAY TEST FOR DETERMINING CRACK RESISTANCE OF HMA

A. Scope. This test method is used to determine the susceptibility of HMA specimens to fatigue or reflective cracking. This test method measures the number of cycles to failure.

B. Apparatus. Use the following apparatus:

1. Overlay Tester. An electro-hydraulic system that applies repeated direct tension loads to specimens. The machine features two blocks, one is fixed and the other slides horizontally. The device automatically measures and records a time history of load versus displacement every 0.1 sec at a selected test temperature.

   The sliding block applies tension in a cyclic triangular waveform to a constant maximum displacement of 0.06 cm (0.025 in.). This sliding block reaches the maximum displacement and then returns to its initial position in 10 sec. (one cycle).

2. Temperature Control System. The temperature chamber must be capable of controlling the test temperature with a range of 32 to 95 ^{o}F (0 to 35 ^{o}C).
3. Measurement System. Fully automated data acquisition and test control system. Load, displacement, and temperature are simultaneously recorded every 0.1 sec.
4. Linear Variable Differential Transducer (LVDT). Used to measure the horizontal displacement of the specimen (+/- 0.25 in.). Refer to manufacturer for equipment accuracy for LVDT.
5. Electronic Load Cell. Used to measure the load resulting from the displacement (5000 lb capacity). Refer to manufacturer for equipment accuracy for load cell.
6. Specimen Mounting System. Used two stainless steel base plates to restrict shifting of the specimen during testing. The mounting jig holds the two stainless steel base plates for specimen preparation.
7. Cutting Template.
8. Two Part Epoxy. Two part epoxy with a minimum 24 hour tensile strength of 600 psi (4.1 MPa) and 24 hour shear strength of 2,000 psi (13.8 MPa).
9. 10 lb weight (4.5 kg). Used to place on top of specimens while being glued to specimen platens**.**
10. ¼ inch Width Adhesive Tape. Placed over gap in plates to prevent the epoxy from bonding the plates together.
11. Paint or Permanent Marker. Used to outline specimens on platens for placement of epoxy.
12. 3/8-in. Socket Drive Handle with a 3-in. (7.6 cm) extension.

C. Procedure. Perform the following steps:

1. Sample Preparation.

a. Laboratory Molded Specimens - Use cylindrical specimens that have been compacted using the gyratory compactor (AASHTO T 312). Specimen diameter must be 6 inches (150 mm) and a specimen height must be 4.5 inches +/- 0.2 inches (115 +/- 5 mm).

Note 1 - Experience has shown that molded laboratory specimens of a known density usually result in a greater density (or lower air voids) after being trimmed. Therefore, it is recommended that the laboratory technician produce molded specimens with an air void level slightly higher than the targeted trimmed specimen. Determine the density of the final trimmed specimen in accordance with AASHTO T 166.

b. Core Specimens – Specimen diameter must be 6 inches +/- 0.1 inch (150 mm +/- 2 mm). Determine the density of the final trimmed specimen in accordance with AASHTO T166.

2. Trimming of Cylindrical Specimen. Before starting, refer to the sawing device manufacturer's instructions for cutting specimens.

a. Place the cutting template on the top surface of the laboratory molded specimen or roadway core. Trace the location of the first two cuts by drawing lines using paint or a permanent maker along the sides of the cutting template.

b. Trim the specimen ends by cutting the specimen perpendicular to the top surface following the traced lines. Discard specimen ends.

c. Trim off the top and bottom of the specimen to produce a sample with a height of (1.5 inches +/- 0.02 inches (38 mm +/- 0.5 mm).

d. Measure the density of the trimmed specimen in accordance with AASHTO T 166. If the specimen does not meet the density requirement as specified for performance testing for the mix being tested, then discard it and prepare a new specimen.

e. Air dry the trimmed specimen to constant mass, where constant mass is defined as the weight of the trimmed specimen not changing by more than 0.05% in a 2 hour interval.

3. Mounting Trimmed Specimen to Base Plates (Platens).

a. Mount and secure the base plates (platens) to the mounting jig. Cut a piece of adhesive tape approximately 4.0 inches (102 mm) in length. Center and place the piece of tape over the gap between the base plates.

b. Prepare the epoxy following manufacturer's instructions.

c. Cover a majority of the base plates (platens) with epoxy, including the tape. Glue the trimmed specimen to the base plates.

d. Place a 10 lb (4.5 kg) weight on top of the glued specimen to ensure full contact of the trimmed specimen to the base plates. Allow the epoxy to cure for the time recommended by the manufacturer. Remove the weight from the specimen after the epoxy has cured.

e. Turn over the glued specimen so the bottom of the base plates faces upward. Using a hacksaw, cut a notch through the epoxy which can be seen through the gap in the base plates. The notch should be cut as evenly as possible and should just begin to reach the specimen underneath the epoxy. Great care should be taken not to cut more than 1/16 inch (1.58 mm) into the specimen.

f. Place the test sample assembly in the Overlay Tester's environmental chamber for a minimum of 1 hour before testing.

4. Start Testing Device. Please refer to manufacturer's equipment manual prior to operating equipment.

a. Turn on the Overlay Tester. Turn on the computer and wait to ensure communication between the computer and the Overlay Tester occurs.

b. Turn on the hydraulic pump using the Overlay Tester's software. Allow the pump to warm up for a minimum of 20 minutes.

c. Turn the machine to load control mode to mount the sample assembly.

5. Mounting Specimen Assembly to Testing Device. Enter the required test information into the Overlay Tester software for the specimen to be tested.

a. Mount the specimen assembly onto the machine according to the manufacturer's instructions and the following procedural steps.

1. Clean the bottom of the base plates and the top of the testing machine blocks before placing the specimen assembly into the blocks. If all four surfaces are not clean, damage may occur to the machine, the specimen, or the base plates when tightening the base plates.
2. Apply 15 lb-in of torque for each screw when fastening the base plates to the machine.

6. Testing Specimen.

a. Perform testing at a constant temperature recommended by the New Jersey Department of Transportation for the mixture in question. This is typically either 59 °F (15 °C) or 77 °F (25 °C).

Note 3 – Ensure the trimmed specimen has also reached the constant temperature required.

b. Start the test by enabling the start button on the computer control program. Perform testing until a 93% reduction or more of the maximum load measured from the first opening cycle occurs. If 93% is not reached, run the test until a minimum of 1,200 cycles.

c. After the test is complete, remove the specimen assembly from the Overlay Tester machine blocks.

D. Report. Include the following items in the report:

1. Date and time molded or cored.
2. NJDOT mixture identification.
3. Trimmed specimen density.
4. Starting Load.
5. Final Load.
6. Percent decline (or reduction) in Load.
7. Number of cycles until failure.
8. Test Temperature

NJDOT R-1 – OPERATING INERTIAL PROFILER SYSTEMS FOR EVALUATING PAVEMENT PROFILES

THIS ENTIRE TEST METHOD IS CHANGED TO:

A. Scope. This test method describes the procedure for operating, verifying the calibration of an ASTM E 950 Class 1 Inertial Profiler System (IPS) and testing riding surface for pavement profiles evaluation.

B. Apparatus. Use an IPS that meets the requirements of AASHTO M 328 and ASTM E 950, Class 1 and the following:

1. Certify the IPS according to AASHTO R 56 at least every 2 years. If a system component is replaced, re-certify the system. Perform the certification at a site approved by the Department.
2. The data system provides the raw profile data in an ASCII format acceptable to the Department.
3. The computer program uses a high-pass filter set at 300 feet and reads an ASCII or text file for computing the International Roughness Index (IRI) in inches per mile.
4. The current version of *ROADRUF*, *ProVal*, or other Department approved pavement profile analysis software is used to compute the IRI.

C. Procedure. Perform the following steps:

1. Operate the IPS according to AASHTO R 57 and ASTM E 950.
2. On a daily basis before data collection, check the equipment and operating system for operational stability and calibration. Perform necessary calibration procedures according to equipment manufacturer's procedures and applicable standards. Operators shall maintain a log documenting the calibration history.
3. Ensure that the operators of the IPS have completed a profile training course, such as NHI Course 131100, have been trained specifically on the IPS they will be operating, and are proficient in the operation of the IPS.
4. Make provisions to automatically start and stop the IPS recording at the beginning and end of testing.
5 Ensure retroreflective traffic striping tape or other approved mechanism is placed at the beginning and end of each direction of travel for automatically triggering the start and stop of profile measurements.
6. Collect at least 0.05-mile of data before the area to be tested to allow the system to stabilize before profile measurements are obtained. Collect data in a continuous run through the length to be tested. If the run is interrupted, discard the results and re-run the length.

7 Test the full extent of each wheel path of each lane in the longitudinal direction of travel. The wheel path is defined as being located approximately 3 feet on each side of the centerline of the lane and extending for the full length of the lane. Lanes are defined by striping.

8 Run three tests each wheel path and report average of three runs each wheel path.

9. Exclude locations where the traffic striping includes turn lanes that cause the through traffic lane to cross over a longitudinally paved joint, ramps, and lanes such as acceleration and deceleration lanes of less than 1,000 feet of continuous through treatment.

10 Report single IRI value average of 3 runs unless otherwise directed. The single IRI value shall be each 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.

