SPECIAL PROVISIONS

ROUTE 80
PARSIPPANY-TROY HILLS
ROADWAY IMPROVEMENTS
CONTRACT NO. 041003712
TOWNSHIP OF PARSIPPANY-TROY HILLS
COUNTY OF MORRIS
FEDERAL PROJECT NO. IM-080-5(098)

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 Davis-Bacon web site at http://www.gpo.gov/davisbacon/NJ.html under the appropriate county, select the construction type heading: HIGHWAY.

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.

8. Jersey Central Power & Lighting Bid Package

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 FY2012 Capital Program has an item with $ 49.075 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 State FY 2013.

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.

Completion.
(3) IS CHANGED TO:

3. The Contractor has satisfactorily executed and delivered to the RE all documents, including federal form FHWA-47 “Contractor’s Statement of Materials and Labor” according to 23CFR 635, certifications, and proofs of compliance required by the Contract Documents, it being understood that the satisfactory execution and delivery of documents, certificates, and proofs of compliance is a requirement of the Contract.

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: 973-601-6655
Fax: 973-601-6669

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
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

The structures and the location(s) of lead paint, if any, are listed in the Special Provisions.

The following is a list of structures and the location(s) of lead paint:

Structure #/Location	Lead Paint Location(s)
Ramps A&M over Smith Road, Structure No. 1414-181	Steel Girder Paint
Route I-287 SB over Littleton Road, Structure No. 1420-154	Steel Girder Paint

1. Evaluation of Subsurface and Surface Conditions.
THE FOLLOWING IS ADDED:

International Roughness Index (IRI) values of the existing roadway			
Route	Mile Post		Existing IRI Value
	From	To	
I-80 EB	41.50	41.60	112
I-80 EB	41.60	41.70	135
I-80 EB	41.70	41.80	158
I-80 EB	41.80	41.90	99
I-80 EB	41.90	42.00	177
I-80 EB	42.00	42.10	191
I-80 EB	42.10	42.20	133
I-80 EB	42.20	42.30	150

I-80 EB	42.30	42.40	133
I-80 EB	42.40	42.50	114
I-80 EB	42.50	42.60	138
I-80 EB	42.60	42.70	139
I-80 EB	42.70	42.80	144
I-80 EB	42.80	42.90	184
I-80 EB	42.90	43.00	190
I-80 EB	43.00	43.10	177
I-80 EB	43.10	43.20	90
I-80 EB	43.20	43.30	93
I-80 EB	43.30	43.40	265
I-80 EB	43.40	43.50	254
I-80 EB	43.50	43.60	216
I-80 EB	43.60	43.70	245
I-80 EB	43.70	43.80	199
I-80 EB	43.80	43.90	250
I-80 EB	43.90	44.00	224
I-80 EB	44.00	44.10	224
I-80 EB	44.10	44.20	199
I-80 EB	44.20	44.30	210
I-80 EB	44.30	44.40	260
I-80 EB	44.40	44.50	211
I-80 EB	44.50	44.60	232
I-80 EB	44.60	44.70	252
I-80 EB	44.70	44.80	245
I-80 EB	44.80	44.90	162
I-80 EB	44.90	45.00	281
I-80 EB	45.00	45.10	267
I-80 EB	45.10	45.20	239
I-80 EB	45.20	45.30	221
I-80 EB	45.30	45.40	218
I-80 EB	45.40	45.50	236
I-80 EB	45.50	45.60	247
I-80 WB	41.50	41.60	95
I-80 WB	41.60	41.70	92
I-80 WB	41.70	41.80	93
I-80 WB	41.80	41.90	92
I-80 WB	41.90	42.00	90
I-80 WB	42.00	42.10	76
I-80 WB	42.10	42.20	63
I-80 WB	42.20	42.30	74
I-80 WB	42.30	42.40	96
I-80 WB	42.40	42.50	109

I-80 WB	42.50	42.60	98
I-80 WB	42.60	42.70	89
I-80 WB	42.70	42.80	100
I-80 WB	42.80	42.90	83
I-80 WB	42.90	43.00	92
I-80 WB	43.00	43.10	89
I-80 WB	43.10	43.20	83
I-80 WB	43.20	43.30	77
I-80 WB	43.30	43.40	209
I-80 WB	43.40	43.50	258
I-80 WB	43.50	43.60	222
I-80 WB	43.60	43.70	181
I-80 WB	43.70	43.80	260
I-80 WB	43.80	43.90	245
I-80 WB	43.90	44.00	288
I-80 WB	44.00	44.10	299
I-80 WB	44.10	44.20	252
I-80 WB	44.20	44.30	270
I-80 WB	44.30	44.40	320
I-80 WB	44.40	44.50	284
I-80 WB	44.50	44.60	219
I-80 WB	44.60	44.70	310
I-80 WB	44.70	44.80	228
I-80 WB	44.80	44.90	166
I-80 WB	44.90	45.00	192
I-80 WB	45.00	45.10	223
I-80 WB	45.10	45.20	333
I-80 WB	45.20	45.30	262
I-80 WB	45.30	45.40	303
I-80 WB	45.40	45.50	217
I-80 WB	45.50	45.60	273
I-80 EB Local	43.90	44.00	187
I-80 EB Local	44.00	44.10	187
I-80 EB Local	44.10	44.20	77
I-80 EB Local	44.20	44.30	63
I-80 EB Local	44.30	44.40	70
I-80 EB Local	44.40	44.50	82
I-80 EB Local	44.50	44.60	150
I-80 EB Local	44.60	44.70	229
I-80 EB Local	44.70	44.80	188
I-80 EB Local	44.80	44.90	204
I-80 EB Local	44.90	45.00	176
I-80 EB Local	45.00	45.10	200

I-80 EB Local	45.10	45.20	273
I-80 EB Local	45.20	45.30	284
I-80 EB Local	45.30	45.40	251
I-80 EB Local	45.40	45.50	301
I-80 EB Local	45.50	45.60	272
I-80 WB Local	44.10	44.20	117
I-80 WB Local	44.20	44.30	98
I-80 WB Local	44.30	44.40	97
I-80 WB Local	44.40	44.50	105
I-80 WB Local	44.50	44.60	92
I-80 WB Local	44.60	44.70	98
I-80 WB Local	44.70	44.80	236
I-80 WB Local	44.80	44.90	326
I-80 WB Local	44.90	45.00	333
I-80 WB Local	45.00	45.10	318
I-80 WB Local	45.10	45.20	376
I-80 WB Local	45.20	45.30	400
I-80 WB Local	45.30	45.40	307
I-80 WB Local	45.40	45.50	278
I-80 WB Local	45.50	45.60	268

This information is the latest available IRI data of the right most through lane from the Pavement Management Unit. The pavement information shown herein was obtained by the Department and is made available to the authorized users only that they may have access to the same information available to the Department. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 80_C.S. 1414 & Route 287 C.S. 1420

DRILLER: _____

INSPECTOR: Advance Infrastructure Design, Inc._

COUNTY/TOWNSHIP: Morris County, New Jersey

DATE STARTED: September, 2003___ DATE COMPLETED: September, 2003_____

Core No.	Roadway	Lane	Milepost	Station	AC Thickness (in.)	PCC Thickness (in.)	Base/Subbase Type
1	80 Westbound Express	Left Shoulder	45.60	318+70	2 1/2	---	Gravelly (Quarry-Processed) Sand w/ Trace of Silt
2	80 Westbound Express	Left Shoulder	45.10	292+21	2 1/4	---	Gravelly (Quarry-Processed) Sand w/ Trace of Silt
3	80 Westbound Express	1	45.01	287+30	---	9	Sand & Gravel
4	80 Westbound Express	Left Shoulder	44.61	265+99	21/2	---	Sand & Gravel (Quarry-Processed)
5	80 Westbound Express	Left Shoulder	44.09	238+95	2	---	Sand & Gravel (Quarry-Processed)
6	80 Westbound Express	1	44.00	233+93	---	8 1/2	Sand & Gravel
7	80 Westbound Express	Left Shoulder	43.60	212+65	7	---	Gravel (Quarry-Processed)
8	80 Westbound Express	Left Shoulder	43.11	186+94	3	---	Gravelly (Quarry-Processed) Sand
9	80 Westbound Express	1	43.00	180+94	2	91/2	Sand & Gravel w/ Trace of Silt

10	80 Westbound Express	Left Shoulder	42.60	160+25	11	---	Sand & Gravel w/ Trace of Silt
11	80 Westbound Express	Left Shoulder	42.12	134+75	10	---	Sandy Gravel (Some Quarry-Processed)
12	80 Westbound Express	1	42.02	129+38	10 1/4	---	Sandy Gravel
13	80 Westbound Express	Left Shoulder	41.58	106+25	9 3/4	---	Sandy Gravel (Quarry-Processed)
14	80 Westbound Express	2	45.01	287+26	---	8 3/4	Gravelly Sand
15	80 Westbound Express	2	44.00	233+87	---	8 3/4	Gravel (Quarry-Processed)
16	80 Westbound Express	2	42.70	165+53	13/4	8 3/4	Sand & Gravel w/ Trace of Silt
17	80 Westbound Express	2	41.69	112+02	1 3/4	9	Sand & Gravel w/ Trace of Silt
18	80 Westbound Local	Right Shoulder	45.61	318+76	4	---	Sand & Gravel (Quarry-Processed)
19	80 Westbound Local	Right Shoulder	45.10	291+82	3	---	Sandy Gravel (Quarry-Processed)
20	80 Westbound Local	2	45.50	313+31	---	10	Gravel (Quarry-Processed)
21	80 Westbound Local	Right Shoulder	44.60	265+75	2 112	---	Gravelly (Quarry-Processed) Sand
22	80 Westbound Local	2	44.52	261+48	2 114	9	Sand & Gravel (Quarry-Processed) w/ Trace of Silt

23	80 Westbound Local	1	44.59	264+92	---	91/4	Gravelly (Quarry-Processed) Sand w/ Trace of Silt
24	80 Eastbound Express	1	41.66	110+17	111!2	---	Dense-Graded Aggregate Base Course
25	80 Westbound Local	Right Shoulder	42.79	170+01	3 1/2	---	Sandy Gravel
26	80 Westbound Local	2	42.78	169+81	8 112	---	Sandy Gravel
27	80 Westbound Local	2	42.61	160+75	7 3/4	---	Sandy Gravel
28	80 Westbound Local	1	42.79	170+29	7	---	Sandy Gravel
29	80 Westbound Local	1	42.59	159+60	7 3/4	---	Sandy Gravel
30	80 Westbound Express	Right Shoulder	45.21	298+05	2 1/2	---	Sandy Gravel
31	80 Westbound Express	Right Shoulder	44.90	281+35	81/4	---	Dense-Graded Aggregate Base Course
32	80 Westbound Express	4	44.90	281+30	8	---	Dense-Graded Aggregate Base Course
33	80 Westbound Express	Right Shoulder	44.67	269+17	10	---	Dense-Graded Aggregate Base Course
34	80 Westbound Express	Right Shoulder	44.61	266+12	21/4	---	Sandy Gravel
35	80 Westbound Express	3	43.09	186+10	2 1/4	91/2	Sand & Gravel w/ Trace of Silt

36	80 Westbound Express	3	42.84	172+82	1 3/4	9	Sand & Gravel w/ Trace of Silt
37	80 Westbound Express	3	42.31	144+78	11/4	9	Sand & Gravel w/ Trace of Silt
38	80 Westbound Express	3	41.86	121+04	2 114	9	Sand & Gravel w/ Trace of Silt
39	80 Westbound Express	4	43.10	186+38	2 1/2	9	Sand & Gravel w/ Trace of Silt
40	80 Westbound Express	4	44.20	244+65	12	---	Sand & Gravel w/ Trace of Silt
41	80 Westbound Express	4	44.00	233+74	12	---	Sand & Gravel w/ Trace of Silt
42	80 Eastbound Express	Right Shoulder	41.70	112+75	6	---	Dense-Graded Aggregate Base Course
43	80 Eastbound Express	4	41.76	115+90	13	---	Dense-Graded Aggregate Base Course
44	80 Eastbound Express	Right Shoulder	41.99	127+91	10	---	Dense-Graded Aggregate Base Course
45	80 Eastbound Express	3	42.25	141+34	3	8	Sand & Gravel w/ Trace of Silt
46	80 Eastbound Express	Right Shoulder	42.25	141+33	2	---	Sandy Gravel
47	80 Eastbound Express	Right Shoulder	42.71	165+71	11 1/2	---	Dense-Graded Aggregate Base Course
48	80 Eastbound Express	3	42.74	167+46	3	9	Sand & Gravel w/ Trace of Silt

49	80 Westbound Express	Right Shoulder	43.90	228+62	12 1/4	---	Dense-Graded Aggregate Base Course
50	80 Westbound Express	Right Shoulder	43.41	202+74	2 3/4	---	Sandy Gravel
51	80 Westbound Express	Right Shoulder	42.91	176+37	43/4	---	Sandy Gravel
52	80 Westbound Express	Right Shoulder	42.43	151+08	41/4	---	Sandy Gravel
53	80 Westbound Express	4	42.02	129+48	12 3/4	---	Dense-Graded Aggregate Base Course
54	80 Westbound Express	Right Shoulder	41.90	123+33	3 1/4	---	Sandy Gravel
55	80 Eastbound Express	Left Shoulder	41.51	102+30	9 3/4	---	Dense-Graded Aggregate Base Course
56	80 Eastbound Express	Left Shoulder	42.01	128+69	12	---	Dense-Graded Aggregate Base Course
57	80 Eastbound Express	Left Shoulder	42.51	155+20	10 1/4	---	Dense-Graded Aggregate Base Course
58	80 Eastbound Express	Left Shoulder	43.00	180+98	12	---	Dense-Graded Aggregate Base Course
59	80 Eastbound Express	Left Shoulder	43.51	208+14	2	---	Sandy Gravel
60	80 Eastbound Express	Left Shoulder	44.00	233+87	2	---	Sandy Gravel
61	80 Eastbound Express	Left Shoulder	44.52	261+51	2	---	Sandy Gravel

62	80 Eastbound Express	Left Shoulder	45.01	287+51	21/2	---	Sandy Gravel
63	80 Eastbound Express	Left Shoulder	45.50	313+43	21/2	---	Sandy Gravel
64	80 Eastbound Express	1	42.31	144+54	91/2	---	Dense-Graded Aggregate Base Course
65	80 Eastbound Express	1	42.81	170+91	91/2	---	Dense-Graded Aggregate Base Course

* Lane 1 is the left lane in the direction of travel.

The pavement information shown herein was used by the Department for design and estimate purposes.

3. Existing Plans and As-Builts.

Existing Plans and As-builts used are as follows:

a. Route 287 Sections 10W & 11M Route 80 Section 3AH From Vicinity of Eden Lane To Route 80 & From Route 287 To Vicinity of Troy Road, September 1994.
b. Route 80 Section 3AG From East of Troy Road To East of Beverwyck Road; Slip Ramp From W.B. Local Lanes To W.B. Express Lanes, September 1991.
c. Route 287 Sect 12 From Route 80 to Intervale Road, November 1960
d. Route 80 Sect 3B Parsippany Road to Edwards Road, May 1961.
e. Route 80 Sect 3A From Route 53 to Parsippany Road, May 1961.
f. Route 80 Sect 3L &3G-1 East Of Parsippany Road Relocation, November 1970.
g. Route 287 Sect11Aa&12C, Goodkind & O'Dea Interchange At Route 80, November 1963.
h. Route 80 Sect 8l, 2S&3AC From East of Beaver Brook To Parsippany Road, June 1996.
i. Route 80 Sect 3G-2 From Troy Brook Branch Relocation To East of Parsippany Road Relocation, June 1996.
j. Route 287 Section 12K &13J From Route 80 To Route 202, 1953.
k. Route 202 Freeway, Section 1A From Route 10 to Route 46, December 1953.
l. Route 80 Westbound From Route 46 to West of Parsippany Road, As-Built.
m. Route 287 Sections 11F & 12F Widening of I-287 N.B. Over Littleton Road, As-Built, 1975.
n. Route 287 Sections 9H, 10M, 11F & 12F Widening of I-287 N.B. Over Littleton Road From South Street In The Town of Morristown to Intervale Road In The Township of Parsippany-Troy Hills, As-Built 1975.
o. Route 80/287 Safety Improvements Contract 041003711, Grading, Paving, & Structures Townships of Parsippany-Troy Hills, County of Morris, November 2008.
p. Route 80 Bridge Over Route 287 Northbound And Smith Road Contract 043003741 Grading, Paving, & Structures Townships of Parsippany-Troy Hills, County of Morris, August 2010.
q. Route 80 Magic Contract No. 1A
r. Route 80 ITS Communications Network
s. Readvertisement of ITS Maintenance Contract 2010 Statewide
t. Route 80 Westbound, From Route 46 to West of Parsippany Road, Contract No. 028053190, Resurfacing, October 2006
u. Route I-80 Westbound, From East of South Beverwyck Road to West of Route 23 interchange, Contract No. 046073110, Bridge Deck patching and Resurfacing, April 2009

Existing Structure As-Builts

1. Cherry Hill Road Relocated and Westbound Littleton Road Relocated over I-80 (Structure No. 1414-164) – Contract I-80 Section 3G-2.
2. Eastbound Littleton Road Relocation over I-80 (Structure No. 1414-166) Contract I-80 Section 3G-2.
3. Parsippany Road over I-80 (Structure No. 1414-167) Contract I-80 Section 3G-2.
4. Troy Road Relocation over I-80 (Structure No. 1414-170) Contract No. I-80 Section 3F.
5. Ramps A & M over Smith Road (Structure No. 1414-181) Contract No. I-80 Section 3L & 3G-1.
6. Ramps A & M over Smith Road (Structure No. 1414-181) Contract No. I-287 Sections 10W&11M and I-80 Section 3AH.
7. Sign Support Structures Contract No. I-80 Section 3L & 3G-1.
8. Route I-287 Southbound over Route I-80 (Structure No. 1420-151) – Contract I-287 Section 12K & 13J.
9. I-287 Southbound over Littleton Road (Structure No. 1420-154) Contract I-287 Section 11A & 12C.
10. I-287 Southbound over Littleton Road (Structure No. 1420-154) Contract I-287 Section 12K & 13J.
11. Culvert at Troy Brook (Structure No. 1420-156) Contract I-287 Section 12B.
12. Noise Barriers Contract Route 80 Sections 8L, 2S & 3AC.

SECTION 104 – SCOPE OF WORK

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.

104.03.09 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

105.01.01 RE
THE FOLLOWING IS ADDED TO THE END OF THIS SECTION:

The RE shall request a representative from the Bureau of Maintenance Engineering & Operations to inspect the constructed Manufactured Treatment Device (MTD) prior to backfilling. A minimum of two weeks advanced notice

shall be provided to the Bureau of Maintenance Engineering & Operations prior to backfilling MTD's (contact Silvia Eskander, 609-530-8041). As-built drawings and maintenance procedure manual for MTD's and Bioretention Basin shall be provided to the Bureau of Maintenance Engineering and Operations upon completion of the project.

105.02.04 Fabrication and Suppliers
THE FOLLOWING IS ADDED TO THE END OF THIS SECTION:

The services of an on-site technical representative from the manufacturer of the Mechanical Treatment Devices (MTD) shall be on-site to assist and provide guidance during the construction/installation of the MTD's. The manufacturer representative shall also provide written certification that the MTD has been installed in accordance with their products requirements.

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.

105.06 COOPERATION WITH OTHERS
THE FOLLOWING IS ADDED:

The Contractor is advised that other construction contracts may be in progress simultaneously with the work to be done under this contract; either within or adjacent to the limits of this contract. This information is being supplied to the contractor so that staging of the project will not interfere with adjacent projects. These contracts include but not limited to the following:

1. Route 287 South of South Street to Littleton Road.
2. Route 80 Bridges over I-287 SB and Smith Road.

The Contactor is advised that work on Route 287 SB from Ramp G to Route 46 (Rt. 287 SB Sta. 86+00 to Sta. 122+00) and Ramp I shall not commence prior to May 30, 2013 to allow for completion of Route 287 South of South Street to Littleton Road project.

105.07 COOPERATION WITH UTILITIES

105.07.01 Working in the Vicinity of Utilities

A. Initial Notice.

JERSEY CENTRAL POWER & LIGHT (ELECTRIC)
Robert Soto
300 Madison Avenue
P.O. Box 1911
Morristown, New Jersey 07962-1911
(973) 401-8582
(973) 644-4259 (Fax)

VERIZON-NEW JERSEY, INC. (TELEPHONE)
Sandra Cruger
114 Paterson Street
Paterson, NJ 07051
973-925-1480

CABLEVISION OF MORRIS
Bruce Hickson
683 Route 10 East
Randolph, NJ 07869
(973) 659-2471
(973) 659-2214 (Fax)

TOWNSHIP OF PARSIPANY-TROY HILLS SANITARY SEWER UTILITY
Robert Strecham
Director of Utilities
Parsippany-Troy Hills Township
Municipal Building
1001 Parsippany Boulevard
Parsippany, NJ 07054
(973) 263-4293 (Tel)
(973) 541-9416 (Fax)

TOWNSHIP OF PARSIPANY-TROY HILLS WATER UTILITY
Kevin P. Ryan
Superintendent
Parsippany-Troy Hills Township
Municipal Building
1001 Parsippany Boulevard
Parsippany, NJ 07054
(973) 263-7099
(973) 263-1306 (Fax)

NEW JERSEY NATURAL GAS
John Wyckoff
Engineering Department
1415 Wyckoff Road
P.O. Box 1464
Wall, New Jersey 07719
(732) 938-7864
(732) 919-7854 (Fax)

B. Locating Existing Facilities.
THE FOLLOWING IS ADDED:

Bureau of Mobility and Systems Engineering Markout Form is available at:
http://www.state.nj.us/transportation/eng/elec/ITS/requests.shtm

Bureau of Mobility and Systems Engineering, North Region (TOCN)
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 201-797-3575

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

C. Protection of Utilities.
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. When

access to Traffic Operation Centers, communication hubs, ITS cabinets or any other ITS facilities is required to perform work, submit a request for access to ITS facilities. Ensure that the request for access is made at least five working days before any work is scheduled, using the online form available at:

http://www.state.nj.us/transportation/eng/elec/ITS/access.shtm

105.07.02 Work Performed by Utilities
THE FOLLOWING IS ADDED:

Company Name & Address	Contact Person	Number of Day/s Advance Notice
Jersey Central Power & Light 300 Madison Avenue P.O. Box 1911 Morristown, New Jersey 07962-1911	Robert Soto (973) 401-8582	20
Verizon-New Jersey, Inc. 114 Paterson Street Paterson, NJ 07051	Sandra Cruger (973) 925-1480	20
New Jersey Natural Gas 1415 Wyckoff Road P.O. Box 1464 Wall, New Jersey 07719	John Wyckoff (732) 938-7864	10
Township of Parsippany-Troy Hills Water Utility Parsippany-Troy Hills Township 1001 Parsippany Boulevard Parsippany, NJ 07054	Kevin P. Ryan (973) 263-7099	10
Township Of Parsippany-Troy Hills Sanitary Sewer Utility Parsippany-Troy Hills Township 1001 Parsippany Boulevard Parsippany, NJ 07054	Robert Strecham (973) 263-4293	10

Stage # ___1____

Utility Company Name	Work Description	Work Duration (Day/s)	Restrictions
Jersey Central Power & Light	Install new poles at Frontage Road Station 4+25, 32' Left and Station 4+95, 28' Left. Relocate facilities between pole nos. 3800 to 41366. Remove existing pole nos. 3618 and 3801. Reset utility manhole casting at Littleton Road Station 22+47.		

Verizon-New Jersey, Inc.	Relocate facilities between pole nos. 3800 to 41366.	10
	Stage Total	_____10_____

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:

Drilled Shafts

Above ground highway lighting items.

Above ground sign lighting items.

Above and below bridge deck lighting items.

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.

THE FOLLOWING IS ADDED TO FIRST PARAGRAPH

5. Curb/Sidewalk field verification report as specified in 606.03.01 and 606.03.02 (if applicable construction is required).

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 80 Eastbound (4 Travel Lanes)	
Overrun of "Three Lanes Maintained" Time Limits	$10/minute
Overrun of "Two Lanes Maintained" Time Limits	$60/minute
Route 80 Westbound (4 Travel Lanes)	
Overrun of "Three Lanes Maintained" Time Limits	$10/minute
Overrun of "Two Lanes Maintained" Time Limits	$10/minute
Route 80 Eastbound Express (3 Travel Lanes)	
Overrun of "Two Lanes Maintained" Time Limits	$10/minute
Overrun of "One Lane Maintained" Time limits	$150/minute
Route 80 Westbound Express (3 Travel Lanes)	
Overrun of "Two Lanes Maintained" Time Limits	$10/minute
Overrun of "One Lane Maintained" Time limits	$70/minute
Route 80 Eastbound Local (2 Travel Lanes)	
Overrun of "One Lane Maintained" Time limits	$10/minute
Route 80 Westbound Local (2 Travel Lanes)	
Overrun of "One Lane Maintained" Time limits	$60/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

THE FOLLOWING IS ADDED:

A. Complete all work associated with the portion of Noise Barrier No. 1 between Route 80 baseline Sta. 166+52+/- and Sta. 179+00 within 260 working days from the start of demolition activities of the existing noise barrier.

B. Complete all work associated with Noise Barrier No. 2 within 40 working days from the start of demolition activities of the existing noise barrier.

C. Complete all work required for Substantial Completion on or before December 4, 2014.

D. Achieve Completion on or before April 3, 2015.

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.

108.19 COMPLETION AND ACCEPTANCE
THE FOLLOWING IS ADDED:

No Incentive Payment for Early Completion is specified for this project.

108.20 LIQUIDATED DAMAGES

Liquidated damages are as follows:

A. For each day that the Contractor fails to complete the work as specified in Subpart A of Subsection 108.10 of these Special Provisions, for Substantial Completion, the Department will assess liquidated damages in the amount of $6,900.

B. For each day that the Contractor fails to achieve Completion as specified in Subpart B of Subsection 108.10 of these Special Provisions, the Department will assess liquidated damages in the amount of $2,800.

THE FOLLOWING IS ADDED:

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.

109.07 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 this 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.

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

1. Comprehensive General Liability Insurance.
THE FOLLOWING IS ADDED:

Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

2. Comprehensive Automobile Liability Insurance.
THE FOLLOWING IS ADDED:

Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

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.

5. Excess Liability Insurance.
THE FOLLOWING IS ADDED:

Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

6. Marine Liability Insurance.
THE ENTIRE TEXT IS CHANGED TO:

If construction operations require marine operations, procure Marine Liability Insurance with a minimum limit of liability in the amount of $2,000,000 per occurrence. Ensure the policy is endorsed to include:

1. Personal injury.
2. Contractual liability.
3. Waiver of Subrogation for all claims and suits, including recovery of any applicable deductibles.
4. Per project aggregate.

Ensure the policy names the State, its officers, employees, and agents as additional insured.

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

9. Per project aggregate.

152.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS CHANGED TO:

The Department will make initial payment for OWNER'S AND CONTRACTOR'S 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.

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 5___ cordless phones with auto-switching.

c. Cell Phones. Provide __8__ 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:

_5__ computer configurations each meeting the following:

1. Processor having a clock speed of _3.5__ GHz or faster, _4__ GB RAM, _512__ MB Video RAM, _200__ 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___ Megabyte or larger Zip Drive internal or external with backup software for MS-Windows, and fifteen corresponding formatted data cartridges corresponding to the tape drive size.
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.

Ensure one computer has a 56K baud data/fax modem. 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:
_15__ USB _16__ GB Flash/Jump memory drives
_100__ CD-R _700__ MB (or larger) recordable CD's compatible with the CD drive and _100__ recordable DVD's.
_3__ 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. Ensure 1 computer has a Microsoft Windows XP 32 Bit Operating System for ACES, Extra and Groupwise.
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. _1__ 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 _10__ optical zoom, 2" LCD monitor, USB 2.0 compatible and includes USB 2.0 connections.

7. Inspection Equipment.

1. _3_ Calculators with trigonometric capability
2. _2_ Date/ Received stamp and ink pad
3. _1_ Electronic Smart level, 4 foot
4. _0_ Electronic Smart level, 2 foot
5. _8_ Carpenter rulers
6. _2_ Steel tape, 100 feet
7. _2_ Cloth tape, 100 feet
8. _1_ Illuminated measuring wheel
9. _1_ Plumb bob and cord
10. _1_ Line level and cord
11. _3_ Surface thermometer
12. _3_ Concrete thermometer
13. _3_ 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. _8_ Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
18. _8_ 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. _8_ Sets of rain gear with reflective sheeting
20. _8_ Sets of hearing protection with a NRR rating of 22 dB
21. _8_ Sets of eye protection according to ANSI Z87.1
22. _8_ Sets of fall arrest equipment according to ANSII 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. _9_ 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. _8_ 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. _300_ Legal size hanging folders
30. _300_ 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 156 – MATERIALS FIELD LABORATORY AND CURING FACILITY

156.03 PROCEDURE

156.03.01 Materials Field Laboratory

4. Communication Equipment.

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:

_1__ computer configurations each meeting the following:

1. Processor having a clock speed of _3.5__ GHz or faster, _2__ GB RAM, _512__ MB Video RAM, _200__ 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.
2. Wireless Ethernet Hub Switch with appropriate number of ports and cables and a print server.
3. High-speed broad band connection and service with a minimum speed of _3__ Megabytes 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__ Megabyte or larger Zip Drive internal or external with backup software for MS-Windows, and fifteen corresponding formatted data cartridges corresponding to the tape drive size.
6. _1__ Flatbed USB version 2.0 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. __1_ computer workstations, 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.

Ensure one computer has a 56K baud data/fax modem. If more than one computer configuration is specified, provide one wireless network card for the base computer configuration and hardwire connections between computer configurations as directed by the RE.

Also provide:
_10__ USB _16__ GB Flash/Jump memory drives
_100__ CD-R _700__ MB (or larger) recordable CD's compatible with the CD drive and _100__ recordable DVD's.
_4__ 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.

THE THIRD PARAGRAPH IS CHANGED TO:

When the computer system is no longer required by the ME, 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.

156.03.05 Nuclear Density Gauge
THE LAST PARAGRAPH IS CHANGED TO:

Provide a nuclear density gauge for the exclusive use of the ME using one of the following methods:

1. Purchase a nuclear density gauge under the Contractor's New Jersey Department of Environmental Protection (NJDEP) License or the Contractors United States Nuclear Regulatory Commission (USNRC) license.
2. Lease a nuclear density gauge from a New Jersey Department of Environmental Protection (NJDEP) or United States Nuclear Regulatory Commission (USNRC) licensed third party on the Department's New Jersey Department of Environmental Protection (NJDEP) License.

The Contractor is barred from purchasing gauges on the Department's New Jersey Department of Environmental Protection (NJDEP) license. Perform calibration and servicing of the gauge, other than routine wipe tests, every 24 months. The ME may direct additional calibrations, when necessary. Supply a replacement gauge for the Department's use during the calibration and servicing period.

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 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

158.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section shall include furnishing and installing the infiltration sand layer within bioretention basins.

158.02 MATERIALS

Provide materials as specified:
THE FOLLOWING IS ADDED:

Fine Aggregate……..……..901.06.02

158.03 CONSTRUCTION

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:

THE FOLLOWING IS ADDED:

158.03.04 Infiltration Sand Layer

Use fine aggregate specified in Subsection 901.06.02. Submit the material source to the RE for approval at least 45 days prior to the start of construction of the Bioretention Basins. No time extensions will be granted should the proposed material fail to meet the requirements of Subsection 901.06.02.

Place sand layer as indicated on the plans and details after the drainage area to the basin is stabilized. Use equipment positioned outside the basin area to prevent consolidation of the sand and underlying material. For acceptance, perform two tests of the sand to confirm a minimum permeability rate between 6 inches/hour and 20 inches/hour.

Do not mix, dump or stockpile any other materials or substances on the sand infiltration layer.

158.04 MEASUREMENT AND PAYMENT

THE FOLLOWING PAY ITEM IS ADDED:

Item	*Pay Unit*
INFILTRATION SAND LAYER, 6" THICK	SQUARE YARD
SEDIMENT CONTROL BAG	UNIT

SECTION 159 – TRAFFIC CONTROL

159.01 DESCRIPTION

THE FOLLOWING IS ADDDED:

This Section also describes the requirements for providing personnel, equipment and removal of snow and ice accumulation where concrete barrier is located on both sides of a single travel lane within the Project Limits.

159.02.02 Equipment

THE FOLLOWING IS ADDED TO THE LIST OF EQUIPMENT REFERENCES:

Portable Variable Message Sign w/Remote Communication……..……...……....1001.04
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:

8. **Portable Variable Message Sign w/Remote Communication (PVMSRC).** Place the PVMSRC 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 On-Site Configuration. Only display messages authorized by the Department for the Project and make the signs available for use remotely from the Traffic Operation Center (TOC) specified in 105.07.01.B. If the PVMSRC fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PVMSRC is not functioning.

   Provide a broadband cellular telephone service plan with data service on an IP based packet network for the intended uninterrupted 24/7 operational and functional requirements of the PVMSRC. Ensure that the PVMSRC has remote operation capability from the specified TOC using the Department's current DMS control software at the time of deployment.

   Provide for one week of testing by the TOC for remotely operating the PVMSRC before the start of construction operations that require lane or shoulder closures, or other impacts to traffic. At least 10 days before testing, submit to the RE for approval a plan for any work to be completed in the TOC. Submit a request to the RE at least 4 days in advance to access the TOC for any work.