FHWA ATTACHMENT NO. 1

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements forsupplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall notuse convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts

should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminateon the grounds of race, color, religion, sex, national origin, age or disabilityin the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The

employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing

work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d.If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a.Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment.A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transactionrequiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tierparticipant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous.A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check theExcluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from

participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

FHWA ATTACHMENT NO. 2

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these Specifications:
   a. Covered area means the geographical area in which the Project is located.
   b. Director means Director, Office of Federal Contract Compliance Programs, United States Department of Labor or any person to whom the Director delegates authority.
   c. Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, US Treasury Department Form 941.
   d. Minority includes:
      (1) Black (a person having origins in any of the black African racial groups not of Hispanic origin);
      (2) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
      (3) Asian and Pacific Islander (a person having originals in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (4) American Indian or Alaskan Native (a person having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participating 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 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p of these specifications. The goals set forth in the solicitation from which this contract resulted 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 each construction trade in which it has employees in the covered area. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
4. 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 under these Specifications, Executive Order 111246, or the regulations promulgated pursuant thereto.
5. 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 US Department of Labor.
6. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications 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. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites 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 foreman, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment with specific attention to minority or female individual working at such sites or in such facilities.

b. 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.

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 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 back to the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the contractor a minority person or women 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. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women including upgrading programs and apprenticeship and trainee 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 source compiles under 6b above.

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 under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on site 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 females and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 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 under these specifications 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 Contraction 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.

7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a 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 6A through p of these Specifications provided that the Contractor actively participates in the group, make every effort to assure that the group has a positive impact on the employment of minorities and females in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, make a good faith effort to meet its individual goals 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 noncompliance.

8. A single goal for minorities and a separate single goal 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 nonminority. Consequently, the Contractor may be in violation of the Executive Order 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 of the Executive Order if a specific minority group of women is underutilized).

9. The Contractor shall not use the goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

10. The Contractor shall not enter any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

11. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspensions, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246 as amended.

12. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 6 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the

Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

13. 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 relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (such as 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.

14. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (such as those under the Public Works Employment Act of 1977 and the community Development Block Grant Program).

15. Noncompliance by the Contractor with the requirements of the Affirmative Action Program for Equal Employment Opportunity may be cause for delaying or withholding monthly and final payments pending corrective and appropriate measures by the Contractor to the satisfaction of the Department.

FHWA ATTACHMENT NO. 3

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The goals for minority and female participation, in the covered area, expressed in percentage terms for the Contractor's aggregate work force in each trade, on all construction work are as shown on Page 2.

   These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4. (3) a, and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
2. The Contractor will provide the Department with written notification in triplicate within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification will list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
3. As used in this Notice and in the Contract resulting from this solicitation the covered area is the county or counties in which the Project is located.
4. If a project is located in more than one county, the minority work hours goal, only, will be determined by the county which serves as the primary source of hiring or, if workers are obtained almost equally from one or more counties, the single minority goal will be the average of the affected county goals.

WORK HOUR GOALS IN EACH TRADE FOR MINORITY AND FEMALE PARTICIPATION

COUNTY	MINORITY PARTICIPATION PERCENT	FEMALE PARTICIPATION PERCENT
Atlantic	18.2	6.9
Bergen	15	6.9
Burlington	17.3	6.9
Camden	17.3	6.9
Cape May	14.5	6.9
Cumberland	16	6.9
Essex	17.3	6.9
Gloucester	17.3	6.9
Hudson	12.8	6.9
Hunterdon	17	6.9
Mercer	16.4	6.9
Middlesex	15	6.9
Monmouth	9.5	6.9
Morris	17.3	6.9
Ocean	17	6.9
Passaic	12.9	6.9
Salem	12.3	6.9
Somerset	17.3	6.9
Sussex	17	6.9
Union	17.3	6.9
Warren	1.6	6.9

FHWA ATTACHMENT NO. 4

STATE OF NEW JERSEY EQUAL EMPLOYMENT OPPORTUNITY FOR CONTRACTS FUNDED BY FHWA

The parties to this Agreement do hereby agree that the provisions of NJSA 10:2-1 through 10:2-4 and NJSA 10:5-31 et seq (PL 1975, c 127, as amended and supplemented) dealing with discrimination in employment on public contracts, and the rules and regulations promulgated pursuant thereunto, are hereby made a part of this contract and are binding upon them.

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

a. The Contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status or sex. The Contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status or sex. Such action shall include but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Division of Civil Rights/Affirmative Action setting forth provisions of this nondiscrimination clause;

b. The Contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status or sex;

c. The Contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Division of Civil Rights/Affirmative Action, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

e. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

f. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

g. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

The notices referred to in paragraphs a and c may be obtained at the preconstruction conference.

FHWA ATTACHMENT NO. 5

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION ATTACHMENT
FHWA FUNDED CONTRACTS

I UTILIZATION OF DISADVANTAGED BUSINESSES AS CONTRACTORS, MATERIAL SUPPLIERS AND EQUIPMENT LESSORS.

The New Jersey Department of Transportation (NJDOT) advises each contractor or subcontractor that failure to carry out the requirements set forth in this attachment shall constitute a breach of contract and, after the notification of the applicable federal agency, may result in termination of the agreement or contract by the Department or such remedy as the Department deems appropriate. Requirements set forth in this section shall also be physically included in all subcontracts in accordance with USDOT requirements.

II POLICY

It is the policy of NJDOT that Disadvantaged Business Enterprises, as defined in 49 CFR, Part 26; Titles I & V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA); the Transportation Equity Act for the 21st Century (TEA-21); and Section V, Part B below, shall have equal opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR, Part 26, Subsections A, C and F apply to this agreement.

III CONTRACTOR'S DBE OBLIGATION

The NJDOT and its Contractor agree that Disadvantaged Business Enterprises, as defined in 49 CFR Part 26, Subpart A; and in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), and Section V, Part B below, have equal opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this agreement. In this regard, the NJDOT and all Contractors shall take all necessary and reasonable steps in accordance with 49 CFR, Part 26 to ensure that Disadvantaged Businesses are given equal opportunity to compete for and to perform on NJDOT federally funded contracts. The NJDOT and its Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of USDOT assisted contracts.

IV COMPLIANCE

To signify and affirm compliance with the provisions of this attachment, the bidder shall complete the Schedule of DBE Participation (Form CR-266F) included in the bid package and all forms and documents required in Sections VII and VIII of these provisions which will be made a part of the resulting contract.

V GOALS FOR THIS PROJECT

A. This Project includes a goal of awarding 12 percent of the total contract value to subcontractors, equipment lessors and/or material suppliers that qualify as Disadvantaged Business Enterprises (DBEs).

   1. Failure to meet the minimum goal placed on this project, or to provide a "good faith effort" to meet the minimum goal, may be grounds for rejection of the bid as being non-responsive.

   2. As a source of information only, a Disadvantaged Business Enterprise Directory is available from the Division of Civil Rights and Affirmative Action. Use of this listing does not relieve the Contractor of their responsibility to seek out other DBE's not listed, prior to bid. If a contractor proposes to use a DBE contractor not listed in the DBE Directory, the proposed DBE firm must submit a completed certification application to the Division of Civil Rights and Affirmative Action, fifteen (15) days prior to bid date.

B. DEFINITIONS

1. Disadvantaged Business Enterprise is a firm, "Owned and controlled" by socially and economically disadvantaged individuals that is also a small business concern, as defined pursuant to Section 3 of the Small Business Act and Small Business Administration Regulations (13 CFR, Part 121) which also does not exceed the revenue cap on averaged annual gross receipts applicable to the firm's particular Standard Industrial Classification (SIC Code).

2. Owned and Controlled is defined as a firm which is at least fifty-one (51%) percent owned by one or more disadvantaged individuals, or in the case of a publicly owned business, at least fifty-one (51%) percent of the stock is owned by one or more disadvantaged individuals, and whose management and daily business operations are controlled by one or more such individuals.

3. Any individual in one of the following groups who is also a U.S. Citizen or lawfully admitted permanent resident presumed to be socially and economically disadvantaged under the DBE Program.
   (a) Black Americans – includes any persons having origins in any of the black racial groups of Africa;
   (b) Hispanic Americans - includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture; or origin, regardless of race;
   (c) Native American - includes persons who are American Indians, Eskimos, Aleuts or Native Hawaiians;
   (d) Asian-Pacific Americans - includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau) the Commonwealth of the Northern Mariana Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia or Hong Kong;
   (e) Subcontinent Asian Americans - includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
   (f) Women - regardless of race;
   (g) Other - Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration, at such time as the SBA designation becomes effective; or a determination made by the NJDOT's Division of Civil Rights and Affirmative Action, on a case-by-case basis;

VI COUNTING DBE PARTICIPATION

A. Each DBE is subject to a certification procedure to ensure its DBE eligibility status prior to award of contract. In order to facilitate this process it is advisable for the bidder to furnish the names of proposed DBE's to the Department fifteen (15) days before bid opening. Once a firm is determined to be a bona fide DBE by the Division of Civil Rights and Affirmative Action, the total dollar value of the contract awarded to the DBE is counted toward the applicable DBE goal.

B. The Contractor may count toward its DBE goal only expenditures to DBE's that perform a commercially useful function in the work of a contract. A DBE is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carrying out its responsibility by actually performing, managing and supervising the work involved. To determine whether a DBE is performing a commercially useful function, the Contractor shall evaluate the amount of work subcontracted, industry practice and other relevant factors.

C. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own workforce, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, you must presume that it is not performing a commercially useful function.

D. If the prime Contractor is a certified DBE, payments made to the Contractor for work performed by the Contractor will be applied toward the DBE goal. Payments made to the Contractor for work performed by non-DBE's will not be applied toward the goal.

E. The prime Contractor may count 60 percent of its expenditures to DBE suppliers who are not Manufacturers, provided that the DBE supplier performs a commercially useful function in the supply process. The contractor may count 100% of its expenditure to DBE suppliers who are also manufacturers. Manufacturers receive 100% credit toward the DBE goal.

F. When a DBE subcontractor sublets part of the work of its contract to another firm, the value of the subcontract work may be counted towards the DBE goals only if the subcontractor itself is a DBE. Work that a DBE subcontractor subcontracts to a non-DBE firm, does not count toward DBE goals.

VII GOOD FAITH EFFORT

To demonstrate sufficient reasonable efforts to meet the DBE contract goals, a bidder shall document the steps it has taken to obtain DBE participation, including but not limited to the following:

A. Attendance at a pre-bid meeting, if any, scheduled by the Department to inform DBE's of subcontracting opportunities under a given solicitation.

B. Advertisement in general circulation media, trade association publications, as well as minority-focus media for at least 20 days before bids are due. If 20 days are not available, publication for a shorter reasonable time is acceptable.

C. Written notification to DBE's that their interest in the contract is solicited;

D. Efforts made to select portions of the work proposed to be performed by DBEs in order to increase the likelihood of achieving the stated goal;

E. Efforts made to negotiate with DBE's for specific sub-bids including at a minimum:
   1. The names, addresses and telephone numbers of DBE's that were contacted;
   2. A description of the information provided to DBE's regarding the plans and Specifications for portions of the work to be performed; and
   3. A statement of why additional agreements with DBE's were not reached;

F Information regarding each DBE the bidder contacted and rejected as unqualified and the reasons for the bidder's conclusion;

G. Efforts made to assist the DBE in obtaining bonding or insurance required by the Bidder or the Department.

NOTE: If the Division of Civil Rights and Affirmative Action determines that the apparent successful low bidder has failed to meet the requirements of this section, the bidder will be afforded the opportunity for administrative consideration prior to the award or rejection of the contract. As part of the administrative reconsideration process, the bidder will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. NJDOT will send the bidder a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the USDOT.

VIII AFFIRMATIVE ACTION PLANS

A. General contractors are required to submit their firm's Affirmative Action Program annually to the Division of Civil Rights and Affirmative Action. Until such time as these programs are submitted and approved, Contractors must have their programs in the Division of Civil Rights and Affirmative Action no later than seven (7) State business days after the date of receipt of bids.

B. This program will include, but is not limited to the following:
   1. The name of the Contractor's D/ESBE Liaison Officer to administer the firm's Disadvantaged Business Program.

2. An explanation of the affirmative action methods used in seeking out and considering Disadvantaged Business Enterprises as subcontractors, material suppliers or equipment lessors.
3. An explanation of affirmative action methods intended to be used in seeking out and considering Disadvantaged Business Enterprises as subcontractors, material suppliers or equipment lessors. This refers to the Contractor's ongoing responsibility, i.e., Disadvantaged Business Enterprise/Affirmative Action activities after the award of the contract and for the duration of said project.

C. The following shall be submitted either with the bid or to the Division of Civil Rights and Affirmative Action no later than seven (7) State business days after the date of receipt of bids.
1. DBE Form CR-266F- Schedule of DBE Participation. List all DBE's participating in the contract listing the scope of work, dollar value and percent of total contract to be performed.
2. Supplement to DBE Form CR-266F - A list of all subcontractors who submitted bids or quotes on this project.
3. Request for Exemption - In the event that the bidder fails to meet the specified goal, they must submit within seven State business days of the bid, a written request for exemption to the goal. This request must include a written statement addressing Items A through G in Article VII of this attachment in addition to an accounting of the reason(s) why each items in the bid proposal was not subcontracted. Submittal of such request does not imply Departmental approval. An assessment of the material will be conducted by the Department's Division of Civil Rights and Affirmative Action.

IX AFFIRMATIVE ACTION AFTER AWARD OF THE CONTRACT

If at any time following the award of contract, the Contractor intends to sublet any portion(s) of the work under said contract, or intends to purchase material or lease equipment not contemplated during preparation of bids, said Contractor shall take affirmative action:

1. To notify the RE, in writing, of the type and approximate value of the work which the Contractor intends to accomplish by such subcontract, purchase order or lease.
2. To signify and affirm compliance with the provisions of this Section, the Contractor shall submit the Post-Award DBE Certification Form to the Regional Supervising Engineer with his application to sublet or prior to purchasing material or leasing equipment. Post Award DBE forms may be obtained from the RE.
3. To give disadvantaged firms equal consideration with non-minority firms in negotiation for any subcontracts, purchase orders or leases.
4. If a prime contractor fails to meet its original DBE obligation, they must request an exemption to the goal following criteria in Section VIII (C)(4) and provide a good faith effort thereof. This request must include a written statement addressing each of the Good Faith Efforts outlined in Section VII, A-G.

X CONSENT BY DEPARTMENT TO SUBLETTING

The Department will not approve any subcontract proposed by the Contractor unless and until said Contractor has complied with the terms of this attachment.

XI SELECTION AND RETENTION OF SUBCONTRACTORS

A. The Contractor is further obligated to provide the RE with a listing of firms, organizations or enterprises solicited and those utilized as subcontractors on the proposed project. Such listing shall clearly delineate which firms are classified as disadvantaged.

B. Efforts made to identify and retain a Disadvantaged Business Enterprise as a substitution subcontractor when the arrangements with the original DBE proved unsuccessful, shall be submitted in writing to the Department's D/ESBE Liaison Officer for approval. Work in the category concerned shall not begin until such approval is granted in writing.

C. Notification of a subcontractor's termination will be sent to the Department by the Contractor through the RE. Said termination notice will include the subcontractor's ethnic classification and reason for termination.

XII CONCILIATION

In cases of alleged discrimination regarding these DBE provisions and guidelines, an investigation will be undertaken by the Federal Office of Contract Compliance in conjunction with the Division of Civil Rights and Affirmative Action of the New Jersey Department of Transportation and the Federal Highway Administration.

XIII DOCUMENTATION

A. The Department or the federal funding agencies may at any time require such information as is deemed necessary in the judgment of the Department to ascertain the compliance of any bidder or contractor with the terms of these provisions.

B. Record and Reports.

The Contractor shall keep such records as are necessary to determine compliance with its Disadvantaged Business Enterprise Utilization obligations. The records kept by the Contractor will be designed to indicate:

1. The names of disadvantaged subcontractors, equipment lessors and material suppliers contacted for work on this project.
2. The type of work to be done, materials to be utilized or services to be performed other than the work of the prime contractor on the project.
3. The actual dollar value of work subcontracted and awarded to DBE's.
4. The progress being made and efforts taken in seeking out and utilizing Disadvantaged Business Enterprises. This would include solicitations, quotes and bids regarding project work items, supplies, leases, etc.
5. Documentation of all correspondence, contacts, telephone calls, etc., to obtain the services of Disadvantaged Business Enterprises on this project.
6. Records of all DBE's and non-DBEs who have submitted quotes/bids to the Contractor on the project.

C. Submit reports, as required by the Department, on those contracts and other business transactions executed with Disadvantaged Business Enterprises in such form and manner as may be prescribed by the Department.

D. All such records must be maintained for a period of three (3) years following acceptance of final payment and will be available for inspection by the Department.

XIV PAYMENT TO SUBCONTRACTORS

The Contractor agrees to pay its subcontractors in accordance with the Specifications.

XV NON-COMPLIANCE

Failure by the bidder to comply with the Specifications may result in rejection of the bid. The Contractor may further be declared ineligible for future Department contracts.

FHWA ATTACHMENT NO. 5 (A)

INCENTIVE PROGRAM DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION ATTACHMENT FOR FHWA FUNDED CONTRACTS

I PURPOSE.

To ensure that certified Disadvantaged Business Enterprises (DBE's), as defined in 49 CFR Part 26, have the maximum opportunity to compete for and perform on Department construction projects.

II INTENT.

To encourage prime contractors to utilize the services of DBE's who have not previously been prime contractors or subcontractors on Department projects, and afford DBE's the opportunity to again experience in Department construction contract work.

III ELIGIBILITY.

Only prime contractors and DBE's certified prior to the date of bid, or prospective DBE's that have submitted to the Division of Civil Rights/Affirmative Action on or before the day of bid a completed "New Jersey Department of Transportation Disadvantaged Business Enterprise Disclosure Affidavit" (PR-131) and all required documentation and have never been either prime contractor or subcontractor on Department construction projects will be eligible for participation in this program. A list of those eligible DBE's will be available from the Division of Civil Rights/Affirmative Action. Any bidder who submits the name of a certified first-time DBE as part of its goal commitment is also eligible. Any DBE participating in the program must submit to the prime contractor a certification that they have never been either a prime contractor or subcontractor on a Department construction project under their present name or any other name. The prime contractor shall submit this certification with their required DBE submission.

IV INCENTIVE.

Prime contractors utilizing first-time DBE's will be given a credit toward their goal percentage identified in companion document "*Disadvantaged Business Enterprise Utilization Attachment For FHWA Funded Contracts*", dated September 1987, revised January 1989, September 1992 and May 1995, equal to the actual dollar amount subcontracted to a first time DBE with the total project credit limited to two percent (2%) of the total bid price but not to exceed $200,000. This extra credit will reduce the goal percentage award as well as be applicable to the reduced goal percentage.

V PROGRAM REQUIREMENTS.

A. A prime contractor may present any number of first time DBE's for each project. Credit will be given only for the actual amount subcontracted up to the limits established in IV above.

B. The prime contractor shall be responsible for the entire DBE goal percentage established for the project.

C. Failure to use a first time DBE shall cause the original goal award percentage prior to applying first time DBE credits to remain in effect.

D. Failure to meet the goal award percentage, coupled with a lack of good faith effort as determined by the Division of Civil Rights/Affirmative Action, will be considered to be non-compliance on the part of the prime contractor who may be placed in show cause and subsequently be grounds for rejection of the bid as nonresponsive.