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). Provide broadband ISP and On-Site Camera Configuration for remote operation and control from the Traffic Operations Center (TOC) to the field site via the Department's existing Head-End CCTV System, Genetec. 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.

159.03.08 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.

THE FOLLOWING SECTION IS ADDED:

159.03.10 REAL-TIME WORK ZONE TRAFFIC SYSTEM

Description.

The Real-Time Work Zone Traffic System ("SYSTEM") includes furnishing, installing, relocating, operating and maintaining an automated, portable, stand alone real-time work zone traffic SYSTEM meeting the requirements noted herein, and providing the maintenance of the complete SYSTEM for the duration of the project.

Provide National Transportation Communications for ITS Protocol (NTCIP) compliant equipment and software with the SYSTEM. Using this SYSTEM monitor traffic conditions through and leading to, the project's work zone and disseminate real-time information to the traveling public.

The SYSTEM will notify the Traffic Operations Center - North (TOCN) located at Elmwood Park and the RE's office once the delay through the work zone exceeds a time or queue to be set by TOC. This duration is subject to change throughout the project. The SYSTEM will notify an unlimited number of Department employees via their existing E-mail address to be provided by the Department after execution of the Contract. The telephone number to contact at TOCN is (201) 797-3575.

At least 20 days prior to beginning installation, submit to the RE for review and approval evidence that the Contractor or Subcontractor has successfully completed at least three SYSTEM deployments on projects similar in concept and scope to this Contract. Include names, addresses and telephone numbers of the owner's representatives for verification. Include brochures on all components of the SYSTEM, with details of, but not limited to: how and which communication systems is used, proposed sensor and sign locations, coordination with existing ITS systems, and the website.

Upon approval from the RE, demonstrate the operation of the SYSTEM prior to turning on the message signs and website to the viewing public. Provide training to Department staff on the use and operation of both the physical field hardware and the electronic version (website) of the SYSTEM.

Ensure that the SYSTEM is fully operational prior to any construction operations that require lane or shoulder closures on the Project.

Equipment.

When displaying a message, a sign is considered as a traffic control device. When not displaying a message, a sign is considered to be equipment.

Provide the following as a minimum with the SYSTEM:

1. Install eight dedicated portable trailer mounted Dynamic Message Signs (DMS) remotely controlled via a central computer base station.

Ensure that each DMS provided with the SYSTEM meets the following:

- Has at least 7 feet under clearance from the pavement to the message panel
- Present a level appearance
- Capable of displaying up to ten characters in each of three lines simultaneously at a minimum character height of 18 inches
- Capable of displaying variable size characters to provide for any message as directed by the Department
- The sign message panel is visible from 1/4 mile under both day and night conditions and the letters are legible from 750 feet
- The sign has an automatic dimming feature for nighttime operation and a power supply capable of providing 24 hours of uninterrupted service
- The sign is capable of displaying a hybrid message in which one panel displays an automated SYSTEM message as described, and the other panel displays a Department-generated message
- The sign is capable of displaying messages automatically scheduled to change at various times of the day and days of the week

2. Install portable traffic sensors linked to the central computer base station that are located to address traffic conditions through the work zone and a minimum queue length of 3 miles beyond the limits of the work zone. Redeploy or provide additional sensors and install as required to ensure that the traffic condition through the actual queues and the work zone is adequately obtained, and to ensure that the sign messages specified are accurately depicted.

3. One central base station equipped with appropriate software and either wireless or dedicated phone line broadband communications to "link" with the SYSTEM.

4. Provide current operational and location status (i.e. current traffic data and messages, communications system, signs and sensors) via the central base station computer and via the Internet on a dedicated project website established for the purpose of monitoring the corridor and the SYSTEM equipment.

5. Provide Critical system operator control functions that are password protected.

6. Through the password-protected website or at the field sites, provide the TOCN operators the ability to manually override the automated messaging in order to display a desired message at any time. Provide the operators the ability to send a pre-programmed or custom message to one sign or multiple signs without sending the identical message to individual signs. Provide the operator the ability to cancel this manual override and initiate any and all of the SYSTEM's automated messaging features at any time. Record the time frame and message content of any message overrides in a database.6. Provide a password protected "link" for approved personnel to access and retrieve the volume and speed data collected by the SYSTEM.

7. Demonstrate that the SYSTEM can verify and validate the real-time messages on the signs for password approved personnel using the website.

8. Configure the software to assess any type of malfunction that occurs. This assessment includes communicating disruption between any device in the system configuration, sign malfunctioning, speed sensor malfunction, etc.

9. Notify the RE's office, the Contractor, and the TOCN about any system malfunction. Configure the SYSTEM software to immediately notify appropriate personnel by e-mail once a malfunction occurs in the SYSTEM. Record such notices in the database maintained by the SYSTEM.

10. Make the website address available to the public for viewing only of the speed/travel times and the sign messages and link it to a Department website, and other regional agency traffic websites as directed. Provide the website in the format as required by the Department's Webmaster. Present the information on a zoom-able map to allow the users to view the specific device level up to the State level.

11. Provide a dedicated project website with a full color map depicting the project area with current locations of traffic sensors and signs, and install icons and links to traffic cameras in the region.

12. Using color-coding, reflect the current traffic conditions at each traffic sensor on the map and display the entire information message being shown by each sign.

13. Determine the exact locations of all devices as part of an on-site analysis with TOCN and the RE, meeting the Department's safety requirements and coordinate with the other construction operations. Get approval for the final locations from the RE, and relocate or reposition the devices during the deployment as directed by the RE. If directed by the RE, remove the devices from the Project site for any winter shutdown and between stages when the SYSTEM is not required and redeploy the SYSTEM within two weeks of a written notice by the RE.

14. Using the SYSTEM provide Traffic Control or safety protection for the installation and maintenance of any equipment within the clear zone that is not covered by existing structures or safety devices.

15. Operate the SYSTEM continuously (24 hours, 7 days a week) when deployed on the project until directed to remove.

16. Acquire traffic volume and speed data; develop travel times, queue lengths, and delay times; and select motorist information messages automatically without operator intervention after SYSTEM initialization.

17. Provide devices with a reliable, self-contained power source to ensure uninterrupted operation in all weather conditions with service and maintenance.

Data Acquisition.

Provide a SYSTEM with the following minimum data acquisition capabilities:

1. Ensure each traffic sensor is communicating with the computer base station to provide the appropriate signs with the specified traffic message.

2. Ensure the SYSTEM is capable of obtaining and using traffic data from existing ITS systems.

3. Ensure the SYSTEM is set to display continuous travel times between the locations as specified and as directed by the TOCN.

4. Ensure the SYSTEM is capable of calculating and having travel time information displayed on the signs within specific points within the project limits, for the entire project limits, and from the designated signs. Initial message location requirements are specified in the Real Time Traffic Message below.

5. Ensure the SYSTEM is capable of calculating and having "real time" delay information displayed on the signs. Calculate and display this "real time" delay on the signs to the parameters as directed by TOCN (i.e. to the nearest minute for delays up to 15 minutes after the initial 5 minute delay). For delays exceeding 15 minutes, round off the delay information displayed on the signs to the nearest five (5) minute increment.

Ensure that each traffic sensor communicates with the computer base station to activate the appropriate signs whenever the prevailing traffic speed slows to the specified speed or delay time as directed by TOC. Once activated, display the preprogrammed messages automatically on the appropriate signs until the delay drops below a specified time or as directed by TOC.

6. To allow for motorist information messages of high specificity, ensure that the SYSTEM acquires quantitative traffic data using an accurate speed measurement technique that includes the capability of detecting stopped traffic, counting traffic volume and lane occupancy, and measuring queue lengths.

7. Ensure that the SYSTEM's traffic sensors are of a type that covers all lanes in at least one direction and whose accuracy is not degraded by inclement weather or degraded visibility conditions including precipitation, fog, darkness, excessive dust, and road debris.

8. Archive all traffic data acquired and developed by the SYSTEM in a log file with time and date stamps. Make this information retrievable by the RE at any time and provide the archived records during full deployment to the RE on CD-ROM or DVD in Microsoft Excel 2007 at Completion.

Motorist Information Messages.

Provide a SYSTEM with the following motorist information communication capabilities:

1. Ensure that the SYSTEM is capable of providing speed, delay, length of traffic queue, travel time, and lane closure advisories to motorists.

2. Update the traffic condition information displayed on the signs every 1 minute.

3. Update the website delay information simultaneously with the traffic condition information displayed on the signs. Ensure that the website is capable of displaying more than one type of traffic condition information simultaneously.

4. Ensure that records of all motorist information messages displayed by the SYSTEM are recorded in log files with time and date stamps. Ensure that the RE can retrieve this information at any time and provide the records during all deployment to the RE on CD-ROM or DVD in Microsoft Excel 2007 at Completion.

5. Ensure that the SYSTEM is capable of displaying at least 25 different default or automatic advisory preset messages for each sign.

6. Ensure that the default and advisory message content are programmable from the central base station.

7. Send all requests to change the messages on the signs for approval by TOC.

8. Ensure that the initial traffic conditions and messages for signs are as specified in the Real Time Message Table, with other message content as directed by the TOCN. Ensure that travel times posted on a sign are from the point of the respective sign to the specified location(s) in the message.

9. Center justify all messages.

Real Time Message Table

Message Boards will be deployed with the following messages:

Location 1	Route I-80 Eastbound 5 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL X MILES TIME XX MINS I-280
Location 2	Route I-80 Eastbound 3 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL**

	TRAVEL X MILES TIME XX MINS I-280
Location 3	Route I-80 Westbound 5 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL X MILES TIME XX MINS DENVILLE
Location 4	Route I-80 Westbound 3 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL X MILES TIME XX MINS DENVILLE
Location 5	Route I-280 Westbound before Exit 1 with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL 287 XX MIN TIME X39 XX MIN
Location 6	Route US 46 Eastbound 3 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL X MILES TIME XX MINS PINEBROOK
Location 7	Route US 46 Westbound 3 miles from the start of the project with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL X MILES TIME XX MINS DENVILLE
Location 8	Route I-280 Westbound before Exit 4 with the following message: **FIRST PANEL** **SECOND PANEL** TRAVEL 287 XX MIN TIME X39 XX MIN

The Contractor will need to determine the number of sensors and their locations to cover the areas requested. Message board locations will be finalized in field by RE and traffic operations personnel.

Communications.

Provide SYSTEM intercommunications with the following minimum requirements:

1. Ensure that communications between the central computer base station and any individual sign and sensor is independent throughout the full range of deployed locations and does not rely upon communications with any other sign or sensor.

2. Incorporate an error detection/correction mechanism in the SYSTEM's communication system to insure the integrity of all traffic conditions data and motorist information messages.

3. Ensure that any required configuration of the SYSTEM's communications system is performed automatically during SYSTEM initialization.

4. Provide the communications, including access and control by the TOC, over a stable and secure system that is not impacted by weather or other users. Included in the Contractor's operational responsibilities are all communication costs such as FCC licensing, cellular telephone, satellite and Internet subscription charges.

Performance.

Ensure that an "on site" specialist, who is skilled in the operation of all the SYSTEM equipment and software, is locally available 24 hours a day, 7 days a week to maintain the SYSTEM components, to relocate portable devices as necessary and to respond to emergency situations within 8 hours. Ensure that this specialist is equipped with sufficient resources to respond to needed corrections of deficiencies within 8 hours of notification.

Ensure that the speed and travel time displayed on the signs and website are accurate to within 3 miles per hour and 3 minutes of actual conditions respectively.

Ensure that all necessary corrections or adjustments to the SYSTEM are made within 24 hours of notification by the RE. For each 24-hour timeframe period that components of the SYSTEM are not fully restored to proper working order, payment reductions from the monthly estimate will be made as follows:

1 day = 5% pay reduction

2 days = 10% pay reduction

3 days = 15% pay reduction

4 days = 20% pay reduction

5 days = 25% pay reduction

6 days = 30% pay reduction

7 days = 40% pay reduction

8 days = 50% pay reduction

9 days = 60% pay reduction

10 days = 75% pay reduction

If any components of the SYSTEM are down for more than 10 total days in a month whether they are consecutive or cumulative, then no payment will be made for that month.

The Department reserves the right to have SYSTEM components removed at any time, or the complete SYSTEM terminated and removed, if it determines the SYSTEM is not performing as specified, in which case no further payment will be made.

159.03.11 Snow Removal

Before starting Work, submit to the RE the name and contact information of an employee assigned as the project Snow Removal Coordinator. The Snow Removal Coordinator must be available 24-hour a day, 7 days a week basis from November 1 to March 1 of the following year throughout the duration of the Contract. The Snow Removal Coordinator has the responsibility for and authority to implement snow removal operations for the Project on the behalf of the Contractor.

The RE will notify the Contractor's Snow Removal Coordinator to mobilize equipment and personnel to provide snow removal services. Respond to NJDOT's deployment location within 90 minutes of RE notification ready to begin snow removal operations. The RE will advise the Snow Removal Coordinator when removal activities are complete, and these services are no longer needed for the snow event.

Provide a qualified Class "A" frontend loader operator who will remove accumulation of snow and ice along the concrete barrier as directed during snow events.

Maintain one midsized frontend loader on standby, from November 1 to March 1 of the following year throughout the duration of the Contract at the project site to be used specifically to remove snow and ice accumulation as directed during snow events.

159.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION	UNIT.
PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY	UNIT.
REAL-TIME WORK ZONE TRAFFIC SYSTEM	MONTH
SNOW REMOVAL	LUMP SUM

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 VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION or 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.

Payment for THE REAL-TIME WORK ZONE TRAFFIC SYSTEM will be made for each month or fraction thereof that the SYSTEM is required.

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

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

THE FOLLOWING SECTIONS ARE ADDDED:

SECTION 162- GROUND VIBRATION MONITORING AND CONTROL

162.01 DESCRIPTION

This Section describes the requirements for performing a pre-construction survey, control of means and methods of foundation construction, vibration monitoring, post-construction survey for augering soldier pile foundations adjacent to the existing bridge.

162.02 CONSTRUCTION

A. Preconstruction Inspections. Prior to start of demolition, engage the services of a qualified, independent professional engineer, acceptable to the RE to conduct a pre-construction condition survey of structures in the vicinity of the site. Perform all work under the direct supervision of a Professional Engineer. The Professional Engineer must have at least ten (10) years responsible experience in similar work and have or have available professional level capability in related geotechnical and structural evaluations and engineering.

Survey to extend to such structures or conditions as may be affected by the construction operations. The scope and detail of the survey shall be sufficient to serve as a reference for comparison should evidence of damage be observed during construction.

At least 30 days prior to the performance of the pre-construction condition survey of structures, submit to the RE the proposed survey program prepared by the Contractor's Engineer. Include in the program description detailed specifications of the field procedures and survey methods to be utilized. Provide qualifications of the individuals performing the surveys and those reviewing and supervising the work.

Upon written request, a copy of the latest Bridge Re-Evaluation report will be made available.

Include a description of the structures to be examined. Document with photographs and written documentation a11 cracks, damage, or other existing defects and include such information to make it possible to determine the effect, if any, of the construction operations on the defect. Where significant cracks or damage exist, or for defects too complicated to describe in words, take photographs and make them apart of the record.

Prior to start of work, submit one copy of the record of pre-construction condition survey to the RE for review and retention.

B. Vibration Monitoring and Control Program. Prepare a vibration monitoring and control program as follows:

1. Develop a program to monitor the ambient and construction vibrations and settlements at the existing bridge.
2. Develop a program to limit the construction vibrations at the bridge to an acceptable level.
3. Install one receptor on the bridge at a point closest to the pile augering location to measure and record peak particle velocity before and during construction operations on three mutually perpendicular directions using a portable velocity recorder. If the vibration at the bridge exceeds the estimated damage particle velocity as determined by the Professional Engineer, stop construction activities and notify the RE.
4. In addition to the vibration monitoring, monitor displacements and settlements at the existing bridge. Establish a fixed point on the bridge abutment or pier at a point closest to the pile augering activities, and measure the elevation of the fixed point with respect to a bench mark at the end of each day during the construction of the proposed drilled foundations. If the difference between the preconstruction and during construction elevations of the fixed point exceeds 1/8 inch, stop the construction activities and notify the RE.
5. Locate and measure the width and length, of all cracks in the face of abutment that are determined by the RE to have structural significance. Make indentations on either side of the crack suitable for placing a gauge which will record the distance between the indentations to the nearest 0.001 inch, and measure at the end of each day. If the crack widens, stop construction activities and notify the RE.
6. Prepare a vibration monitoring and construction control program report including the following:
    a. Summary;
    b. Assessment of vibration susceptibility of the bridge including estimated damage threshold particle velocity;
    c. Predicted construction vibrations at the bridge;
    d. Identification of structural components that could be damaged by the construction vibrations;
    e. Description of limitations or modifications of construction equipment or methods to preclude structural damage;
    f. Description of monitoring program for vibration susceptible structural components. Perform construction operations and vibration monitoring in accordance with the approved program report. Changes in the program where conditions are not as anticipated must be approved by the RE. Submit seven copies of the report for review and approval prior to any foundation construction and pile augering adjacent to the existing bridge.
7. Monitor the structure daily.