FHWA ATTACHMENT NO.6

EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS

1. General

   a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract Provisions (Form FHWA-1273) and these Special Provisions which are imposed pursuant to Section 140 of Title 23 USC, as established by Section 22 of the Federal Aid Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the Equal Employment Opportunity requirements set forth in the Required Contract Provisions.

   b. The Contractor will work with the State agencies and the Federal Government in carrying out Equal Employment Opportunity obligations and in their review of activities under the contract.

   c. The Contractor and all subcontractors holding subcontracts, not including material suppliers, of $10,000 or more, will comply with the following minimum specific requirement activities of Equal Employment Opportunity. The Contractor will include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor. (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors).

   d. Noncompliance by the Contractor with the requirements of the Affirmative Action Program for Equal Employment Opportunity may be cause for delaying or withholding monthly and final payments pending corrective and appropriate measures by the Contractor to the satisfaction of the Department.

2. Equal Employment Opportunity Policy

   The Contractor will accept as its operating policy the following statement which is designed to further the provisions of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

   It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, or national origin. Such action shall include employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and on-the-job training.

3. Equal Employment Opportunity Officer

   The Contractor will designate and make known to the Department contracting officers an equal opportunity officer (hereinafter referred to as the EEO Officer) who will have the capability, authority and responsibility to effectively implement and promote an active contractor program of equal employment opportunity.

4. Dissemination of Policy

   a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommended such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure compliance, the following minimum actions will be taken:

(1) An initial project site meeting with key supervisory and office personnel will be conducted before or at the start of work, and then not less than once every 6 months, at which time the Contractor's equal employment opportunity program will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
(2) All new supervisory and office personnel will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the Contractor's equal employment opportunity obligations within 30 days following their reporting for duty with the Contractor.
(3) All personnel engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official concerning the Contractor's procedures for locating and hiring minority and female employees.

b. In order to make the Contractor's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor will take the following actions:
(1) Notices and posters setting forth the Contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
(2) The Contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, and/or other appropriate means.

5. Recruitment

a. When advertising for employees, the Contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer". All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

b. The Contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment agencies, schools, colleges and minority-oriented organizations. To meet this requirement, the Contractor will, through his EEO Officer, identify sources of potential minority and female employees, and establish procedures with such sources whereby applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with the equal employment opportunity contract provisions. (The US Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or females, or obligates the Contractor to do the same, such implementation violates Executive Order 11246, as amended).

c. The Contractor will encourage his present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures pertaining to the referral of applicants will be discussed with employees.

6. Personnel Actions

Wages, working conditions and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, or national origin. The following procedures shall be followed:

a. The Contractor will conduct a project site inspection at the start of work, and periodically thereafter, to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The Contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The Contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The Contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this contract, and will resolve or attempt to resolve such complaints, within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform complainants of available avenues of appeal.

7. Training Special Provisions

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journey people in the type of craft or job classification involved.

The number of training positions will be__9__, where feasible, consisting of at least__3__ APPRENTICES and __6__TRAINEES. TRAINEE HOURS=__5,800__.

Apprentices are defined as registered members of an approved apprenticeship program recognized by the United States Department of Labor (USDOL) Bureau of Apprenticeship and Training (BAT) or a New Jersey State apprenticeship agency recognized by USDOL BAT (e.g., New Jersey Department of Education). Graduates of the Pre-Apprenticeship Training Cooperative Program shall be classified as apprentices. Trainees are defined as skilled, semi-skilled or lower level management individuals receiving training per one of the approved NJDOT "Revised Standard Training Guidelines" (available from the Division of Civil Rights).

Where feasible, at least 50% of the training positions will be assigned to Skilled Crafts which include but are not limited to Carpenters, Dockbuilders, Electricians, Ironworkers and Operating Engineers.

a. Contractor Submission and NJDOT Approval of the Initial Training Program.

At or after the preconstruction conference and prior to the start of work, the Contractor shall submit a training program to the RE for his or her review and comments prior to Division of Civil Rights review and approval. The Contractor's training program shall include:
(1) the number of trainees or apprentices to be trained in all selected Training Positions,
(2) the Standard Program Hours for all positions,
(3) an estimate of the Minimum Available Hours actually feasible on the project toward completion of the Standard Program Hours per position,
(4) a training schedule of Estimated Start Dates for the apprentices or trainees, developed and coordinated with the project's work progress schedule,
(5) Training Guidelines for all positions, and
(6) which training will be provided by the Contractor and which by Subcontractors.

The number of apprentices and trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeypeople in the various crafts within a reasonable area of recruitment. The Contractor shall submit timely, revised training programs as required throughout the project to ensure that feasible and Maximum Available Training is provided. Maximum Available Training is defined as bringing each apprentice or trainee onto the project when work first becomes available in his/her craft and providing all available training until hours are no longer available.

b. Assignment of Training to Subcontractors

In the event that portions of the contract work are subcontracted, the Contractor shall determine how many, if any, of the apprentices or trainees are to be trained by subcontractors, provided,

however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by these Training Special Provisions. The Contractor shall also ensure that these Training Special Provisions are made applicable to such subcontracts.

c. Requirements for Recruitment, Selection and Approval of Apprentices and Trainees
   (1) Apprentices or trainees should be in their first year of apprenticeship or training. The Contractor shall interview and screen trainee candidates to determine if their actual work experience is equivalent to or exceeds that offered by the training program prior to submitting candidates, via the RE, to the Division for review and approval or disapproval.
   (2) Training and upgrading of minorities (e.g., Blacks, Asians or Pacific Islanders, Native Americans or Alaskan Natives, Hispanics) and females toward journeyperson status is a primary objective of these Training Special Provisions. Accordingly, the Contractor shall make every effort to enroll minorities and females, by conducting systematic and direct recruitment through public and private sources likely to yield minority and female apprentices or trainees, to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.
   (3) No employee shall be employed as an apprentice or trainee in any position in which he or she has successfully completed a training course leading to journeyperson status or in which he or she has been employed as a journeyperson. The Contractor shall satisfy this requirement by including appropriate questions in the employment application or by other suitable means and by submitting an accurate and complete “Apprentice/Trainee Approval Memorandum.” (Form CR-1) Regardless of the methods used, the Contractor’s records should document the findings in each case.
   (4) Skilled craft trainees may complete up to 3,000 total training hours on NJDOT projects, with an extension of an additional 1,000 hours permitted on a case-by-case basis. Semi-skilled and lower-level management trainees attain journeyperson status upon completion of a training guideline and may complete up to three (3) different positions.

d. Apprenticeship and Training Programs
   (1) The minimum length and type of training for each position will be established in the training program selected by the Contractor and approved by NJDOT and the Federal Highway Administration. NJDOT will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average apprentice or trainee for journeyperson status in the craft concerned by the end of the training period.
   (2) Apprenticeship programs registered with the US Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by USDOL BAT and training programs approved but not necessarily sponsored by the US Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided such programs are being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the NJDOT Division of Civil Rights prior to commencing work on the positions covered by the Contractor’s training program. The Division will review guidelines developed by the Contractor for approval or disapproval in accordance with the Training Guideline Approval Process described in the “Revised Standard Training Guidelines”. The Division will also review existing guidelines for revision based on the same process.
   (3) It is the intention of these provisions that training be provided in construction crafts rather than clerk-typist or secretarial-type positions. Training is permitted in lower level management positions (e.g., timekeepers), where the training is oriented toward project site applications. Training in semi-skilled laborer positions is permitted provided that significant and meaningful training is available on the project site. Some offsite, classroom training (e.g., safety, first aid instruction) may be permitted as long as such training is an integral part of an approved training program and does not comprise a significant part of the overall training.

e. Reimbursement of the Contractor for Providing Training

(1) The Contractor will be credited for each apprentice or trainee employed on the construction site who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such apprentices or trainees as provided hereinafter. Payment will be made under the pay item Trainees at the bid price in the Proposal per person-hour of training given an employee on this contract in accordance with an approved training program. If approved, payment will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other sources do not specifically prohibit the Contractor from receiving other reimbursement. Offsite, classroom training reimbursement may only be made to the Contractor when the company does one or more of the following and the apprentices or trainees are concurrently employed on a Federal-aid project: contributes to the cost of the training and/or provides instruction to apprentices or trainees or pays their wages during the offsite, classroom training (e.g., safety, first aid instruction) period.
(2) The Contractor shall pay apprentices and trainees according to the project-specific New Jersey Department of Labor Prevailing Wage Rate Determination for the project.

f. Documentation Required to be Signed by Apprentices or Trainees and provided to NJDOT
(1) At the start of training, the Contractor shall provide the RE and each apprentice or trainee with an applicable “Training Guideline” and, at the conclusion of training, an accurate and complete “Training Certificate for Reporting Hours to NJDOT” (Form CR-3), showing hours of training satisfactorily completed.
(2) The Contractor shall maintain and submit an accurate and complete “NJDOT Contractor’s 1409 Quarterly Training Report” (Form-CR-1409) to the RE within ten (10) days of the end of each training quarter (e.g., January 10, April 10, July 10, October 10); a copy shall also be given to each apprentice or trainee.
(3) The Contractor shall maintain and submit accurate and complete “Biweekly Training Reports” (Form CR-2) to the RE, and each apprentice or trainee, as periodic reports documenting performance under these Training Special Provisions.

g. Training and Promotion
(1) The Contractor shall assist in locating, qualifying, and increasing the skills of minority and female employees, and applicants for employment.
(2) The Contractor shall advise employees and applicants for employment of available training programs and entrance requirements.
(3) The Contractor shall periodically review the training and promotion potential of minority and female employees and encourage eligible employees to apply for such training and promotion.

h. Determining Good Faith Compliance
(1) Per the approved program or guideline, the Contractor shall provide Maximum Available Training to apprentices and trainees by beginning their training as soon as feasible with the start of craft work utilizing the skill involved on the project construction site and by retaining them as long as training opportunities exist in their crafts or until their training program positions are completed.
(2) The Contractor shall recall apprentices or trainees released due to reductions in force when the work scope permits and they are available to return. When they are unavailable to resume training on the project site, the Contractor shall submit written proof of recall efforts and replacement candidates and/or positions in a timely manner. The Contractor shall not terminate apprentices or trainees prior to completion of their training program positions without NJDOT consultation and authorization. Apprentices or trainees are not required to be on board for the entire length of the contract.
(3) The Contractor shall have fulfilled the contractual responsibilities under these Training Special Provisions if the company has provided Acceptable Training to the number of apprentices or trainees specified in this contract and/or by providing the remaining hours required to complete training positions begun by apprentices or trainees on other projects. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.
(4) The Contractor shall be responsible for demonstrating all steps that have been taken in pursuance of enrolling minorities and females in the training program positions, prior to a

determination as to whether the Contractor is in compliance with these Training Special Provisions.