C. Post Construction Survey. Perform a post-construction survey of the structure. Document with photographs and written documentation all new and existing cracks, damage, or other defects. Certify that the construction operations did not impact the condition of the structure and that required repairs were performed to the satisfaction of the RE. Submit one copy of post-construction condition survey to the RE for review and approval.

D. Repair of Damage. Repair any damage to the existing bridge caused by construction activities to the satisfaction of the RE at no additional cost to the Department.

162.03 MEASUREMENT AND PAYMENT

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

Item	*Pay Unit*

VIBRATION MONITORING LUMP SUM

The Department will pay 25 percent of the lump sum price bid for VIBRATION MONITORING when the work on augering piles begins. The Department will pay the remaining 75 percent when the post-construction survey has been approved.

DIVISION 200 – EARTHWORK

SECTION 201 – CLEARING SITE

201.01 Description
THE FIRST PARAGRAPH IS REPLACED AS FOLLOWS:

This Section describes the requirements for clearing site; clearing site of bridges and other structures, including sign structures and noise barriers; removing underground storage tanks; installing monitoring wells; sealing abandoned wells; and demolishing buildings.

201.03.01 Clearing Site
THE FOLLOWING IS ADDED:

Remove trees and branches within 15 feet of the end of JCP&L pole cross arms. If the resulting tree is rendered hazardous, then remove the entire tree according to SECTION 802.

G. Removing Electrical material and Equipment.
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH.

Remove existing telephone wires, termination cable, trunk cables, switches, modems, poles, detectors, detector cabinets, loops, and power cables that are abandoned under the contract.

THE FOLLOWING IS ADDED TO THE END OF THIS SECTION:

H. Removal of RTMS and Loops.

Remove existing ranging radar assembly, ranging radar detector standard, ranging radar controller assembly, modem equipment, and foundation as shown on the plans. Remove foundations to a minimum depth of 2 feet below the finished grade and backfill as specified in 203.03.02.C. Salvage and deliver above ground equipment to the Traffic Operations Center or to a location as directed by the RE.

Abandon/Remove existing loops, leads, and conduits. Remove junction boxes to a minimum depth of 2 feet below the finished grade and backfill as specified in 203.03.02.C.

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:

1. **Prestressed Concrete Stringers and Concrete Diaphragms.** Repair damage to prestressed concrete stringers and concrete diaphragms using nonshrink grout conforming to Subsection 903.08 before deck placement.

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 $500,000 until Completion.

The Department will not make payment for the Items:

CLEARING SITE, BRIDGE (1414-181) in excess of $80,000,

CLEARING SITE, BRIDGE (1420-154) in excess of $90,000,

CLEARING SITE, BRIDGE (1414-166) in excess of $10,000,

CLEARING SITE, BRIDGE (1414-170) in excess of $10,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-219) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-221) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-222) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-225) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-227) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-228) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-241) in excess of $15,000

CLEARING SITE, STRUCTURE (Structure No. 1414-202) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-216) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-217) in excess of $12,500,

CLEARING SITE, STRUCTURE (Structure No. 1414-218) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-213) in excess of $20,000,

CLEARING SITE, STRUCTURE (Structure No. 1414-205) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1420-202) in excess of $15,000,

CLEARING SITE, STRUCTURE (Structure No. 1420-216) in excess of $12,500,

CLEARING SITE, STRUCTURE (Structure No. 1420-215) in excess of $12,500

CLEARING SITE, STRUCTURE (1) in excess of $3,000,

CLEARING SITE, STRUCTURE (2) in excess of $9,000,

CLEARING SITE, STRUCTURE (Noise Barrier 1) in excess of $150,000,

CLEARING SITE, STRUCTURE (Noise Barrier 2) in excess of $75,000

, until Substantial Completion.

SECTION 202 – EXCAVATION

202.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section describes the requirements for scarification of subsoil in areas of compacted soils prior to topsoiling, fertilizing and seeding and/or planting.

202.02 MATERIALS
THE FIRST IN THE LIST IS CHANGED TO:

Coarse Aggregate (No. 57, or 67) 901.03

202.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

202.03.10 Subsoil Scarification

Paved Areas: Remove and dispose of pavement, including base course, in accordance with Subsection 202.03.06. Scarify and cultivate to an average depth of 18 inches, incorporating the existing subbase with the existing subsoil. Repeat operation until the subbase and subsoil are evenly mixed. Smooth to grade prior to topsoiling, fertilizing and seeding and/or planting. Use wide track or wide tire equipment to minimize compaction of mixed soil.

Vegetated Areas: Remove all stumps, brush, weeds, and debris from the surface area to be subsoil scarified and dispose of in accordance with Subsection 201.03.09. Scarify the subsoil to an average depth of 18 inches, with parallel rows spaced 24 inches on center. Smooth to grade prior to topsoiling, fertilizing and seeding and/or planting. Use wide track or wide tire equipment to minimize compaction of mixed soil.

Repair any damage to vegetation, pavement surfaces, structures, utilities or other property at no cost to the State.

202.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

Item	*Pay Unit*
SUBSOIL SCARIFICATION	SQUARE YARD

SECTION 203 – EMBANKMENT

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

THE FOLLOWING IS ADDED:
Controlled Low Strength Material 903.09

203.03 CONSTRUCTION
THE FOLLOWING SUBSECTIONS ARE ADDED:

203.03.03 Geotextile Roadway Stabilization

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

The Contractor shall check the geotextile upon delivery to ensure that the proper material has been received. During all periods of shipment and storage, the material shall be protected from temperatures greater than 60 degrees C, or less than 0 degrees C, mud, dirt, dust and debris, or materials which may permanently affix to the material. The manufacturer's instructions regarding protection from direct sunlight shall be followed. At the time of installation of the geotextile, 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, shall replace geotextile that is damaged during storage or installation.

Prior to placing of any geotextile, the subgrade shall be shaped and compacted 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. The prepared surface shall be free from water pockets and sharp objects that may tear or puncture the geotextile. Geotextile material shall not be placed on soft, muddy, or frozen areas, or until all irregularities in the prepared areas, including soft areas in the foundation, have been corrected.

The subgrade will be inspected and approved by the RE 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.

Geotextile material shall be placed in continuous strips in the longitudinal direction of the roadway. All adjacent layers of geotextile material shall be overlapped a minimum of one foot.

The Contractor shall verify the correct orientation (roll direction) of the geotextile. If the Contractor is unable to complete a required length with a single continuous length of stabilization a joint may be made, with the RE's approval. This joint shall be made for the full width of the strip. Joints shall be pulled and held taut and free of wrinkles and lying flat during placement of the subbase or base course material.

To prevent damage, only that amount of geotextile required for immediately pending work shall be placed. After a layer of geotextile has been placed it shall be pulled tight and held in place by means of pins or small piles of aggregate until the subsequent layer of subbase or base course is placed and compacted. Vehicles or other construction equipment shall not be allowed on the geotextile material until at least 6 inches of material has been placed.

Subbase or base course material shall be placed, spread and compacted in such a manner as to minimize the development of wrinkles and/or displacement of the geotextile material. The subbase or base course shall be graded and rolled before the end of each workday to prevent ponding of water on the geotextile.

No vehicles or other construction equipment shall operate on the area until at least 6 inches of subbase or base course material cover the geotextile. Turning of tracked vehicles shall be minimized to prevent displacement of the underlying geotextile or roadbed. Ruts that may be created in the subgrade due to construction traffic shall be filled with additional material.

203.03.04 Abandoning of Existing Pipes

Existing pipes identified on the plans to be abandoned in place shall be completely filled with controlled low strength material to prevent future collapse of these pipes. The contractor shall submit to the RE for approval their proposed means and methods to ensure that the existing pipe are completely filled.

203.03.05 Geogrid Reinforcement

Geogrid reinforcement shall be a polyethylene 3-dimensional structure that substantially increases the load bearing capacity of the underlying subgrade. Each cell shall confine soil preventing lateral spreading and increasing base course stiffness. The minimum thickness of the geogrid structure shall be 3" and individual cell surface area shall not be greater than 75 square inches. Material shall be submitted for approval in accordance with Section 105.05.

203.04 MEASUREMENT AND PAYMENT

THE FOLLOWING PAY ITEMS ARE ADDED:

Item	*Pay Unit*
GEOTEXTILE ROADWAY STABILIZATION	SQUARE YARD
CONTROLLED LOW STRENGTH MATERAIL	CUBIC YARD
GEOGRID REINFORCEMENT	SQUARE YARD

Completed and accepted Geotextile Roadway Stabilization will be measured by the horizontal area in square yards. Payment will not be made for geotextile material used in the creation of overlaps.

Completed and accepted Geogrid Reinforcement will be measured by the horizontal area in square yards. Payment will not be made for geogrid material used in the creation of overlaps.

DIVISION 300 – SUBBASE AND BASE COURSES

SECTION 302 – AGGREGATE BASE COURSE

302.02 MATERIALS

Materials shall conform to the following subsections:
THE FOLLOWING IS ADDED:

Coarse Aggregate (No. 57)……..……901.03

302.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for the Items as follows:
THE FOLLOWING IS ADDED:

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

SECTION 303 – ASPHALT-STABILIZED DRAINAGE COURSE

303.03.01 Asphalt-Stabilized Drainage Course

D. Spreading and Grading
THE SECOND SENTENCE IS CHANGED TO:

Place asphalt-stabilized drainage course at a laydown temperature between 210 °F and 275 °F.

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
1 - 6	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:

Use an MTV for the construction of intermediate and surface course in the traveled way. 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 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.

THIS ENTIRE SUBPART IS CHANGED TO:

When the project exceeds one mile in continuation length, the Department will evaluate the final riding surface using the International Roughness Index (IRI) according to ASTM E 1926. The final riding surface is defined as the last lift of the pavement structure where traffic will be allowed. The Department will use the measured IRI to compute the appropriate pay adjustment (PA). The PA will be positive for superior quality work or negative for inferior quality work.

The Department will calculate the PA as specified in Table 401.03.03-7 and will base PA on lots of 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.

1 **Smoothness Measurement.** The Department will test the longitudinal profile of the final riding surface for ride quality with a Class 1 Inertial Profiling System according to AASHTO M 328 and NJDOT R-1. If project conditions preclude the use of the Class 1 Inertial Profiling System, the Department will use a Class 1 walking profiler or lightweight profiler.

The IRI value reported for each lot is the average of 3 runs of each wheel path, unless otherwise directed by the Department.

2. **Quality Control Testing.** Perform control testing during lift placement to ensure compliance with the ride quality requirements specified in Table 401.03.03-7

3. **Preparation for IRI Testing.** Provide traffic control when the Department performs IRI testing. Perform mechanical sweeping of the surface before IRI testing. To facilitate auto triggering on laser profilers, place a single line of preformed traffic marking tape perpendicular to the roadway baseline 300 feet before the beginning and after the end of each lane, shoulder, and ramp to be tested or at the direction of the Department. Submit the actual stationing for each traffic marking tape location to the RE.

4. **Quality Acceptance.** The Department will determine acceptance and provide PA based on the following:

   a. **Pay Adjustment.** The pay equations in Table 401.03.03-7 express the PA in dollars per lot of 0.01 mile or 0.005 mile as shown in the table. The number of lots for final pay adjustment will be reduced by the number of lots representative of a length equal to the total length of the impediments that are present within the areas to be tested. Lots excluded from final PA will be those with the highest recorded IRI numbers for respective roadway and bridge deck segments. The number of lots to be excluded for each segment is shown in Table 401.03.03-7. IRI numbers are in inches per mile.

Table 401.03.03-7 Pay Equations for Ride Quality

	Excluded Lots	**Pay Equation(s)**	
Route I-80 EB from MP 41.53 to MP 45.66	Lane 1 = 5 Lane 2 = 5 Lane 3 = 5 Lane 4 = 7	PA on lots of 0.01 mile length	
		IRI <22	PA = $50
		22 ≤ IRI <42	PA = $105.00 – ($2.50 × IRI)
		42 ≤ IRI ≤ 52	PA = $0
		52 < IRI ≤ 122	PA = (IRI – 52) × (–$7.1429)
		IRI > 122	Remove & Replace
Route I-80 WB from MP 43.28 to MP 45.66	Lane 1 = 5 Lane 2 = 5 Lane 3 = 5 Lane 4 = 7	PA on lots of 0.01 mile length	
		IRI <20	PA = $50
		20 ≤ IRI <40	PA = $120.00 – ($2.50 × IRI)
		40 ≤ IRI ≤ 50	PA = $0
		50 < IRI ≤ 120	PA = (IRI – 50) × (–$7.1429)
		IRI > 120	Remove & Replace

   b. Removal and Replacement. If the final IRI is greater than the Remove and Replace Value (RRV), remove and replace the lot. Replacement work is subject to the same requirements as the initial work.

If less than 8 percent of paving lots exceeds the RRV, submit a plan for corrective action. If the corrective action plan is not approved by the RE, remove and replace the designated lots. If the corrective action plan is approved and the lots are reworked, the lots are subject to the requirements of subpart 401.03.03.J Ride Quality Requirements except that the lots are not eligible for positive PA. The RE may allow the lots to remain in place and apply the pay adjustment as computed in Table 401.03.03-7.

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 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.

SECTION 404 – STONE MATRIX ASPHALT (SMA)

404.03.01 SMA

H. Air Void Requirements.
THIS PART IS CHANGED TO:

Drill cores as specified in 401.03.05.

Mainline lots are defined as the area covered by a day's paving production of the same job mixed formula between 1000 and 4000 tons for the traveled way and auxiliary lanes. The RE will combine daily production areas less than 1000 tons with previous or subsequent production areas to meet the minimum lot requirements. When the maximum lot requirement is exceeded in a day's production, the RE will divide the area of HMA placed into 2 lots with approximately equal areas.

Ramp pavement lots are defined as approximately 10,000 square yards of pavement in ramps. The RE may combine ramps with less than the minimum area into a single lot. If 2 or more ramps are included in a single lot, the RE will require additional cores to ensure that at least 1 core is taken from each ramp.

Other pavement lots are defined as approximately 10,000 square yards of pavement in shoulders and other undefined areas.

The ME will calculate the percent defective (PD) as the percentage of the lot outside the acceptable range of 2 percent air voids to 7 percent air voids. The acceptable quality limit is 10 percent defective. For lots in which PD

< 10, the Department will award a positive pay adjustment. For lots in which PD > 10, the Department will assess a negative pay adjustment.

The ME will determine air voids from 5 cores taken from each lot in random locations. The ME will determine air voids of cores from the values for the maximum specific gravity of the mix and the bulk specific gravity of the core. The ME will determine the maximum specific gravity of the mix according to NJDOT B-3 and AASHTO T 209, except that minimum sample size may be waived in order to use a 6-inch diameter core sample. The ME will determine the bulk specific gravity of the compacted mixture by testing each core according to AASHTO T 331.

The ME will calculate pay adjustments based on the following:

1. **Sample Mean ($\overline{X}$) and Standard Deviation (S) of the N Test Results (X_1, X_2,..., X_N).**

$$\overline{X} = \frac{(X_1 + X_2 + ... + X_N)}{N}$$

$$S = \sqrt{\frac{(X_1 - \overline{X})^2 + (X_2 - \overline{X})^2 + ... + (X_N - \overline{X})^2}{N - 1}}$$

2. **Quality Index (Q).**

$$Q_L = \frac{(\overline{X} - 2.0)}{S}$$

$$Q_U = \frac{(7.0 - \overline{X})}{S}$$

3. **Percent Defective (PD).** Using NJDOT ST for the appropriate sample size, the Department will determine PD_L and PD_U associated with Q_L and Q_U, respectively. $PD = PD_L + PD_U$

4. **Percent Pay Adjustment (PPA).** Calculate the PPA for traveled way and ramp lots as specified in Table 401.03.03-3.

Table 404.03.01-1 PPA for Mainline Lots and Ramp Lots

	Quality	PPA
Surface	PD < 10	PPA = 4 – (0.4 PD)
	10 ≤ PD < 30	PPA = 1 – (0.1 PD)
	PD ≥ 30	PPA = 40 – (1.4 PD)
Intermediate and Base	PD < 30	PPA = 1 – (0.1 PD)
	PD ≥ 30	PPA = 40 – (1.4 PD)

Calculate the PPA for other pavement lots as specified in Table 401.03.03-4.

Table 404.03.01-2 PPA for Other Pavement Lots

	Quality	PPA
All Courses	PD < 50	PPA = 1 – (0.1 PD)
	PD ≥ 50	PPA = 92 – (1.92 PD)

5. **Outlier Detection.** The ME will screen all acceptance cores for outliers using a statistically valid procedure. If an outlier is detected, replace that core by taking an additional core at the same offset and within 5 feet of the original station. The following procedure applies only for a sample size of 5.

    1. The ME will arrange the 5 core results in ascending order, in which X_1 represents the smallest value and X_5 represents the largest value.
    2. If X_5 is suspected of being an outlier, the ME will calculate:

$$R = \frac{X_5 - X_4}{X_5 - X_1}$$

3. If X_1 is suspected of being an outlier, the ME will calculate:

$$R = \frac{X_2 - X_1}{X_5 - X_1}$$

4. If R > 0.642, the value is judged to be statistically significant and the core is excluded.

6. Retest. If the initial series of 5 cores produces a percent defective value of PD ≥ 30 for mainline or ramp lots, or PD ≥ 50 for other pavement lots, the Contractor may elect to take an additional set of 5 cores at random locations chosen by the ME. Take the additional cores within 15 days of receipt of the initial core results. If the additional cores are not taken within the 15 days, the ME will use the initial core results to determine the PPA. If the additional cores are taken, the ME will recalculate the PPA using the combined results from the 10 cores.

7. Removal and Replacement. If the final lot PD ≥ 75 (based on the combined set of 10 cores or 5 cores if the Contractor does not take additional cores), remove and replace the lot and all overlying work. The replacement work is subject to the same requirements as the initial work.

404.04 MEASUREMENT AND PAYMENT
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 503 – DRILLED SHAFT FOUNDATIONS

503.03.06 Constructing Drilled Shafts

F. Constructing Using Casings.

2. Removable Casing.

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Do not expose the shaft concrete to salt water or moving water for 7 days.

503.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will not make payment for temporary or stay in place casing as may be required for installation and all costs to be included in the item "Drilled Shaft in Soil __ Diameter".

SECTION 505 – PRECAST AND PRESTRESSED STRUCTURAL CONCRETE

505.03.01 Prestressed Concrete Structures

C. Erection Plan.

THE FIRST SENTENCE IS CHANGED TO:

Submit working drawings for certification regarding the plan of operations to the RE at least 30 days before the pre-erection meeting.

SECTION 506 – STRUCTURAL STEEL

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.

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.

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.

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

507.03.02 Constructing Bridge Decks

A. Forms. Construct forms as follows:

2. Removable Forms.

THE FOLLOWING IS ADDED:

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.

507.04 MEASUREMENT AND PAYMENT

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will include payment for epoxy coated reinforcement steel 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 513 – RETAINING WALLS

513.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This section also describes the requirements for constructing soldier pile and lagging (panel) walls

513.02.01 Materials
THE FOLLOWING IS ADDED:

For MSE Walls, use either Soil Aggregate, I-15 or Coarse Aggregate, No. 57. For Prefabricated Modular Retaining Walls and T-Wall, use either Soil Aggregate, I-9 or Coarse Aggregate, No. 57.

For Soldier Pile and Lagging Walls, provide additional materials as specified:

Broken Stone.....901.03.01
Washed Gravel.....901.03.02
Structural Steel.....906.01
Concrete…….....903.03
Structural Precast Concrete……..904.03
Bearing Pads, Elastomeric.....907.03
Zinc Coating on Steel.....912.02.01
Timber for Structures……...915.04
Timber Treatment……915.05

Soldier pile and lagging (panel) walls consist of steel posts, cast in place concrete, drilled foundations and all other associated members and attachments necessary for fabrication and erection. Provide posts conforming to Section 506.

Provide materials not specifically covered in the Plans and Specifications conforming to AASHTO LRFD Standard Specifications for Highway Bridges. Use the applicable editions and revisions of standards and specifications that are current at the time of bidding.

Concrete for Wall. Provide Class A concrete for cast-in-place concrete wall conforming to Section 903.

Provide coarse and fine aggregate conforming to the requirements of ASTM C 33 and Subsection 901.06. Use washed coarse aggregate not larger than No. 67 as listed in Table 901.03-1of Subsection 901.03. Limit adherent fines not exceeding one percent. Limit the total adherent and non-adherent fines not exceeding 1.5 percent.

Provide Back of Wall Drainage. Provide prefabricated Drain, AmerDrain 500 as manufactured by American Wick Drain Corporation, Delta Drain 6000 as manufactured by Corsella-Dörken Products, Inc., J-DRain 400 as manufactured by US Fabrics, Inc. or approved equal.

Joint Filler Material. Provide closed-cell polyethylene foam backer rod conforming to AASHTO M 153, Type 1, 1¼ inch fiber expansion joint material for front face horizontal joints between lagging panels.

Backfill Material. Select granular borrow excavation material or broken stone material conforming to:

Select granular borrow excavation conforming to porous fill, designation I-9 according to Section 203.

Broken stone conforming to Subsection 901.03.01. Size numbers 57, or 67, as specified in Subsection 901.03, Table 901.03-1, may be used. The maximum compacted thickness of each layer is 8 inches.

Front of Wall Drainage. Provide underdrains, where shown on the Plans, conforming to Section 601.03.03

513.03.01 Proprietary Retaining Walls

F. Backfilling.
THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. Soil Aggregate.

G. Compacting.

THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. **Soil Aggregate.** With the exception of the 5-foot zone directly behind the units, compact soil aggregate with large, smooth drum, vibratory rollers using the density control method as specified in 203.03.02.D.

THE FOLLOWING IS ADDED:

513.03.03 Soldier Pile And Lagging Walls

A. Working Drawings

Furnish Working Drawings according to Subsection 105.05. Submit design calculations prepared by a Professional Engineer for approval. Minor variations in details may be permitted, subject to approval of the Department; however, any major departure from the design shown on the plans will not be approved. Clearly note on the drawings any minor variations.

Before fabrication, submit complete working drawings and erection plans. Show exact dimensions and handling details on Working Drawings for each type of unit to be used.

Include complete plan and elevation on working drawings for each wall and clearly show the top and bottom elevations of the wall at each pile location as well as indicate all steps, pile hole diameters and depths. Show reinforcement steel patterns in precast panels, and precise mounting details, including the locations of all required threaded inserts to ensure proper installation and to avoid conflicts. If required, show pile hole casings.

Include design and details for timber lagging on Working Drawings.

Complete erection details showing handling points and anchorage details including erection instructions and sequence of operations. Address method(s) of stabilization of pile holes before placing concrete.

B. Shop Inspection

Provide the RE or the RE's representatives with free access at all times while the work is being performed, for the purpose of inspection, to all parts of the manufacturer's operations that concern the manufacture of the materials ordered. Afford the inspector, without charge, all reasonable facilities to satisfy that the material is being furnished according to the Specifications.

C. Erection.

Steel Posts. Install steel piles according to approved detailed erection drawings. Erect the units in a manner to prevent excessive bending about either axis.

513.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will make payment for reinforcement steel under REINFORCEMENT STEEL, and REINFORCEMENT STEEL, EPOXY-COATED as specified in 504.04 for reinforcement steel in cast-in-place retaining walls.

THE FOLLOWING SECTION IS ADDED:

SECTION 515 - DRILLED SHAFT FOUNDATIONS FOR SOLDIER PILE AND LAGGING WALLS

515.01 DESCRIPTION

This work describes the requirements for installing drilled shafts for soldier pile and lagging walls.

515.02 MATERIALS

515.02.01 Materials

Provide materials as specified:

Concrete	903.03
Self Consolidating Concrete	903.06.01
Grout	903.08.02
Reinforcement Steel	905.01.01
Drilled Shaft Casing	906.03
Structural Steel Paint (Organic Zinc)	912.01.01
Water	919.08

Provide clay-mineral based slurry (processed attapulgite or bentonite) for mineral slurry. Ensure that the mineral slurry has a mineral grain size that will remain in suspension and has sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. Ensure that the percentage and specific gravity of the material used to make the mineral suspension is sufficient to maintain the stability of the excavation and to allow proper concrete placement.

Provide polymer slurry as recommended by the manufacturer.

515.02.02 Equipment.

Provide equipment as specified:

Concrete Batching Plant	1010.01
Concrete Trucks	1010.02

Ensure that equipment does not introduce uncontrolled exhaust fumes into the surrounding areas, or other occupied areas adjacent to the work site. Crane and drilling engine exhaust fumes will require their own separate exhaust systems adequately vented to the atmosphere away from any confined work sites.

Ensure that equipment used for final bottom cleaning does not have a centralizing guide at the tip.

Use excavation and drilling equipment having adequate capacity, including power, torque, and down thrust to excavate a hole of both the maximum specified diameter and to a depth of 20 percent beyond the depths shown on the plans when operated at rated capacity.

515.03 CONSTRUCTION

515.03.01 Working Drawings and Calculations.

Submit six (6) copies of the following items to the RE for approval:

1. A summary of the Contractor's or his specialized drilled shaft Subcontractor's qualifications and experience on projects of a similar nature and scope. Obtain RE approval for the use of a specialty subcontractor. Approval will be based on qualifications and previous experience on similar projects.
2. List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, concrete pumps, temporary steel casing, slurry sampling and testing equipment.
3. Details of equipment and procedures for drilled shaft installation, including drawings showing consecutive steps of drilled shaft installation and drawings with measurements showing that the proposed equipment can perform the specified work. Identify in the drawings the areas that are planned to be used for staging the work. Specify the proposed sequence of the drilled shaft installation including details of concrete placement and splicing and centering devices for reinforcement steel.
4. Approval for the concrete mix design that is to be used for the work.
5. Slurry details including proposed methods of mixing, placing and circulating.
6. Details of shaft excavation methods.
7. Details of proposed methods to clean the shaft after initial excavation.
8. Procedures for control and removal of spoils.

9. Details of shaft reinforcement steel, including methods to ensure centering, required cover, cage integrity during placement, placement procedures and cage support.
10. Details of concrete placement including proposed operational procedures for concrete pump or tremie including initial placement, raising during placement, overfilling of the shaft concrete and provisions to prepare the completed shaft top at its final shaft top elevation.

515.03.02 Shaft Drilling.

Construct holes for soldier pile and lagging walls by augering or other approved methods. Perform the excavations required for the shafts through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by these specifications. Ensure that the equipment is capable of constructing shafts to a depth equal to the deepest shaft shown in the plans plus 15 feet or three times the shaft diameter, whichever is greater.

Do not vary the actual location of any hole from the specified location of the axial center of the pile embedded in that hole by more than one inch in any direction. The actual diameter of the hole constructed may be larger, but may not be more than one inch smaller than the nominal diameter indicated on the Plans.

Provide, for all drilled shafts, an approved fixed template that is adequate to maintain the shaft position and alignment during all excavation and concreting operations.

Take all measures and precautions necessary to prevent the collapse of the hole sides. Where soil surrounding the hole is disturbed as a result of drilling operations remove all disturbed soil as directed and replace with compacted earth embankment.

Pour the pile hole concrete against undisturbed earth, or smooth wall metal casing to remain installed in such a manner that the outside of the casing bears against minimally disturbed earth. A temporary steel casing may be used to keep the hole open before placing concrete. Remove all water from the hole before foundation concrete is poured. Ensure the holes are free of all earth, broken rocks, cobbles, boulders, remnants of abandoned structures, utilities and other debris and materials.

If, in the RE's opinion, the metal casing to remain in place has been installed such that a void exists around the casing or the soil has been excessively disturbed, one of the following methods will be specified by the RE:

1. Grout the void. Provide grout according to Subsection 903.08 except that the 1:3 (cement to fine aggregate) ratio and the nonmetallic grout provisions do not apply. Apply grout at a pressure equal to one-half of the overburden pressure at the bottom of the casing.

2. Backfill the void with pneumatically applied sand thoroughly tamped into place.

3. Backfill the void with soil excavated from the hole. Backfill in 8 inch loose lifts and compact by the density control method as provided for in Subsection 203.03.02 D.

Use the remedial method specified by the RE, depending upon the extent of the void or the disturbance.

Protect any existing utility that is to remain within the drilled shaft installation work zone in accordance with the requirements of authorities having jurisdiction over same. Repair or replace any construction-induced damage to the satisfaction of the governing authority.

Employ within the contract bid price, a licensed registered Land Surveyor, experienced in the type of work, who will establish lines and grades. Assume responsibility for the correct location of drilled shafts and for keeping a record of drilled shafts that are installed.

Locate the drilled shaft locations and provide a stake out of the locations prior to the start of installation work. Maintain all location stakes along with required elevation designations.

515.03.03 Shaft Concrete.

Unless otherwise shown on the plans, set piles plumb in the holes and secure in place in a precise position. Encase piles in concrete such that the specified fixed positions of the wall elements are achieved within the following tolerances:

1. Do not vary the plan position of the embedded piles more than 1/2 inch in any horizontal direction, including out-of-plumbness for the vertical posts.

2. Do not vary the vertical position of the embedded piles more than ½ inch from the position shown on the Plans.

Paint the steel piles (including the top end) with black coal tar epoxy polyamide paint as provided in Subsections 906.06 and 912.01.03.

Ensure that the handling, measuring, proportioning, mixing and placing of concrete conforms to these Specifications. Place concrete only in the presence of the RE.

Place concrete by using concrete pumps or a tremie pipe from the bottom of the excavation upward so as to avoid segregation. Do not inject air, water or slurry into the shaft concrete during placement. Use a disposable foam or rubber plug in the concrete pump line or tremie pipe to separate the fresh concrete from the slurry at the start of concrete placement. Insert the plug so that the first flow of concrete pushes the plug out of the pipe and prevents slurry mixing and contamination as the concrete placement commences. Ensure that the concrete pump line or tremie consists of a tube constructed in sections that have flanged couplings fitted with gaskets. Ensure the means of supporting the concrete pump line or tremie so as to permit free movement of the discharge end over the entire top of the concrete and to permit its being lowered rapidly when necessary to choke off or retard the flow. If used, fill the tremie by a method that prevents washing of the concrete. Submerge the discharge end completely in the concrete at all times after initiation of the concrete placement flow. Ensure that the concrete line contains sufficient concrete to prevent any water entry. Maintain the concrete level at the top of the drilled shaft until the concrete has set.

If concrete flow is halted and the concrete line's discharge end is for any reason raised out of the shaft concrete, reinitiate the placement only after fully recharging the concrete line with fresh concrete by

1. Inserting a foam or rubber plug or pig into the concrete line at the concrete hopper end,
2. Placing the discharge end approximately 6 inches above the top of the shaft concrete,
3. Recharging the pump or tremie line and depositing what will be classified as waste concrete on the top of the previously placed concrete,
4. Discharging waste concrete until the line is fully recharged with fresh concrete and the pig is pushed completely through the line,
5. Without halting the flow of fresh concrete plunging the discharge end of the concrete line into the shaft concrete to within 6 inches or less of the shaft bottom or to a level as directed by the RE,
6. Continuing the concrete placement without further interruption, and
7. Placing a final volume of additional concrete in the shaft that is no less than the volume of waste concrete placed to recharge the line in the process of resuming the concrete flow.

Apply this procedure without exception as necessary to avoid injecting any air, any water, any slurry, or any concrete that has flowed through a line filled with air, water, or slurry into the shaft concrete.

Do not initiate drilling a new shaft hole that is within five drilled shaft diameters of a previously installed drilled shaft, until the concrete has been in place for a minimum of 2 days.

Do not commence excavation for installation of lagging before the foundation concrete has reached the specified 28-day compressive strength. Exercise care to prevent foundation concrete from staining the posts. Immediately remove any visible foundation concrete splashed onto the posts.

515.03.04 Shaft Construction Timing.

Make every effort to plan, coordinate and carry out the work to minimize the time between the start of excavation and completion of shaft concrete placement. In general, the time between shaft excavation and completion of concrete placement is expected to be eight (8) continuous hours or less.

For cases where two (2) or more continuous hours elapse between completion of excavation and commencement of concrete placement, remove any reinforcement steel already placed in the shaft, clean the shaft bottom, replace the reinforcement steel in the shaft and immediately commence the placement of the concrete.

515.03.05 Shaft Reinforcement Steel.

Reinforcement steel is not required for soldier pile and lagging walls.

515.03.06 Shaft Top Preparation.

If tremie concrete is used, consider the top-most concrete placed in the shaft to be waste concrete and either:

1. Completely eject out of the top of the casing the wasted concrete or,
2. Pump the waste upward to a level that is at least 2 feet clear distance above the plan shaft top level and allow it to cure in place for removal later.

Consider waste concrete to be the top 2 feet of initial concrete that is placed, plus

1. The height of any additional volume of waste concrete deposited in the shaft where concrete placement was halted and restarted, plus
2. Any additional amount necessary to produce full strength non-segregated concrete at the plan shaft top level.

Where the above waste concrete alternative 1 is selected, permit the waste concrete to evenly overflow the full top circumference of the casing. Do not channel or bleed off by notches or holes cut in the casing top. Any fresh concrete in the casing at a level above the plan shaft top level after ejecting all waste concrete may be dipped or pumped out to the plan top elevation while still plastic by methods and equipment approved by the RE, or be allowed to cure in place for removal later.