(5) The Contractor shall submit to the RE written training program summaries at the 50% time and/or cost stage of the contract and also prior to project completion, describing all good faith actions and particularly addressing Maximum Available Training for incomplete training positions, per the procedure found in the revised "Instructions for Implementing the Training Special Provisions".

i. Enforcement Measures and Contractor's Rating

(1) Payment will not be made if either the failure to provide the required training or the failure to hire the apprentice or trainee as a journeyperson is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of these Training Special Provisions.

(2) Per established procedures and scheduled Contract Compliance Reviews, the Contractor's performance will be rated and reviewed periodically by the Department.

(3) Noncompliance with these Training Special Provisions may be cause for delaying or withholding monthly and final payments, pending corrective and appropriate measures by the Contractor to the satisfaction of the Department, per Item 1d of these EEO Special Provisions.

8. Unions

If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will make maximum effort to obtain the cooperation of such unions to increase opportunities for minorities and females within the unions, and to effect such union referrals to the construction project. Actions by the Contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The Contractor will use maximum effort to develop, in cooperation with the unions, joint training programs aimed at qualifying more minorities and females for union membership and increasing their skills in order to qualify for higher paying employment.

b. The Contractor will use maximum effort to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin.

c. The Contractor will obtain information concerning the referral practices and policies of the labor unions except that to the extent such information is within the exclusive possession of the labor unions and they refuse to furnish this information to the Contractor, the Contractor shall so certify to the Department and shall set forth what efforts have been made to obtain this information.

d. In the event the unions are unable to provide the Contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, the Contractor will through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, or national origin, making full efforts to obtain qualified and/or qualifiable minorities and females. (The US Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees). In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such Contractor shall immediately notify the Department.

9. Subcontracting

a. The Contractor will use maximum effort to solicit bids from and to utilize minority subcontractors or subcontractors with meaningful minority and female representation among their employees. Contractors may use lists of minority-owned construction firms as issued by the Department.

b. The Contractor will use maximum effort to ensure subcontractor compliance with the equal employment opportunity obligations.

10. Documents and Reports

a. The Contractor will maintain such documents as are necessary to determine compliance with the contract's equal employment opportunity requirements. Documents will include the following:
   (1) the number of minorities, non-minorities, and females employed in each work classification on the Project.
   (2) the progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and females (applicable only to Contractors who rely in whole or in part on unions as a source of their work force).
   (3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
   (4) the progress and efforts being made in securing the services of minority and female subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such documents must be retained for a period of 3 years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department and the Federal Highway Administration.

c. The contractor and each subcontractor must submit monthly employment and wage data to the Department via a web based application using electronic Form CC-257R. Instructions for registering and receiving the authentication code to access the web based application can be found at:
   http://www.state.nj.us/transportation/business/civilrights/pdf/cc257.pdf

   Instructions on how to complete Form CC257 are provided in the web application. Submit Form CC-257R through the web based application within 10 days following the end of the reporting month. Submission of this form also satisfies the requirement of the form FHWA 1391.

   All employment and wage data must be accurate and consistent with the certified payroll records. The contractor is responsible for ensuring that their subcontractors comply with these reporting requirements. Failure by the contractor to submit Monthly Employment Utilization Report may impact the contractor's prequalification rating with the Department.

FHWA ATTACHMENT NO.7

SPECIAL CONTRACT PROVISIONS FOR INVESTIGATING, REPORTING AND RESOLVING EMPLOYMENT DISCRIMINATION AND SEXUAL HARASSMENT COMPLAINTS

The contractor hereby agrees to the following requirements in order to implement fully the nondiscrimination provisions of the Supplemental Specifications.

The Contractor agrees that in instances when it receives from any person working on the project site a verbal or written complaint of employment discrimination, prohibited under N.J.S.A. 10:5-1 et seq., 10:2-1 et seq., 42 U.S.C. 2000(d) et seq., 42 U.S.C. 2000 (e) et seq. and Executive Order 11246, it shall take the following actions:

1. Within one (1) working day commence an investigation of the complaint which shall include but not be limited to interviewing the complainant, the respondent, and all possible witnesses to the alleged act or acts of discrimination or sexual harassment.
2. Prepare and keep for its use and file a detailed written investigative report which includes the following information:
   a) Investigatory activities and findings.
   b) Dates and parties involved and activities involved in resolving the complaint.
   c) Resolution and corrective action taken if discrimination or sexual harassment is found to have taken place.
   d) A signed copy of resolution of complaint by complainant and contractor.

   In addition to keeping in its files the above-noted detailed written investigative report, the contractor shall keep for possible future review by the Department all other records, including but not limited to, interview memos and statements.
3. Upon the request of the Department, provides to the Department within ten (10) calendar days a copy of its detailed written investigative report and all other records on the complaint investigation and resolution.
4. Take appropriate disciplinary action against any contractor employee, official or agent who has committed acts of discrimination or sexual harassment against any contractor employee or person working on the project. If the person committing the discrimination is a subcontractor employee, then the contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with project's contract requirements.
5. Take appropriate disciplinary action against any contractor employee, official or agent who retaliates, coerces or intimidates any complaint and/or person who provides information or assistance to any investigation of complaints of discrimination or sexual harassment. If the person retaliating, coercing or intimidating a complainant or other person assisting an investigation is a subcontractor's employee, then the contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with the project's contract requirements.
6. Ensure to the maximum extent possible that the privacy interests of all persons who give confidential information in aid of the contractor's employment discrimination investigation are protected.

In conjunction with the above requirements, the contractor shall develop and post a written sexual harassment policy for its work force.

Failure by the contractor to comply with the above requirements may be cause for the New Jersey Department of Transportation to institute against the contractor any and all enforcement proceedings and/or sanctions authorized by the contract or by state and/or federal law.

Attachment for Norfolk Southern Railroad's Requirement

Norfolk Southern – Special Provisions for Protection of Railway Interest

1. AUTHORITY OF RAILROAD ENGINEER AND DEPARTMENT ENGINEER:

   The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad traffic of his Company including the adequacy of the foundations and structures supporting the Railroad tracks. For Public Projects impacting Norfolk Southern, the Public Projects Engineer will serve as the Railroad Engineer.

   The authorized representative of the Department, hereinafter referred to as the Department Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.

2. NOTICE OF STARTING WORK:

   A. Department's Prime contractor shall not commence any work on railroad rights-of-way until he has complied with the following conditions:

      1. Given the Railroad written notice in electronic format to the Railroad Engineer, with copy to the Department Engineer who has been designated to be in charge of the work, at least ten days in advance of the date he proposes to begin work on Railroad rights-of-way.

      2. Obtained written approval from the Railroad of Railroad Protective Liability Insurance coverage as required by paragraph 14 herein. It should be noted that Railroad Company does not accept notation of Railroad Protective insurance on a certificate of liability insurance form or Binders as Railroad Company must have the full original countersigned policy. Further, please note that mere receipt of the policy is not the only issue but review for compliance. Due to the number of projects system-wide, it typically takes a minimum of 30-45 days for Railroad Company to review.

      3. Obtained Railroad's Flagging Services as required by paragraph 7 herein.

      4. Obtained written authorization from the Railroad to begin work on Railroad rights-of-way, such authorization to include an outline of specific conditions with which he must comply.

      5. Furnished a schedule for all work within the Railroad rights-of-way as required by paragraph 7.B.1.

   B. The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to

be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.

3. INTERFERENCE WITH RAILROAD OPERATIONS:

   A. The Contractor shall so arrange and conduct his work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights-of-way of the Railroad Company. Whenever work is liable to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor which requires flagging service or inspection service shall be deferred by the Contractor until the flagging service or inspection service required by the Railroad is available at the job site.

   B. Whenever work within Railroad rights-of-way is of such a nature that impediment to Railroad operations such as use of runaround tracks or necessity for reduced speed is unavoidable, the Contractor shall schedule and conduct his operations so that such impediment is reduced to the absolute minimum.

   C. Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or in his absence, the Railroad's Division Engineer, such provisions is insufficient, either may require or provide such provisions as he deems necessary. In any event, such unusual provisions shall be at the Contractor's expense and without cost to the Railroad or the Department.

   D. "One Call" Services do not locate buried railroad utilities. The contractor shall contact the railroad's representative 2 days in advance of work at those places where excavation, pile driving, or heavy loads may damage railroad underground facilities. Upon request from the contractor or agency, railroad forces will locate and paint mark or flag railroad underground facilities. The contractor shall avoid excavation or other disturbances of these facilities. If disturbance or excavation is required near a buried railroad facility, the contractor shall coordinate with the railroad to have the facility potholed manually with careful hand excavation. The facility shall be protected by the contractor during the course of the disturbance under the supervision and direction of the railroad representative.

4. TRACK CLEARANCES:

   A. The minimum track clearances to be maintained by the Contractor during construction are shown on the Project Plans. If temporary clearances are not shown on the project plans, the following criteria shall govern the use of falsework and formwork above or adjacent to operated tracks.