Final shaft top preparation may commence only after the drilled shaft concrete obtains its verification strength. In lieu of concrete strength testing, the preparation may begin seven (7) full days after completion of concrete placement. Final top preparation steps will consist of:

1. Cutting off any extra casing above the top of casing elevation,
2. Cutting off any cured over pour concrete to the plan shaft top elevation by approved methods,
3. Dressing the final shaft top surface,
4. Verification by the RE that the exposed concrete consists of full strength concrete with a typical, non-segregated mortar and aggregate distribution,
5. Approved non-destructive strength testing by the Contractor where required by the RE to verify that concrete has attained its full design strength,
6. Removal of additional concrete below the plan shaft top level as necessary to reach full-strength, non-segregated concrete, and
7. Preparation of the shaft top key recess.

515.03.7 Shaft Acceptance.

Provide a comparison of the computed volume of the excavation (theoretical) with the volume of concrete actually placed. Plot depth versus volume chart. Provide cooperation and whatever assistance necessary to accurately monitor the volume of concrete that is placed at all times during the pour.

Unaccepted drilled shafts are drilled shafts that are rejected by the RE because of damage, failure to advance through obstructions, mislocation, misalignment or failure to install the drilled shaft to the proper bearing stratum. Submit a written plan of action to the RE for approval showing how to correct any problem and how to prevent a reoccurrence. Repair the drilled shaft or replace it to the satisfaction of the RE. To mitigate and/or to remedy unaccepted drilled shafts, the Contractor may be required to provide additional drilled shafts or supplement drilled shafts to meet specified requirements at no cost to the Department..

When acceptably installed drilled shafts exceed specified tolerances, provide an accurate as-built survey. If the load on any drilled shaft exceeds 10 percent of the specified load capacity, make as directed corrections.

515.04 MEASUREMENT AND PAYMENT

The Department will make payment for drilled shafts according to Section 503.04.

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 601 – PIPE

601.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This work shall consist of furnishing and installing 6" Perforated Polyvinyl Chloride Pipe and installing Bioretention Basin Cleanout and appurtenances or as directed by the RE. The appurtenances shall be defined as bends, tees, caps, unions, concrete pads, adapters, brackets or other components necessary to complete the installation at locations shown on the plans.

601.02 MATERIALS
THE FOLLOWING IS ADDED:

Plastic Drainage Pipe……...……...909.02.03
Corrugated Steel Pipe……..……...……..……909.02.06

601.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

Item	*Pay Unit*
____" POLYVINYL CHLORIDE PIPE (PERFORATED)	LINEAR FOOT

The size of perforations should be smaller than the size of stone specified and placed 6" center to center, along two or three longitudinal rows.

The Department will not make separate payment for elbows, fittings, tees, end caps, unions, concrete pads, adapters, Bioretention Basin Cleanout and brackets but all costs shall be included in the prices bid for ___" Polyvinyl Chloride Pipe (Perforated).

SECTION 602-DRAINAGE STRUCTURES

602.01 DESCRIPTION
THE FIRST SENTENCE IS REVISED:

This Section describes the requirements for constructing, reconstructing, and cleaning inlets, manholes, inlet face plates, outlet control structures, flow control structures and manufactured treatment devices.

Submit shop drawings as per Section 105.05.

602.03.02 Inlets and Manholes
THE FOLLOWING IS ADDED:

Construct the various flow control structures, manufactured treatment devices and outlet control structure as specified on the construction details and as shown on the plans.

For excavation to construct inlets, manholes, flow control structures and manufactured treatment devices in the traveled way, shoulder, and within 30 feet of the outside edge of the shoulder, backfill and restore the pavement structure to match the surrounding pavement before opening to traffic.

602.03.03 Setting Castings, Resetting Castings, and Reconstructing Inlets and Manholes
THE FOLLOWING IS ADDED:

Resetting of castings shall also include the construction of concrete collars as required and detailed on the plans.

THE FOLLOWING SUBSECTIONS ARE ADDED:

602.03.09 Flow Control and Outlet Control Structures

Install flow control and outlet control structures as specified in 602.03.02

602.03.10 Capping Existing Drainage Structures

Remove the inlet or manhole casting and the top of the structure to an elevation a minimum of 2 feet 3 inches below the proposed finished grade in a manner that leaves the remaining structure intact and the top edge level and able to accept a cast concrete slab. Ensure that any debris that falls into the remaining structure is removed so that the drainage flow is not impeded. Construct a reinforced concrete slab 8 inches thick using Class B concrete with edges flush with the outer vertical surfaces of the remaining structure. Use No. 5 reinforcing bars spaced at 6 inches center to center with 2 inches of cover from the bottom and sides of the slab for reinforcement.

602.03.11 Manufactured Treatment Devices

Provide and install manufactured treatment devices that can treat storm discharges of 1.25 inches in 2 hours as shown on the plans. The filtration treatment system shall be a non-mechanical gravity driven device and approved by NJCAT and NJDEP for 50% removal of total suspended sediment, particle size 940 microns from storm water runoff. The structure shall be capable of supporting the fill placed on top and H-20 loading. Refer to Section 105.02.04 for additional installation requirements.

602.03.12 Inlet Face Plates

Bolt inlet face plates to existing inlet castings curb pieces as per manufacturer's recommendations.

602.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for item as follows:
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
OUTLET CONTROL STRUCTURE	UNIT
FLOW CONTROL STRUCTURE	UNIT
CAPPING EXISTING DRAINAGE STRUCTURE	UNIT
MANUFACTURED TREATMENT DEVICE	UNIT
INLET FACE PLATES	UNIT

SECTION 605 – FENCE

605.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

605.03.05 Reset Fence

Reset fence and gate in existing location at proposed elevation. Straighten top rails posts, or replace as necessary, as determined by the RE. Replace all tension wires.

605.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

Item	*Pay Unit*
RESET FENCE	LINEAR FOOT

SECTION 606 – SIDEWALKS, DRIVEWAYS, AND ISLANDS

606.01 Description
THE FIRST PARAGRAPH IS REVISED AS FOLLOWS:

This Section describes the requirements for constructing HMA sidewalks, driveways, and islands, and concrete sidewalks, driveways and islands and stone or gravel driveways.

606.02.01 Materials
THE FOLLOWING MATERIALS ARE ADDED:

Coarse Aggregate No. 2	901.03
Geotextiles	919.01

606.03 CONSTRUCTION
606.03.01 HMA SIDEWALKS, DRIVEWAYS, AND ISLANDS
THE FOLLOWING IS ADDED

Field verify that there are no impediments or field conditions, which prevent construction of the proposed sidewalk and curb in compliance with the Standard Details and applicable standards of the Americans with Disabilities Act (ADA). Provide a written Curb/Sidewalk field verification report to the RE noting locations and details of impediments or field conditions found. The Department will not provide a time extension for delays caused by the failure to identify Curb/Sidewalk constructability.

606.03.02 CONCRETE SIDEWALKS, DRIVEWAYS, AND ISLANDS
THE FOLLOWING IS ADDED

Field verify that there are no impediments or field conditions, which prevent construction of the proposed sidewalk and curb in compliance with the Standard Details and applicable standards of the Americans with Disabilities Act (ADA). Provide a written Curb/Sidewalk field verification report to the RE noting locations and details of impediments or field conditions found. The Department will not provide a time extension for delays caused by the failure to identify Curb/Sidewalk constructability.

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.

THE FOLLOWING SUBSECTION IS ADDED:

606.03.04 Stone or Gravel Driveways

Provide stone or gravel driveways at locations shown on the plans or as approved by the RE. Construct driveways using No. 2 coarse aggregate placed on geotextile to dimensions detailed on plans.

606.04 Measurement and Payment
THE FOLLWONG ITEM IS ADDED:

Item	*Pay Unit*
STONE OR GRAVEL DRIVEWAY, 4" THICK	SQUARE YARD

SECTION 607 – CURB

607.01 DESCRIPTION

THE FOLLOWING IS ADDED:

This Section also describes the requirements for constructing concrete barrier curb with moment slab.

607.03 CONSTRUCTION

THE FOLLOWING IS ADDED:

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.

THE FOLLOWING IS ADDED:

607.03.08 Concrete Barrier Curb with Moment Slab

A. Underlayer Preparation. Prepare the underlying surface as specified in 607.03.01.A.

B. Constructing Forms. Construct forms as specified in 607.03.01.B.

C. Installing Joints. Place 1/2-inch preformed joint filler at transverse joint locations and ensure that it is flush with the top and faces of the curb. Place 1/2-inch preformed joint filler between the curb and concrete pavement, if any, and seal the joint with hot-poured joint sealer.

D. Placing Concrete. Place concrete as specified in 607.03.01.D.

E. Finishing Concrete. Finish the curb as specified in 607.03.01.E.

F. Protecting and Curing Concrete. Immediately after finishing the concrete, apply curing compound as specified in 504.03.02.F.1. Protect the concrete as specified in 504.03.02.I.

G. Installing Flexible Delineators. Install flexible delineators as specified in 607.03.01.G.

607.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for items as follows:
THE FOLLOWING IS ADDED:

Item	*Pay Unit*
CONCRETE BARRIER CURB WITH MOMENT SLAB	LINEAR FOOT

Reinforcement Steel will not be measured for payment. Include payment in the price bid for CONCRETE BARRIER CURB WITH MOMENT SLAB.

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.

608.03.06 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

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.

609.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED

Item	*Pay Unit*
BURIED GUIDE RAIL TERMINAL	UNIT

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.

611.03.02 Crash Cushion

Use Quadguard crash Cushion(s) on the project or approved equal listed on the QPL.

SECTION 612 – SIGNS

612.02 MATERIALS
THE FOLLOWING IS DELETED FROM THE MATERIALS LIST.

Non-Breakaway Sign Supports.....911.02.03

THE SECOND PARAGRAPH IS DELETED.

612.03.02 Type GA Breakaway and Non-Breakaway Support Guide Signs
THE SUBPART HEADING IS CHANGED TO:

612.03.02 Type GA Breakaway Support Guide Signs

612.03.02 Type GA Breakaway Support Guide Signs

C. Constructing Pedestals
THE SUBPART IS CHANGED TO:

Place reinforcement steel as specified in 504.03.01 before placing the concrete. Ensure that concrete placement complies with the limitations as specified in 504.03.02.C. Place concrete as specified in 504.03.02.D. Cure concrete as specified in 504.03.02.F.

D. Erecting Posts
THE SUBPART IS CHANGED TO:

Erect posts as specified in 512.03.01.G.

THE FOLLOWING IS ADDED:

F. Constructing Anchor, Hinge, Bracket and Coupling Assemblies.. At least 10 days before beginning the work, submit the manufacturer's installation guide and installer's certification to the RE.

Ensure that the installer is certified by the manufacturer.

Ensure that the manufacturer's representative is present during the foundation pour and the installation of the first sign. Install anchor, hinge, bracket and coupling assemblies according to the manufacturer's recommendations. The RE may require the system manufacturer's representative to be present at all times during the installation to provide on-site technical support.

612.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
GUIDE SIGN, TYPE GA, NON-BREAKAWAY SUPPORTS	SQUARE FOOT

THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
OVERHEAD STREET NAME SIGNS	SQUARE FOOT

THE FOLLOWING SECTION IS ADDED:

SECTION 613 – NOISE BARRIERS

613.01 DESCRIPTION

This Section describes the requirements for manufacturing, furnishing, erecting, and constructing precast concrete noise barriers supported by either drilled shaft foundations or on structures.

The construction includes posts, panels, foundations and all other associated members and attachments necessary for fabrication and erection.

613.02 MATERIALS

Provide materials as specified:

Broken Stone	901.03.01
Washed Gravel	901.03.02
Concrete	903.03
Mortar and Grout	903.08
Structural Precast Concrete	904.03
Reinforcement Steel	905.01
Bearing Pads	907.03
Bolts and Bolting Material (Steel)	908.01
Bolts and Bolting Material (Stainless Steel)	908.04
Anchor Bolts	908.01.03
Aluminum	911.01.01
Organic Zinc Coating System	912.01.01

Use Class B concrete conforming to Section 903 for foundations and pedestals.

Use No. 57 size coarse aggregate conforming to the gradation shown in Table 901.03-1 at the base of drilled shaft foundations.

Use Class P concrete conforming to Section 904 for precast noise barrier posts and panels, except that the use of a superplasticizer admixture containing lignosulfanates is prohibited. A superplasticizer that does not contain lignosulfanates may be used. Should superplasticizers be used, produce two 24 by 24 by 4-inch sample panels, one sample panel containing the superplasticizer admixture, and the other panel not. Produce each sample panel utilizing the same techniques in batching, finishing and curing at the same time and of how the actual members will be finished and cured. The concrete batching may be done during the verification batching for the Project. A representative of the manufacturer of the concrete admixture must be present at the time of concrete batching. Should the sample panels indicate unacceptable color variations in the concrete, as determined by the ME, the ME may prohibit the use of the superplasticizers for noise barriers. Utilize a consistent source of cement, fine aggregate and coarse aggregate for all precast elements to ensure uniformity of color. Utilize cement of the same brand and coming from the same mill throughout the entire job to minimize color variation.

Prestressed concrete posts and panels may be used instead of the proposed precast posts and panels. Furnish prestressed post and panels conforming to Section 505.

Noise barriers panels are not to be integrally colored Field stain all visible surfaces. The exact quantity of pigment to be added will be determined based on the preparation, examination, and approval of the 24 by 24 by 4-inch test panel.

Apply curing materials and methods of construction for curing integrally colored concrete according to the manufacturer's recommendations and Subsection 504.03.02 F. Utilize the tint from the same batch for all the concrete in the posts and panels.

Use a high quality form release oil, compatible with the integral color and based on the integral color manufacturer's recommendations.

Utilize a grout matching the color of precast panels and posts or the surface to which it is applied for filling holes at recessed inserts.

Fabricate precast concrete using coarse and fine aggregate conforming to the requirements of ASTM C 33 and Subsection 901.03. Limit the coarse aggregate to a maximum size of No. 67 as listed in Table 901.03-1 of Subsection 901.03, and be washed. Limit adherent fines to one percent and limit the total adherent and non-adherent fines to 1.5 percent.

Utilize preformed, closed cell, polyethylene foam backer rod joint filler conforming to ASTM D 3204, Type I. Utilize a one-part, low-modulus silicon rubber type cold applied joint sealer conforming to Federal Specifications TT-S-1543, Class A or TT-S-00230C, Type II, Class A with a minimum elongation of 600 percent. Match the color of the cold applied joint sealer to the Federal Standard 595B color #30219.

Provide materials and methods of construction not specifically covered in the Plans and Specifications conforming to AASHTO LFRD Bridge Construction Specifications, ACI Manual of Concrete Practice, and the PCI Manual 117. Use the editions and revisions of the standards and specifications that are current at the time of bidding.

Architectural treatment to match architectural treatment on existing noise barriers within the project limits.

613.03 CONSTRUCTION

613.03.01 Working Drawings

Furnish working drawings according to Subsection 105.05. Minor variations in details may be permitted subject to approval; however, any major departure from the design shown on the plans will not be approved. Clearly note minor variations on the drawings.

Before fabrication, submit complete working drawings and erection plans. Provide working drawings covering each type of unit to be used showing exact dimensions and handling details.

Include the width and location of all construction haul roads adjacent to noise barriers being constructed in the working drawings.

Include the plan and elevation drawings of the barriers for post and panel roadway noise barriers in the working drawings. Clearly show the top and bottom elevations of the barrier at each post location as well as indicate all steps, post hole diameters and depths. Ensure reinforcement steel patterns in precast panels show proper installation to avoid conflicts. Show post hole casings if they are required.

Provide complete erection details including handling points, anchorage details, erection instructions and sequence of operations. Address method(s) of stabilizing post holes before placing concrete.

Submit design calculations for prestressed concrete posts and panels according to Section 105.05 of the Standard Specifications for approval.

613.03.02 Shop Inspection

Provide free access, at all times, to all parts of the manufacturer's operations that concern the manufacture of the materials ordered while the work is being performed for the purpose of inspection. Afford the Department, without charge, all reasonable facilities to satisfy that the material is being furnished according to the Specifications.

613.03.03 Precast Concrete Noise Barriers

A. General. Provide proof of a minimum of five years experience in manufacturing precast concrete noise barriers with architectural assemblage of similar products. Perform all precasting operations indoors within a controlled environment and from a central batch mixer. A plastic or other temporary structure is acceptable provided it is sturdy enough to endure weather conditions and is able to maintain environmentally controlled conditions. Do not heat the enclosure by fossil-fueled heaters unless the exhaust fumes are vented to the outside away from the enclosure.

Deformed Welded Wire Fabric is an alternate to reinforcing bars for precast concrete panels. Provide Welded Wire designation and spacing meeting the minimum area of steel as determined by design. Ship deformed welded wire fabric in mats, not in rolls. Overlap mesh sheets not less than one mesh in width or as required by design, whichever is greater. Fasten overlaps securely at the ends and edges.

B. Test Posts and Panels. Before the start of normal noise barrier fabrication and before the fabrication and construction of the test posts and panels, construct and submit to the Department's Bureau of Landscape Architecture for color approval, a 24 by 24 by 4-inch sample panel. Construct the sample panel utilizing the approved noise barrier concrete mix design and specified color requirements. Include the specified finish on one side.

Do not commence fabrication of the test posts and panels until working drawings have been approved by the ME and by the Department's Bureau of Landscape Architecture. Construct at the precasting plant or at a location determined by the RE if there is more than one precaster involved with the Project, an acceptable sample noise barrier wall consisting of 2 posts and a full section of panels. Erect the second panel section with the standard concrete finish without the sound absorptive finish or the transparent panel. Ensure the barrier is the same size and configuration as the noise barriers to be used on the Project. These test sections will be used to determine the acceptability of the various surface treatments, color, and quality of construction of both the roadway and residential sides of the noise barrier.

Produce integrally colored posts and panels uniform in color consistency and free from discoloration and blemishes. Include the specified finishes for both highway and residential sides, and all panel and post detailing in the sample noise barrier as directed in the Plans.

Notify the RE and the Department's Bureau of Landscape Architecture in writing, at least 14 days before the construction of the sample noise barrier wall so that the appropriate Department's representatives may be present to determine the acceptability of the finished posts.

The RE in conjunction with the Department's Bureau of Landscape and Urban Design, will determine whether the color and various surface treatments of the posts and panels are acceptable. If test sections are found to be unacceptable, manufacture additional samples until an acceptable product is produced.

After approval, retain and use test posts and panels as the standard to determine acceptability of production posts and panels. The panels may be used on the Project at the end of precasting operations when released by the Department.

The sample noise barrier, previously submitted for color and texture approval, may be used for the application and approval of the concrete penetrating stain. Final approval of all color and surface features on the sample noise barrier must be received before the application of the stain on the sample noise barrier.

C. Concrete Placement. Deposit concrete only in the presence of and by methods approved by the Department. Ensure all reinforcement is free of dirt, loose rust, grease, and other deleterious substances. Accurately place all items to be encased in the concrete in the position shown on the Plans and firmly held during the placing and setting of the concrete.

Vibrate concrete either internally or externally, or both, as required. The RE will approve the type, number, and method of application of vibrators. Apply internal vibrations to the concrete for time intervals of approximately ten seconds and at points not more than 18 inches apart. Do not use vibrators to move concrete horizontally in the form. Do not displace any reinforcement inserts with the vibrating.

Ensure form liners, where required, do not leak at the joints and ensure seams are fused according to the manufacturer's recommendations. No unfused seams will be permitted. The placement of seams will be subject to the approval of the RE. Place form liner seams so that the architectural finish will be unbroken and continuous.

Ensure precast concrete posts and panels are free of honeycombing or voids and be true to size and dimensions within the following limits:

1. Casting tolerances (overall height and width measured at the face adjacent to the mold when cast):

10 feet or under ..... ±1/8 inch
Over 10 feet ..... + 1/8 inch, - 3/16 inch
Thickness ..... ±1/8 inch
Out of square ..... 1/4 inch

2. After casting tolerances:
   Bowing and warpage: 1/360 panel dimension with a maximum of ¾ inch; differential bowing or camber between adjacent members of the same design shall not exceed ⅜ inch.

3. Position of cast-in items:
   Recessed handling
   Inserts ..... ± ⅜ inch
   Reinforcement ..... ± ½ inch
   Threaded inserts ..... ± ¼ inch

D. Finishing Concrete Surfaces. Apply a Class 1 surface finish to the cap of all exposed surfaces of the concrete posts and the top concrete panels according to Subsection 504.03.02 H. Apply a finish to the remainder of the exposed surfaces of the posts and panels on the both side according to the approved sample panels.

The finish for concrete surfaces is specified on the Plans or in the Special Provisions. Maintain the minimum concrete over the reinforcing bars.

Construct form liners in such a manner as to prevent concrete leakage at joints and fuse by a "hotmelt" system. No glue, caulking, or unfused seams will be permitted.

E. Concrete Curing. Cure the precast units by any of the methods specified in Division 3, Section 4 of the PCI Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products. Submit the curing method to be used in writing for approval before the start of fabrication.

If steam is used, Subsection 3.4.2 of the PCI Manual is amended as follows:

1 Delay the application of steam within the enclosure for a period of five to six hours when the air temperature is 50º F or lower and delay for a period of three hours when the air temperature is 50º F or higher.
2 Wait a period from four to six hours if retarders are used, regardless of the air temperature.
3 Maintain the curing temperature at 145 ± 10º F for a period of 12 hours.

Test two concrete test cylinders, similarly cured, after the curing procedure specified. Should the tests indicate that the precast units have not achieved a compressive strength of 5,000 pounds per square inch, cure the precast units further until the required strength is reached.

Remove the forms after the precast units have achieved a compressive strength of 3,000 pounds per square inch.

Perform one compressive strength test from the two concrete cylinders that are taken from each concrete truck or from each batch of concrete that is produced to determine the acceptance or failure of the concrete. Average together the two test results to obtain a single value representing the units. Concrete will be accepted if this averaged single value is equal to or greater than the class design strength as identified in Subsection 903.03, Table 903.03.06-3. Concrete will be accepted with a pay adjustment if the averaged single value is within the range from 1 to 500 pounds per square inch less than the class design strength for the specified concrete class, (i.e. for Class P concrete, this range will be between 5,000 and 5,500 pounds per square inch). The pay adjustment will be according to Section 903.03.05. Concrete will be rejected if the averaged single value is greater than the amount that is 500 pounds per square inch less than the class design strength for the specified concrete class. The RE may use testing results obtained from concrete cores or nondestructive testing before requiring any corrective action or removal and replacement of the concrete. All costs for coring and testing will not be paid.

F. Staining Concrete Surfaces. Stain precast concrete noise barriers by the application of a concrete penetrating stain. Use a single component, water based, thermoplastic acrylic emulsion concrete penetrating stain which carries its color and water repellent protection into the concrete.

Use a penetrating stain conforming to the following performance requirements:

Condition	Physical Properties Results	Test Method
Dry-through Time	25 minutes, maximum	ASTM D 1640
Dry-to-recoat Time	1 hour, maximum	ASTM D 1640
Oil, Wax, and Silicon Content	None 200 pounds per square inch, minimum	ASTM D 4541
Adhesion to Concrete	(Average of five tests)	Elcometer Test
Gloss Flat	No visible	ASTM G 23
Weather-O-Meter	Degradation	Atlas Test
Carbon Arc	500 hours	
Solids by Weight	57 ± 2 percent	
Viscosity	70 to 75 Krebbs Units	ASTM D 562

Submit a Certificate of Compliance according to Subsection 106.07.

Match the unpigmented, clear, non-volatile portion of the stain with the infrared spectrograph on file at the Department Laboratory. Ensure the concrete penetrating stain complies with New Jersey state laws regulating the use of volatile organic compounds and solvents and the following:

1. **Test Staining**. Before any staining operations, complete a test staining program for color acceptance and surface area coverage. Perform this work either at the concrete precaster's plant on the noise barrier test wall or at the Project site on a portion of an erected noise barrier under the same circumstances as the actual staining. Stain one complete noise barrier section, including posts.

   Before ordering, submit a sample for approval of the concrete stain and color. Accompany the sample with the manufacturer's literature including materials specifications, physical properties, including ASTM test methods utilized, manufacturer's recommended application rates for the various surface textures and porosity, current application instructions, and material safety data sheets.

   Apply the stain according to the manufacturer's recommendations, and representing the job site application. Obtain approval of the stain test sample by the RE and the Department's Bureau of Landscape and Urban Design before actual staining operations and the ordering of any further quantities of stain. When approved, the sample area will serve as a standard of acceptance for all further work.

   A standard for color will be established based on the approval of the full size noise barrier staining. Designate a stain batch by batch number and date and will remain the standard for the entire Project.

2. **Application Procedures**. Apply the concrete penetrating stain according to the manufacturer's written instructions and precautions. Only apply stain to surfaces that are structurally sound, fully cured, clean, dry, and free from dust, curing agents, oil, grease, efflorescence, and any other contaminants that could prevent proper adhesion. If necessary, pressure wash the concrete surfaces only to remove all surface contamination. In addition, chemically or mechanically abrade glazed or glossy surfaces to remove gloss to allow adhesion.

   Before use, thoroughly mix the stain using the appropriate mechanical means and mix during spraying operations as required by the manufacturer to maintain uniformity.

   All concrete stain is to be of the same batch and lot. Deliver the stain to the spraying site in original, sealed 5-gallon plastic pails or open head 55-gallon drums, clearly labeled with the manufacturer's name, brand name, type of material, batch and lot numbers, date of manufacture, and color.

   At the time of stain application, both the concrete and air temperatures must be between 45 and 90º F. Ensure the concrete is completely dry. Do not apply stain unless weather conditions permit complete drying of material before rain, fog, dew, or temperatures beyond the prescribed limits.

Apply the concrete penetrating stain using conventional or airless spray. Apply the stain in two thin coats to provide a uniform appearance. Apply the first coat at the precast plant. Apply the final coat in the field consistent with the quality and appearance of the approved sample. Apply at the rate according to the manufacturer's recommendations. The area of coverage may vary depending on absorption rates of the various surface materials and textures to obtain complete coverage.

Ensure the completed stain surfaces are consistent with the quality and appearance of the approved sample area. The RE may have all surfaces resprayed if unevenness in color and lines of work termination exist. Carry respraying, if required, to a natural break-off point.

Apply stain by brush or roller only at locations where over spray would affect adjacent materials and where not practical for spray application. Provide adequate protection to adjacent persons, vehicles, and property from over spray during staining operations.

G. Storage and Transportation. After curing, store, stack, and transport the units in a manner to prevent the development of cracks or other deformities.

Mark the top side of all precast concrete units for identification and proper placement on the erection drawings. In addition, mark on the unit the length, size, and type of reinforcement.

613.03.04 Foundations.

Construct post holes for noise barriers by augering or core drilling as shown on the Plans. Do not start excavating post holes until final earth grading has been completed along the proposed alignment of the noise barrier for a distance of at least five panels in each direction. Before excavating post holes, verify the location of any existing utility conduits. Contact the Department's Bureau of Utilities and ROW if an existing utility conduit is encountered during the construction of post holes. The conduit may be relocated or the post may be relocated as directed by the RE. Repair any damage done to existing utility lines.

If borings in the general vicinity of the noise barriers indicate conditions which may impede the advance of augering equipment, other suitable equipment and procedures may be required to construct the post holes at the locations and to the depth specified.

Do not vary the actual location of any post hole from the specified location of the axial center of the post embedded in that hole by more than 1 inch in any direction. The actual diameter of the hole constructed may be larger, but may not be more than 1 inch smaller than the nominal diameter indicated on the Plans.

Take all measures and precautions necessary to prevent the collapse of the post hole sides. Where soil surrounding the post hole is disturbed, remove all disturbed soil as directed by the RE and replace with earth embankment and compact.

Place post hole concrete against undisturbed earth or smooth wall permanent metal casing installed in such a manner that the outside of the permanent casing bears against minimally disturbed earth. A temporary steel casing may be used to keep the post hole open before placing concrete. Remove all water from all the post holes before pouring foundation concrete. Ensure the holes are free of all earth, broken rocks, cobbles, boulders, remnants of abandoned structures, utilities, and other debris and materials.

If, in the RE's opinion, the permanent metal casing has been installed such that a void exists around the casing or the soil has been excessively disturbed, use one of the following remediation methods:

1. Grout the void. Use grout conforming to Subsection 903.08 except provide a 1:3 (cement to fine aggregate) ratio and the nonmetallic grout provisions do not apply. Apply grout at a pressure equal to one-half of the overburden pressure at the bottom of the casing.

2. Backfill the void with pneumatically applied sand thoroughly tamped into place.

3. Backfill the void with soil excavated from the hole. Backfill in 8 inch loose lifts and compact by the density control method according to Subsection 203.03.02 D.

The RE will specify the remedial method depending upon the extent of the void or the disturbance. Should one of the remedial methods listed above be used, corrugated metal casing can be substituted for smooth wall metal casing.

Supply permanent metal casing conforming to zinc-coated steel or aluminum.

Set posts plumb, unless otherwise shown on the plans, in the holes and secure in place in a precise position to accept the panels. Set posts into the holes a minimum of 6 inches above a layer of coarse aggregate and encased in concrete such that the specified fixed positions of the noise barrier elements are achieved within the following tolerances:

1. Do not vary the plan position of the embedded posts more than ½ inch in any horizontal direction, including out-of-plumbness for the vertical posts, from the theoretically symmetrical and interlocking positions with the panels to be inserted as shown on the Plans.

2. Do not vary the vertical position of the embedded posts more than ½ inch from the position shown on the Plans.

3. Construct the panel seat area such that the top of the panel is level and within ¼ inch of the elevation shown on the Plans.

Do not erect the panel units before the foundation concrete has reached the specified 28-day compressive strength. Take care to prevent foundation concrete from staining the precast posts. Remove any visible foundation concrete splashed onto the posts.

613.03.05 Erection.

A. Precast Concrete Panels and Posts. Install precast units according to approved detailed erection drawings. Erect the units in a manner to prevent excessive bending about either axis. Set precast concrete panels with the face of the panel plumb and the top of the panel level. Take special care in setting the bottom panel in an exact horizontal position. Ensure the faces of adjacent units are flush within a tolerance of plus or minus $^{1}/_{16}$ inch.

Handle precast structural members carefully at all times so that no overstressing, crazing, chipping, or cracking of the concrete occurs. Analyze the post, panel, and other components to reflect the actual method of construction to be used. Perform the analysis to verify that no adverse conditions to any components, as stated above, occur. If required from the analysis, temporary strengthen the various components. Do not patch damaged panels; replace with new panels. Handle and erect panel units and posts using suitable equipment. After the precast panels are erected, fill all lifting hook holes with grout. Use a colored grout to match the color of the panels.

Erect precast concrete noise barriers ensuring no passage of light after they are erected.

If recessed handling inserts are used, galvanize according to ASTM A153.

613.04 MEASUREMENT AND PAYMENT

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

Item	*Pay Unit*
NOISE BARRIER, ROADWAY	SQUARE YARD
NOISE BARRIER TEST POSTS AND PANELS	LUMP SUM
NOISE BARRIER, FOUNDATION	LINEAR FEET

The Department will measure the square yardage of NOISE BARRIER as the total number of square yards of noise barrier in a plane parallel to the front face of the wall. The barrier will be measured from the bottom of the lowest wall panel to the top of the top concrete wall panel from end post to end post of each noise barrier.

The Department will measure the length of NOISE BARRIER, FOUNDATIONS between the top of caisson and bottom of caisson as shown on the plans.

Separate payment will not be made for any remedial work required to complete the noise barriers, including replacement of unacceptable test posts and panels; for repainting of panels and posts due to unevenness in color and lines of work termination; for relocation of utility conduits or noise barrier posts due to interference with post hole construction, and

repair of utility conduits damaged during post hole construction; for replacement or remediation of disturbed soils adjacent to post holes as a result of the Contractor's operations; and for temporary strengthening of the various precast structural components as may be required from the Contractor's analysis of adverse conditions that may occur during handling.

Separate payment will not be made for reinforcement, standpipe or fire hose penetrations, concrete coloring, form liner or other finishing requirements, test samples, neoprene pads or anchor bolt, penetrations for fire department access, and all costs thereof shall be included in the NOISE BARRIER items.

Separate payment will not be made for cleaning, pressure washing or any other preparation required before application of the penetrating concrete stain and the costs thereof shall be included in the NOISE BARRIER items.

Separate payment will not be made for excavation, dewatering, reinforcement or concrete and all associated costs will be included in the item NOISE BARRIER, FOUNDATIONS.

DIVISION 650 – UTILITIES

THE FOLLOWING SECTION IS ADDED:

SECTION 654– JCP&L FACILITY

654.01 DESCRIPTION

This Section describes the requirements for installing, relocating and removing Jersey Central Power and Light (JCP&L) electric utility facilities including conduits, manholes, transformer vaults, handholes, removal of existing poles, resetting existing electrical manhole castings and appurtenances and also includes the requirements for transferring electric services.

654.02 MATERIALS

Except for the materials noted below, JCP&L will supply all materials necessary for the work at no cost to the Contractor. Provide JCP&L written notice 20 days in advance of when materials will be required. Ensure the electric subcontractor takes delivery of the materials from JCP&L's storage facility within two weeks of the notice from JCP&L indicating that the material is available. Materials may be located at more than one JCP&L storage facility. If the electric subcontractor fails to take delivery, the material may not be available, and the electric subcontractor may be required to provide an additional request for materials. The Contractor is responsible for compensating the Department for any additional handling costs incurred by JCP&L resulting from the failure to take delivery within the time required.