      1. A minimum vertical clearance of 22'-0" above top of highest rail shall be maintained at all times.

2. A minimum horizontal clearance of 13’-0” from centerline of tangent track or 14’-0” from centerline of curved track shall be maintained at all times. Additional horizontal clearance may be required in special cases to be safe for operating conditions. This additional clearance will be as determined by the Chief Engineer Bridges & Structures

3. All proposed temporary clearances which are less than those listed above must be submitted to the Chief Engineer Bridges & Structures for approval prior to construction and must also be authorized by the regulatory body of the State if less than the legally prescribed clearances.

4. The temporary clearance requirements noted above shall also apply to all other physical obstructions including, but not limited to: stockpiled materials, parked equipment, placement or driving of piles, and bracing or other construction supports.

B. Before undertaking any work within Railroad right-of-way, and before placing any obstruction over any track, the Contractor shall:

1. Notify the Railroad’s representative at least 72 hours in advance of the work.

2. Receive assurance from the Railroad’s representative that arrangements have been made for flagging service as may be necessary.

3. Receive permission from the Railroad’s representative to proceed with the work.

4. Ascertain that the Department Engineer has received copies of notice to the Railroad and of the Railroad’s response thereto.

5. CONSTRUCTION PROCEDURES:

A. General:

1. Construction work and operations by the Contractor on Railroad property shall be:

a. Subject to the inspection and approval of the Railroad or their designated Construction Engineering Representative.

b. In accord with the Railroad’s written outline of specific conditions.

c. In accord with the Railroad’s general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment.

d. In accord with these Special Provisions.

2. Submittal Requirements

a. The contractor shall submit all construction related correspondence and submittals electronically to the Railroad Engineer.

b. The contractor shall allow for 30 days for the Railroad's review and response.

c. All work in the vicinity of the Railroad's property that has the potential to affect the Railroad's train operations or disturb the Railroad's Property must be submitted and approved by the Railroad prior to work being performed.

d. All submittals and calculations must be signed and sealed by a registered engineer licensed in the state of the project work.

e. All submittals shall first be approved by the Department Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability.

f. For all construction projects, the following submittals, but not limited to those listed below, shall be provided for review and approval when applicable:

   i. General Means and Methods
   ii. Roadway Protection
   iii. Construction Excavation & Shoring
   iv. Pipe, Culvert, & Tunnel Installations
   v. Demolition Procedure
   vi. Erection & Hoisting Procedure
   vii. Debris Shielding or Containment
   viii. Blasting
   ix. Formwork for the bridge deck, diaphragms, overhang brackets, and protective platforms
   x. Bent Cap Falsework. A lift plan will be required if the contractor want to move the falsework over the tracks.

g. For Undergrade Bridges (Bridges carrying the Railroad) the following submittals in addition to those listed above shall be provided for review and approval:

   i. Shop Drawings
   ii. Bearing Shop Drawings and Material Certifications
   iii. Concrete Mix Design
   iv. Structural Steel, Rebar, and/or Strand Certifications
   v. 28 day Cylinder Test for Concrete Strength
   vi. Waterproofing Material Certification
   vii. Test Reports for Fracture Critical Members
   viii. Foundation Construction Reports

Fabrication may not begin until the Railroad has approved the required shop drawings.

h. The Contractor shall include in all submissions a detailed narrative indicating the progression of work with the anticipated timeframe to complete each task. Work will not be permitted to commence until the Contractor has provided the Railroad with a satisfactory plan that the project will be undertaken without scheduling, performance or safety related issues. Submission shall also provide a listing of the anticipated equipment to be used, the location of all equipment to be used and insure a contingency plan of action is in place should a primary piece of equipment malfunction.

B. Roadway Protection

1. The Contractor shall submit the proposed roadway protection system detailing the specific filter fabric and anchorage system to be used during all construction activities.

2. The roadway protection is to extend 25' beyond the proposed limit of work, be installed at the start of the project and be continuously maintained to prevent all contaminants from entering the ballast section of all tracks for the entire duration of the project.

C. Excavation:

1. The subgrade of an operated track shall be maintained with edge of berm at least 10'-0" from centerline of track and not more than 24- inches below top of rail. Contractor will not be required to make existing section meet this specification if substandard, in which case existing section will be maintained.

2. Additionally, the Railroad will require the installation of an OSHA approved handrail and orange construction safety fencing for all excavations of the Railroad right-of-way.

D. Excavation for Structures and Shoring Protection:

1. The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material.

2. All plans and calculations for shoring shall be prepared and signed by a Registered Professional Engineer, licensed in the state of the proposed project, in accordance with Norfolk Southern's Guidelines for Design of Grade Separation Structures, Section 1 – Overhead Grade Separation Design Criteria, subsection 4.E Construction

Excavation. The Registered Professional Engineer will be responsible for the accuracy for all controlling dimensions as well as the selection of soil design values which will accurately reflect the actual field conditions.

3. The contractor shall provide a detailed installation and removal plan of the shoring components. Any component that will be installed via the use of a crane or any other lifting device shall be subject to the guidelines outlined in section 5.G.

4. The contractor shall be required to survey the track(s) and railroad embankment and provide a cross section of the proposed excavation in relation to the tracks.

5. Calculations for the proposed shoring should include deflection calculations. The maximum deflection for excavations within 18'-0" of the centerline of the nearest track shall be 3/8". For all other cases, the max deflection shall not exceed ½".

6. Additionally, the Railroad will require the installation of an OSHA approved handrail and orange construction safety fencing for all excavations of the Railroad right-of-way.

E. Pipe, Culvert, & Tunnel Installations

   a. Pipe, Culvert, & Tunnel Installations shall be in accordance with the "Specifications for Pipeline Occupancy of Norfolk Southern Corporation Property (NSCE-8)."

F. Demolition Procedure

   1. General

      a. Demolition plans are required for all spans over the track(s), for all spans adjacent to the track(s), if located on (or partially on) Railroad right-of-way; and in all situations where cranes will be situated on, over, or adjacent to Railroad right-of-way and within a distance of boom length plus 15'-0" from the centerline of track.

      b. Railroad tracks and other railroad property must be protected from damage during the procedure.

      c. A pre-demolition meeting shall be conducted with the Department, the Railroad Engineer or their representative, and the key contractor personnel prior to the start of the demolition procedure.

      d. The Railroad Engineer or his designated representative must be present at the site during the entire demolition procedure period.

      e. Existing, obsolete, bridge piers shall be removed to a sufficient depth below grade to enable restoration of the existing/proposed track ditch, but in co case less than 2'-0" below final grade.

2. Submittal Requirements

   a. In addition to the submittal requirements outlined in Section 5.A.2, the contractor shall submit the following for approval by the Railroad Engineer:

      i. A plan showing the location of cranes, horizontally and vertically, operating radii, with delivery or disposal locations shown. The location of all tracks and other railroad facilities as well as all obstructions such as wire lines, poles, adjacent structures, etc. must also be shown.

      ii. Rating sheets showing cranes or lifting devices to be adequate for 150% of the actual weight of the pick, including all rigging components. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted. Safety factors that may have been "built-in" to the crane charts are not to be considered when determining the 150% factor of safety.

      iii. Plans and computations showing the weight of the pick must be submitted. Calculations shall be made from plans of the existing structure showing complete and sufficient details with supporting data for the demolition the structure. If plans do not exist, lifting weights must be calculated from field measurements. The field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and calculations.

      iv. The contractor shall provide a sketch of all rigging components from the crane's hook block to the beam. Catalog cuts or information sheets of all rigging components with their lifting capacities shall be provided. All rigging must be adequate for 150% of the actual weight of the pick. Safety factors that may have been "built-in" to the rating charts are not to be considered when determining the 150% factor of safety. All rigging components shall be clearly identified and tagged with their rated lifting capacities. The position of the rigging in the field shall not differ from what is shown on the final plan without prior review from the Department and the Railroad.

      v. A complete demolition procedure, including the order of lifts, time required for each lift, and any repositioning or re-hitching of the crane or cranes.

      vi. Design and supporting calculations for the temporary support of components, including but not limited to the stability of the superstructure during the temporary condition, temporary girder tie-downs and falsework.

3. Overhead Demolition Debris Shield

    a. The demolition debris shield shall be installed prior to the demolition of the bridge deck or other relevant portions of the superstructure over the track area to catch all falling debris.

    b. The demolition debris shield shall provide a minimum vertical clearance as specified in Section 4.A.1 or maintain the existing vertical clearance if the existing clearance is less than that specified in Section 4.A.1.

    c. The Contractor shall include the demolition debris shield installation/removal means and methods as part of the proposed Demolition procedure submission.

    d. The contractor shall submit the demolition debris shield design and supporting calculations for approval by the Railroad Engineer

    e. The demolition debris shield shall have a minimum design load of 50 pounds per square foot plus the weight of the equipment, debris, personnel, and other loads to be carried.

    f. The Contractor shall include the proposed bridge deck removal procedure in its demolition means and methods and shall verify that the size and quantity of the demolition debris generated by the procedure does not exceed the shield design loads.

    g. The contractor shall clean the demolition debris shield daily or more frequently as dictated either by the approved design parameters or as directed by the Railroad Engineer.

4. Vertical Demolition Debris Shield

    a. A vertical demolition debris shield may be required for substructure removals in close proximity to the Railroad's track and other facilities, as determined by the Railroad Engineer.

G. Erection & Hoisting Procedures

1. General

    a. Erection plans are required for all spans over the track(s), for all spans adjacent to the track(s), if located on (or partially on) Railroad right-of-way; and in all situations where cranes will be situated on, over, or adjacent to Railroad right-of-way and within a distance of boom length plus 15'-0" from the centerline of track.

b. Railroad tracks and other railroad property must be protected from damage during the erection procedure.

c. A pre-erection meeting shall be conducted with the Department, the Railroad Engineer or their representative, and the key contractor personnel prior to the start of the erection procedure.

d. The Railroad Engineer or his designated representative must be present at the site during the entire erection procedure period.

e. For field splices located over Railroad property, a minimum of 50% of the holes for each connection shall be filled with bolts or pins prior to releasing the crane. A minimum of 50% of the holes filled shall be filled with bolts. All bolts must be appropriately tightened.

2. Submittal Requirements

a. In addition the submittal requirements outlined in Section 5.A.2, the contract shall submit the following for approval by the Railroad Engineer:

i. As-built beam seat elevations - All as-built bridge seats and top of rail elevations shall be furnished to the Railroad Engineer for review and verification at least 30 days in advance of the erection, to ensure that minimum vertical clearances as approved in the plans will be achieved.

ii. A plan showing the location of cranes, horizontally and vertically, operating radii, with delivery or staging locations shown. The location of all tracks and other railroad facilities as well as all obstructions such as wire lines, poles, adjacent structures, etc. must also be shown.

iii. Rating sheets showing cranes or lifting devices to be adequate for 150% of the actual weight of the pick, including all rigging components. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted. Safety factors that may have been “built-in” to the crane charts are not to be considered when determining the 150% factor of safety.

iv. Plans and computations showing the weight of the pick must be submitted. Calculations shall be made from plans of the proposed structure showing complete and sufficient details with supporting data for the erection of the structure. If plans do not exist, lifting weights must be calculated from field measurements. The field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and calculations.

v. The contractor shall provide a sketch of all rigging components from the crane's hook block to the beam. Catalog cuts or information sheets of all rigging components with their lifting capacities shall be provided. All rigging must be adequate for 150% of the actual weight of the pick. Safety factors that may have been "built-in" to the rating charts are not to be considered when determining the 150% factor of safety. All rigging components shall be clearly identified and tagged with their rated lifting capacities. The position of the rigging in the field shall not differ from what is shown on the final plan without prior review from the Department and the Railroad.

vi. A complete erection procedure, including the order of lifts, time required for each lift, and any repositioning or re-hitching of the crane or cranes.

vii. Design and supporting calculations for the temporary support of components, including but not limited to temporary girder tie-downs and falsework.

H. Blasting:

1. The Contractor shall obtain advance approval of the Railroad Engineer and the Department Engineer for use of explosives on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:

   a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Contractor and a licensed blaster.

   b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way radios.

   c. No blasting shall be done without the presence of the Railroad Engineer or his authorized representative. At least 72 hours advance notice to the person designated in the Railroad's notice of authorization to proceed (see paragraph 5.E.2.B) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.

   d. Have at the job site adequate equipment, labor and materials and allow sufficient time to clean up debris resulting from the blasting without delay to trains, as well as correcting at his expense any track misalignment or other damage to Railroad property resulting from the blasting as directed by the Railway's authorized representative. If his actions

result in delay of trains, the Contractor shall bear the entire cost thereof.

e. The blasting contractor shall have a copy of the approved blasting plan on hand while on the site.

f. Explosive materials or loaded holes shall not be left unattended at the blast site.

g. A seismograph shall be placed on the track shoulder adjacent to each blast which will govern the peak particle velocity of two inches per second. Measurement shall also be taken on the ground adjacent to structures as designated by a qualified and independent blasting consultant. The Railroad reserves the option to direct the placement of additional seismographs at structures or other locations of concern, without regard to scaled distance.

h. After each blast, the blasting contractor shall provide a copy of their drill log and blast report, which includes number of holes, depth of holes, number of decks, type and pounds of explosives used per deck.

i. The Railroad may require top of rail elevations and track centers taken before, during and after the blasting and excavation operation to check for any track misalignment resulting from the Contractor's activities.

2. The Railroad representative will:

a. Determine approximate location of trains and advise the Contractor the appropriate amount of time available for the blasting operation and clean up.

b. Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these special provisions.

3. The Contractor must hire, at no expense to the Railroad, a qualified and independent blasting consultant to oversee the use of explosives. The blasting consultant will:

a. Review the Contractor's proposed drilling and loading patterns, and with the blasting consultant's personnel and instruments, monitor the blasting operations.

b. Confirm that the minimum amounts of explosives are used to remove the rock.

c. Be empowered to intercede if he concludes that the Contractor's blasting operations are endangering the Railway.

d. Submit a letter acknowledging that he has been engaged to oversee the entire blasting operation and that he approves of the blasting plan.

e. Furnish copies of all vibration readings to the Railroad representative immediately after each blast. The representative will sign and date the seismograph tapes after each shot to verify the readings are for that specific shot.

f. Advise the Railroad representative as to the safety of the operation and notify him of any modifications to the blasting operation as the work progresses.

4. The request for permission to use explosives on the Railroad's Right-of-Way shall include a blasting proposal providing the following details:

a. A drawing which shows the proposed blasting area, location of nearest hole and distance to Railway structures, all with reference to the centerline of track.

b. Hole diameter.

c. Hole spacing and pattern.

d. Maximum depth of hole.

e. Maximum number of decks per hole.

f. Maximum pounds of explosives per hole.

g. Maximum pounds of explosives per delay.

h. Maximum number of holes per detonation.

i. Type of detonator and explosives to be used. (Electronic detonating devices will not be permitted). Diameter of explosives if different from hole diameter.

j. Approximate dates and time of day when the explosives are to be detonated.

k. Type of flyrock protection.

l. Type and patterns of audible warning and all clear signals to be used before and after each blast.

m. A copy of the blasting license and qualifications of the person directly in charge of the blasting operation, including their name, address and telephone number.

n. A copy of the Authority's permit granting permission to blast on the site.

o. A letter from the blasting consultant acknowledging that he has been engaged to oversee the entire blasting operation and that he approves of the blasting plan.

p. In addition to the insurance requirements outlined in Paragraph 14, A certificate of

insurance from the Contractor's insurer stating the amount of coverage for XCU (Explosive Collapse and Underground Hazard) insurance and that XCU Insurance is in force for this project.

q. A copy of the borings and Geotechnical information or report.

I. Track Monitoring

1. At the direction of the Railroad Engineer, any activity that has the potential to disturb the Railroad track structure may require the contractor to submit a detailed track monitoring program for approval by the Railroad Engineer.

2. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. Railroad reserves the right to modify the survey locations and monitoring frequency as necessary during the project.

3. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Railroad Engineer for analysis.

4. If any movement has occurred as determined by the Railroad Engineer, the Railroad will be immediately notified. Railroad, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased and determine what corrective action is required. Any corrective action required by the Railroad or performed by the Railroad including the monitoring of corrective action of the contractor will be at project expense.

J. Maintenance of Railroad Facilities:

1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions which may result from his operations and provide and maintain any erosion control measures as required. The Contractor will promptly repair eroded areas within Railroad rights-of-way and repair any other damage to the property of the Railroad or its tenants.

2. If, in the course of construction, it may be necessary to block a ditch, pipe or other drainage facility, temporary pipes, ditches or other drainage facilities shall be installed to maintain adequate drainage, as approved by NS. Upon completion of the work, the temporary facilities shall be removed and the permanent facilities restored.

3. All such maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

K. Storage of Materials and Equipment:

1. Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights-of-way of the Railroad Company without

first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.

2. All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

L. Cleanup:

1. Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights-of-way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights-of-way in a neat condition satisfactory to the Chief Engineer of the Railroad or his authorized representative.

6. DAMAGES:

A. The Contractor shall assume all liability for any and all damages to his work, employees, servants, equipment and materials caused by Railroad traffic.

B. Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.

7. FLAGGING SERVICES:

A. Requirements:

1. Flagging services will not be provided until the contractor's insurance has been reviewed & approved by the Railroad.

2. Under the terms of the agreement between the Department and the Railroad, the Railroad has sole authority to determine the need for flagging required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are or are likely to be, working on the Railroad's right-of-way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging.

3. Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three (3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required full time until the project has been completed.

B. Scheduling and Notification:

1. The Contractor's work requiring railroad flagging should be scheduled to limit the presence of a flagman at the site to a maximum of 50 hours per week. The Contractor shall receive Railroad approval of work schedules requiring a flagman's presence in excess of 40 hours per week.

2. Not later than the time that approval is initially requested to begin work on Railroad right-of-way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad right-of-way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.

3. The Contractor will be required to give the Railroad representative at least 10 working days of advance written notice of intent to begin work within Railroad right-of-way in accordance with this special provision. Once begun, when such work is then suspended at any time, or for any reason, the Contractor will be required to give the Railroad representative at least 3 working days of advance notice before resuming work on Railroad right-of-way. Such notices shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally, it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen are present at the job site. It may take up to 30 days to obtain flagging initially from the Railroad. When flagging begins, the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and cannot be called for on a spot basis. If flagging becomes unnecessary and is suspended, it may take up to 30 days to again obtain from the Railroad. Due to Railroad labor agreements, it is necessary to give 5 working days notice before flagging service may be discontinued and responsibility for payment stopped.

4. If, after the flagman is assigned to the project site, an emergency arises that requires the flagman's presence elsewhere, then the Contractor shall delay work on Railroad right-of-way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.

C. Payment:

1. The Department will be responsible for paying the Railroad directly for any and all costs of flagging which may be required to accomplish the construction.

2. The estimated cost of flagging is current rate per day based on a 10-hour work day. This cost includes the base pay for the flagman, overhead, and includes a per diem charge for travel expenses, meals and lodging. The charge to the Department by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.

3. Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 and 1/2 times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 and 1/2 times the normal rate.

4. Railroad work involved in preparing and handling bills will also be charged to the Department. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging costs are provided for information only and are not binding in any way.

D. Verification:

1. Railroad's flagman will electronically enter flagging time via Railroad's electronic billing system. Any complaints concerning flagging must be resolved in a timely manner. If the need for flagging is questioned, please contact Railroad's System Engineer - Public Improvements. All verbal complaints will be confirmed in writing by the Contractor within 5 working days with a copy to the Department's Engineer. Address all written correspondence electronically to Railroad's System Engineer - Public Improvements:

2. The Railroad flagman assigned to the project will be responsible for notifying the Department Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Department Engineer will document such notification in the project records. When requested, the Department Engineer will also sign the flagman's diary showing daily time spent and activity at the project site.

8. HAUL ACROSS RAILROAD:

A. Where the plans show or imply that materials of any nature must be hauled across a Railroad, unless the plans clearly show that the Department has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor or Agency will be required to bear all costs incidental to such crossings whether services are performed by his own forces or by Railroad personnel.

B. No crossing may be established for use of the Contractor for transporting materials or equipment across the tracks of the Railroad Company unless specific authority for its installation, maintenance, necessary watching and flagging thereof and removal, until a temporary private crossing agreement has been executed between the Contractor and Railroad. The approval process for an agreement normally takes 90-days.

9. WORK FOR THE BENEFIT OF THE CONTRACTOR:

A. All temporary or permanent changes in wire lines or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the Department and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the Department and/or the Railroad.

B. Should the Contractor desire any changes in addition to the above, then he shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.

10. COOPERATION AND DELAYS:

A. It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging his schedule he shall ascertain, from the Railroad, the lead time required for assembling crews and materials and shall make due allowance therefore.

B. No charge or claim of the Contractor against either the Department or the Railroad Company will be allowed for hindrance or delay on account of railway traffic; any work done by the Railway Company or other delay incident to or necessary for safe maintenance of railway traffic or for any delays due to compliance with these special provisions.

11. TRAINMAN'S WALKWAYS:

A. Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than 10 feet from centerline of track, shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railway's protective service is provided shall be removed before the close of each work day. If there is

any excavation near the walkway, a handrail, with 10'-0" minimum clearance from centerline of track, shall be placed and must conform to AREMA and/or FRA standards.

12. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHT-OF-WAY:

A. The Contractor and/or the Agency's personnel authorized to perform work on Norfolk Southern's property as specified in Section 2 above are not required to complete Norfolk Southern Roadway Worker Protection Training; However the Contractor and the Agency's personnel must be familiar with Norfolk Southern's standard operating rules and guidelines, should conduct themselves accordingly, and may be removed from the property for failure to follow these guidelines.

B. All persons shall wear hard hats. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip-on type boots is prohibited. Hard-sole, lace-up footwear, zippered boots or boots cinched up with straps which fit snugly about the ankle are adequate. Wearing of safety boots is strongly recommended. In the vicinity of at-grade crossings, it is strongly recommended that reflective vests be worn.

C. No one is allowed within 25' of the centerline of track without specific authorization from the flagman.

D. All persons working near track while train is passing are to lookout for dragging bands, chains and protruding or shifted cargo.

E. No one is allowed to cross tracks without specific authorization from the flagman.

F. All welders and cutting torches working within 25' of track must stop when train is passing.

G. No steel tape or chain will be allowed to cross or touch rails without permission from the Railroad.

13. GUIDELINES FOR EQUIPMENT ON RAILROAD RIGHT-OF-WAY:

A. No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from railroad official and flagman.

B. No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.

C. All employees will stay with their machines when crane or boom equipment is pointed toward track.

D. All cranes and boom equipment under load will stop work while train is passing (including pile driving).

E. Swinging loads must be secured to prevent movement while train is passing.

F. No loads will be suspended above a moving train.

G. No equipment will be allowed within 25' of centerline of track without specific authorization of the flagman.

H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman. Orange construction fencing may be required as directed.

I. No equipment or load movement within 25' or above a standing train or railroad equipment without specific authorization of the flagman.

J. All operating equipment within 25' of track must halt operations when a train is passing. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.

K. All equipment, loads and cables are prohibited from touching rails.

L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.

M. No equipment or materials will be parked or stored on Railroad's property unless specific authorization is granted from the Railroad Engineer.

N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.

O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.

P. Prior to performing any crane operations, the contractor shall establish a single point of contact for the Railroad flagman to remain in communication with at all times. Person must also be in direct contact with the individual(s) directing the crane operation(s).

14. INSURANCE:

A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Prime Contractor will be required to carry insurance of the following kinds and amounts:

1. Commercial General Liability Insurance having a combined single limit of not less than $2,000,000 per occurrence for all loss, damage, cost and expense, including attorneys' fees, arising out of bodily injury liability and property damage liability during the policy period. Said policy shall include explosion, collapse, and underground hazard (XCU) coverage, shall be endorsed to name

Railroad specified in item A.2.c. below both as the certificate holder and as an additional insured, and shall include a severability of interests provision.

2. Railroad Protective Liability Insurance having a combined single limit of not less than $2,000,000 each occurrence and $6,000,000 in the aggregate applying separately to each annual period. If the project involves track over which passenger trains operate, the insurance limits required are not less than a combined single limit of $5,000,000 each occurrence and $10,000,000 in the aggregate applying separately to each annual period. Said policy shall provide coverage for all loss, damage or expense arising from bodily injury and property damage liability, and physical damage to property attributed to acts or omissions at the job site.

3. The standards for the Railroad Protective Liability Insurance are as follows:

    a. The insurer must be rated A- or better by A.M. Best Company, Inc.

    b. The policy must be written using one of the following combinations of Insurance Services Office ("ISO") Railroad Protective Liability Insurance Form Numbers:

        i. CG 00 35 01 96 and CG 28 31 10 93; or
        ii. CG 00 35 07 98 and CG 28 31 07 98; or
        iii. CG 00 35 10 01; or
        iv. CG 00 35 12 04.

    c. The named insured shall read:

        Norfolk Southern Railway Company
        Three Commercial Place
        Norfolk, Virginia 23510-2191
        Attn: Risk Management

    d. The description of operations must appear on the Declarations, must match the project description in this agreement, and must include the appropriate Department project and contract identification numbers.

    e. The job location must appear on the Declarations and must include the city, state, and appropriate highway name/number. NOTE: Do not include any references to milepost on the insurance policy.

    f. The name and address of the prime contractor must appear on the Declarations.

    g. The name and address of the Department must be identified on the Declarations as the "Involved Governmental Authority or Other Contracting Party."

h. Other endorsements/forms that will be accepted are:

i. Broad Form Nuclear Exclusion – Form IL 00 21
ii. 30-day Advance Notice of Non-renewal or cancellation
iii. Required State Cancellation Endorsement
iv. Quick Reference or Index Form CL/IL 240

i. Endorsements/forms that are NOT acceptable are:

i. Any Pollution Exclusion Endorsement except CG 28 31
ii. Any Punitive or Exemplary Damages Exclusion
iii. Known injury or Damage Exclusion form CG 00 59
iv. Any Common Policy Conditions form
v. Any other endorsement/form not specifically authorized in item no. 2.h above.

B. If any part of the work is sublet, similar insurance, and evidence thereof as specified in A.1 above, shall be provided by or on behalf of the subcontractor to cover its operations on Railroad's right of way.

C. Prior to entry on Railroad right-of-way, the original Railroad Protective Liability Insurance Policy shall be submitted by the Prime Contractor to the Department at the address below for its review and transmittal to the Railroad. In addition, certificates of insurance evidencing the Prime Contractor's and any subcontractors' Commercial General Liability Insurance shall be issued to the Railroad and the Department at the addresses below, and forwarded to the Department for its review and transmittal to the Railroad. The certificates of insurance shall state that the insurance coverage will not be suspended, voided, canceled, or reduced in coverage or limits without (30) days advance written notice to Railroad and the Department. No work will be permitted by Railroad on its right-of-way until it has reviewed and approved the evidence of insurance required herein.

DEPARTMENT:
_____
_____
_____
_____

RAILROAD:
Risk Management
Norfolk Southern Railway Company
Three Commercial Place
Norfolk, Virginia 23510-2191

D. The insurance required herein shall in no way serve to limit the liability of Department or its Contractors under the terms of this agreement.

E. Insurance Submission Procedures

1. Norfolk Southern will only accept initial insurance submissions via US Mail or Overnight carrier to the address noted in C above. NS will NOT accept initial insurance submissions via email or faxes.

2. Norfolk Southern requires the following two (2) forms of insurance in the initial insurance submission to be submitted under a cover letter providing details of the project and contact information:

    a. The original or certified true copy of the railroad protective liability insurance policy.

    b. The contractor's commercial general, automobile, and workers' compensation liability insurance certificate of liability insurance evidencing a combined single limit of a minimum of $2M per occurrence of general and $1M per occurrence of automobile liability insurance naming Norfolk Southern Railway Company, Three Commercial Place, Norfolk, VA 23510 as the certificate holder and as an additional insured on both the general and automobile liability insurance policy.

3. Norfolk Southern does not accept notation of Railroad Protective insurance on a certificate of liability insurance form or Binders as Norfolk Southern must have the full original countersigned policy. Norfolk Southern understands that this can typically take a minimum of 30-45 days to receive for review. Please also note that mere receipt is not the only issue but review for compliance, which Norfolk Southern has 10 business days from receipt to respond.

15. FAILURE TO COMPLY:

A. In the event the Contractor violates or fails to comply with any of the requirements of these Special Provisions:

    1. The Railroad Engineer may require that the Contractor vacate Railroad property.

    2. The Engineer may withhold all monies due the Contractor on monthly statements.

B. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

16. PAYMENT FOR COST OF COMPLIANCE:

A. No separate payment will be made for any extra cost incurred on account of compliance with these special provisions. All such costs shall be included in prices bid for other items of the work as specified in the payment items.

17. PROJECT INFORMATION

A. Date: _____
B. NS File No.: _____
C. NS Milepost: _____
D. Department's Project No.: _____