The electric subcontractor is responsible for loading the material, delivering it to the job site, and all subsequent handling and delivery within the jobsite. Store and protect all materials received from JCP&L. Return and deliver all excess materials furnished by JCP&L to JCP&L's storage facility. Obtain a receipt for all material received from JCP&L, maintain a documented inventory of materials used and obtain a receipt for all material returned to JCP&L.

Provide materials as specified:

Tack Coat 64-22: PG 64-22 ..... 902.01.01
Concrete 903.03
Curing Materials 903.10
Controlled Low Strength Material (CLSM) 903.09
Hot Mix Asphalt (HMA) 902.02
Sealer, Hot-Poured 914.02
Polymerized Joint Adhesive 914.03

654.03 CONSTRUCTION

654.03.01 Electric

A. Prequalification.

THE ENTIRE TEXT IS CHANGED TO:

Only a prequalified electric subcontractor, approved by JCP&L, may construct and relocate JCP&L electric facilities. The following is a list of electric subcontractors that have been previously approved by JCP&L. This list is provided as information only, and is not an endorsement by the Department of any subcontractor. The Contractor is responsible for soliciting from a subcontractor that will be approved by JCP&L when preparing its Bid. Work restricted to the electric subcontractor does not preclude the Contractor from performing the work of layout, traffic control, sawcutting, pavement removal, temporary or final pavement restoration, and landscape restoration associated with the work of installing or relocating JCP&L electrical facilities.

APPROVED ELECTRICAL CONTRACTORS

Hawkeye, LLC
100 Marcus Blvd
Hauppague, NY 11788
Tel: 631-447-3100
Fax: 631-776-1847
Att: Charles Gravina - Mgr. Electric Operations
email: cgravina@hawkeyellc.com

M.J. Electric, Inc.
1047 Shoemaker Avenue
PO Box 310
Shoemaker, PA 19555-310
Tel: 610-562-7570 x 4802
Fax: 610-562-1375
Att: Mike Troutman
email: mtroutman@mjelectric.com

Henkels & McCoy, Inc.
985 Jolly Road
Blue Bell, PA 19422
Tel: 215-283-7707
Fax: 215-283-7573
Att: Alan L. Lippy - Director, Power Operations East
email: alippy@henkels.com

Asplundh
161 Second Street
Wilkes Barre, PA 18702
Tel: 570-947-1101
Fax: 570-822-0770
Attn: Vincent Stanbro
email: v.stanbro@asplundh.com

JBL Electric Inc.
130 Furler Street
Totowa, NJ 07512
Tel: 800-525-4628
Att: Jim Leary – President
email: jleary@jblelectric.com

Tri-M Corp
PO Box 69
204 Gale Lane
Kennett Square, PA 19348
Tel: 610-444-1001 ext 159
Fax: 484-731-0209
Attn: Ron Baugess
email: rbaugess@trimecc.com

MYR (Harlan & The L.E. Myers Company)
1416 Trindle Road 3-A
Carlisle, PA 17013-9718
Tel: 717-243-4600
Fax: 717-243-3633
Att: Jim Collins
email: jcollins@myrgroup.com

Approved for underground work only
J. Fletcher Creamer & Son, Inc.
1701 E. Linden Avenue
Linden, NJ 07036
Tel: 908-925-3200
Fax: 908-925-3350
Att: Ted Paliwoda
email: tpaliwoda@jfcson.com

B. Indemnification. The Contractor agrees to indemnify and hold harmless JCP&L, its officers, employees and agents from liability and claims related to the work described under Section 654. This requirement does not establish JCP&L as a third party beneficiary; the provisions specified in Section 107.10 are unaltered.

C. Scheduling of Work and Interruption to Utilities. Provide the RE and the designated JCP&L representative with a detailed schedule of when the electric utility work will be performed. Indicate in the schedule for each activity the following information: the work locations; the number of crews; and whether the work will be performed during a day shift or night shift, or on weekends. Coordinate all electric utility work with the JCP&L representative, and notify the RE and the JCP&L representative at least two weeks prior to starting electric utility work. Do not interrupt existing electric service until approved by the JCP&L representative.

Weather conditions may prevent connections to existing systems between June 1 and September 30. Do not perform work which will require electric transmission service interruptions from June 1 through September 30 without the approval of JCP&L. JCP&L may extend this period based on weather conditions and system demand. Notify JCP&L at least one month in advance of commencing conductor work.

If service transfers are required, coordinate service transfers with the JCP&L representative. Notify the property owner and all tenants affected by service interruptions or transfers prior to making the service transfer. Minimize disruption to normal operations of existing facilities and minimize any interruption of electric service to JCP&L customers. Protect existing facilities during construction and installation of the service transfer.

D. Quality Control and Quality Assurance. Provide access to the work for the JCP&L representative at all times. Perform all electric utility work in a manner acceptable to the JCP&L representative. Perform all electric utility work in accordance with JCP&L standards and details.

E. Safety. Perform work in accordance with applicable OSHA regulations, N.J.S.A. 34:6-47 "High Voltage Proximity Act", and JCP&L safety standards.

F. Abandonment and Removal. Prior to beginning work, review the condition of all existing electric utility facilities noted to be removed with the JCP&L representative. If the JCP&L representative designates the material to be salvaged, remove the material and deliver it to a JCP&L storage facility. Remove and dispose of all other electrical utility material designated for removal.

G. Excavation. When excavation is required in areas having existing pavement and sidewalk, sawcut to the full depth of the existing pavement and sidewalk. Excavate trenches for conduit, manholes and vaults and appurtenances. Provide vertical sides for excavations within the traveled way, shoulder, sidewalk areas, and where existing facilities require protection. Remove unstable material at the bottom of the excavation and backfill with granular material. Do not excavate trenches more than 300 feet in advance of installing conduit unless approved by the RE. Provide and maintain trench crossings where necessary to maintain access. Do not leave trenches open overnight unless protected by temporary fencing or steel plates. Remove and dispose of excess or unsuitable material as specified in 202.03.07.

H. Backfill. Backfill with suitable material in lifts not exceeding 6 inches thick, loose measurement. If the backfill is predominantly granular material, compact the backfill material with a vibratory plate compactor. For material that is not predominately granular, compact the backfill material with a vibratory rammer compactor. If it is not possible to compact the backfill material, the Contractor may backfill with CLSM with the approval of the JCP&L representative. If using CLSM, install as specified in 601.03.01.F.

I. Restoration. Restore areas disturbed in the performance of electrical utility relocations to its original condition. In areas that are disturbed for which the plans provide final grading, pavement or landscaping, provide temporary restoration to the satisfaction of the RE. If open-cut trenching across a road is required, restore the pavement with in-kind construction.

J. Field Testing. Perform a high-potential test (also known as a dielectric voltage withstand test) on all cables and splices prior to energizing. Testing must be performed by a person who is qualified to operate the test equipment, and is familiar with the cable system. Ensure that the cables are disconnected from non-cable systems equipment, and that adequate physical clearances are maintained between all cable ends, energized cables, and electrical grounds and all other equipment during the test. Prior to performing the test, verify that all taps or laterals in the circuit are cleared. In the event hot poured compound filled splices and terminations are involved, do not perform testing until they have cooled to ambient temperature. Set the relays in the high voltage direct current test equipment to operate between 5 and 25 milliamperes leakage. The shape of the leakage curve under constant voltage is more important than the absolute leakage current of a "go or no go" withstand test result. The field test voltage is related to the final factory applied dc potentials using a factor of 80 percent.

Ensure the high potential test is performed in the presence of the JCP&L representative. Apply a direct current field test voltage according to the following table:

Field Test Values				
Rated Voltage	**dc Hi-Pot Test**		**dc Hi-Pot Test**	
Phase to	**(15 Minutes)**			
Phase	**Wall - mils**	**Kv**	**Wall - mils**	**kV**
5000	90	25	115	35
8000	115	35	140	45
15000	175	55	220	65
25000	260	80	320	95
28000	280	85	345	100
35000	345	100	420	125
46000	445	130	580	170

69000	650	195	650	195

Note: If the leakage current quickly stabilizes, the duration may be reduced to 10 minutes.

After the voltage has been applied and the test level reached, record the leakage current at one-minute intervals. If the leakage current decreases or stays steady after it has leveled off, the cable is considered satisfactory. If the leakage current starts to increase, excluding momentary spurts due to supply-circuit disturbances, extend the test to see if the rising trend continues. At the conclusion of the test, discharge the circuit through the test set and voltmeter circuit. After the potential drops below 95% of the test value, ground the cable and discharge the circuit. Leave the grounds on all conductors for a minimum of four times as long as the test voltage was applied.

Remove and replace cables that fail to meet the requirements of the direct current field test. The Contractor is responsible for reimbursing the Department for any additional material costs incurred by the Department resulting from the failure to meet the requirements of the direct current field test.

K. Energizing Lines. Energize lines with the guidance of the JCP&L representative. Prior to energizing lines, submit a request to JCP&L. Switching orders may only originate from JCP&L employees. Submit a request for permission to energize transmission lines 10 days in advance of when the work will be performed. Request permission to energize distribution lines in a manner that will permit the JCP&L representative to submit a request to JCP&L's Dispatch Office by noon the previous business day.

L. As-builts. Upon completion of the work, submit to JCP&L as-built drawings in accordance with JCP&L standards. Prints of construction drawings, marked to show the final location, are acceptable. Provide a copy of the as-built drawings to the RE.

654.04 MEASUREMENT AND PAYMENT

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

Item	*Pay Unit*
ELECTRICAL UTILITY RELOCATION, JCP&L	LUMP SUM

DIVISION 700 – ELECTRICAL

SECTION 701 – GENERAL ITEMS

701.03.01 Existing Systems

Deliver and unload salvaged materials to:

Traffic Signal and Lighting
NJDOT
200 Stierli Court,
Mt. Arlington, NJ

ITS Material and Equipment
Bureau of Mobility and Systems Engineering, North Region (TOCN)
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 732-697-7360

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.

701.03.05 Rigid Nonmetallic Conduit

B. Installation.
THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the rigid non-metallic conduit. Install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of rigid nonmetallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.07 Flexible Nonmetallic Conduit

B. Installation.
THE SECOND PARAGRAPH IS CHANGED TO:

Terminate flexible nonmetallic conduit according to manufacturer's recommendations.

THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the flexible non-metallic conduit. Install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of flexible nonmetallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.14 Meter Cabinet

ADD THE FOLLOWING AFTER THE LAST SENTENCE:

Install new wiring into existing cabinets as shown on the plans and wiring details. Installation includes the furnishing and installing of wiring, circuit breakers / disconnects, cable tags, any support ties, and testing of the connection once installed.

THE FOLLOWING IS ADDED:

Install 2M Meter Cabinet where shown on the plans following standard drawing L-0207 with the exception that the electric meter shown attached to the outside of the cabinet will not be installed. Install the disconnect switch as shown. Install conduit from the disconnect switch into the meter cabinet and connect to the main breaker. Install the electrical meter in a separate meter cabinet type "L" as shown on the plans in the vicinity of the utility pole, which is the utility company service point as a separate pay item.

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.

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.

ADD THE FOLLOWING AFTER THE LAST SENTENCE:

Installation of new wiring into existing meter and/or load center cabinets including furnishing and installing circuit breakers/disconnects, cable tags, any support ties, and testing of the connection once installed shall be included in the cost of the wiring.

SECTION 702 – TRAFFIC SIGNALS

702.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

After placing a new, temporary or interim traffic signal system into operation, inspect the traffic signal system every 2 months. Fill out a Contractor Maintenance Traffic Signal Inspection Report (Form EL-16C) when the traffic signal system becomes operational, when the traffic signal system is modified, and at every 2-month inspection.

Maintain as-built drawings of each signal modification. Place copies of the as-built drawings for each traffic signal system modification, Forms EL-16C, and Forms EL-11C in a plastic pocket mounted inside the cabinet door of each controller cabinet. Also provide a copy of all forms and as-built drawings to the RE.

If a new, temporary or interim traffic signal system fails or becomes damaged, repair and restore the traffic signal system to normal operation. Begin repair of the traffic signal system within 2 hours of receiving notice of damage or malfunction from the Department, State police, or local authorities. Ensure that workers assigned to such repair work continuously until the traffic signal resumes normal signal operation.

For each response to a system failure or damage, fill out a Contractor Maintenance Emergency Call Record (Form EL-11C) and place it in a plastic pocket mounted inside the cabinet door of each controller cabinet.

If the Contractor fails to respond to a failure or damage notification and begin work within 2 hours of notification, or does not continue to work until the traffic signal system resumes normal operation, the Department, in the interest of safety, will respond with its own forces to restore normal operation. If the Department mobilizes its forces to effect repairs, the Contractor agrees to pay the Department a sum of $3000 for costs of mobilizing its forces and equipment. In addition, the Contractor must pay the Department the actual cost of material used for the repair and pay the actual costs of police traffic protection.

702.03.01 Controller

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

Mount each controller assembly on an 18" aluminum skirt with adjustable shelves. The 18" skirt shall be of the same Manufacturer as the controller cabinet.

Controller assemblies, 8 phase, shall also include an uninterruptible power source (UPS) unit in each controller cabinet installed. The UPS unit shall conform to the following criteria:

1. All interconnecting harnesses shall be heavy duty with military type connectors.
2. The UPS unit shall be capable of running the intersection on flash for a minimum of 2 hours at 600 watts.
3. The UPS unit shall be warranted for a minimum of 2 years.
4. The UPS unit shall be Clary SP1000 Traffic UPS System or approved equal.

The UPS unit shall be shelf mounted and the battery pack shall be shelf mounted on the sidewall of the controller cabinet skirt.

Submit catalog cuts and provide a fully wired cabinet for review and acceptance depicting placement of a fully equipped controller cabinet with UPS equipment and battery pack before final approval is given to proceed with the installation.

702.03.11 Temporary and Interim Traffic Signal Systems
THE FIRST THROUGH FIFTH PARAGRAPHS ARE DELETED:

702.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

Pay Item	*Pay Unit*
UNINTERRUPTIBLE POWER SOURCE UNIT WITH CONTROLLER CABINET REVISIONS	UNIT

SECTION 703 – HIGHWAY LIGHTING

703.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

Maintain up-to-date as-built drawings of the highway lighting system and temporary highway lighting system. Place copies of the as-built drawings in a plastic pocket mounted inside the meter cabinet, and provide a copy to the RE

If the highway lighting system or temporary highway lighting system fails or becomes damaged, repair and restore the system to normal operation. Begin repair of the signal system within 2 hours of receiving notice of damage or malfunction from the Department, State police, or local authorities. Ensure workers assigned to such repair work continuously until the lighting system is restored to normal operation.

For each response to a system failure or damage, fill out a Contractor Maintenance Emergency Call Record (Form EL-11C) and place it in a plastic pocket mounted inside the cabinet door of each controller cabinet.

If the Contractor fails to respond to a failure or damage notification and begin work within 2 hours of notification, or does not continue to work until the lighting system is restored to normal operation, the Department, in the interest of safety, will respond with its own forces to restore normal operation. If the Department mobilizes its forces to effect repairs, the Contractor agrees to pay the Department a sum of $3000 for costs of mobilizing its forces and equipment. In addition, the Contractor must pay the Department the actual cost of material used for the repair and pay the actual costs of police traffic protection.

Deliver and unload salvaged materials to: NJDOT, 200 Stierli Court, Mt. Arlington, NJ

THE SIXTH PARAGRAPH IS DELETED:
THE EIGHTH THROUGH TENTH PARAGRAPHS ARE DELETED:

SECTION 704 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

704.02.01 Materials
THE FOLLOWING IS ADDED AT THE END OF THE TABLE:

Fiber Optic Cable	918.15
Fiber Optic Patch Panel	918.16
Fiber Optic Splice Enclosure	918.17
Ethernet Switch	918.18
Hardened Video Encoder	918.19
Terminal Server	918.20

FIFTH PARAGRAPH IS CHANGED TO:

Submit catalog cut sheets of the ITS and electrical material specified components along with 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;.Electrical material catalog cut sheets, Certified Structural Details & Calculations. All components must be approved in the system working drawings before use on the Contract. Submit structural components 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 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 SystemTesting against any imperfections in workmanship, components and materials.

704.03.01 General System (GS)

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.

The Department will allow existing system shutdowns for work at the Control Centers, Controllers, and Communication Hubs beginning at 10 P.M. daily and continuing through to 4 A.M. on weekdays, and 6 A.M. on Saturday and Sunday mornings.

Downtime for existing system is not to exceed 12 hours limit. Provide temporary communications if downtime for existing system to exceed 12 hours.

Utilize manufacturer recommended connectors, sweeps, bells, and terminators to perform cutting and splicing of existing multiduct conduit to new junction boxes.

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.

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. Secure and provide all necessary Network configurations and assignments as directed by the Department.

7. 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.)

8. 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.

9. 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.

10. 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.

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.

THE FOLLOWING IS ADDED:

8. Communication Hub Modifications, Location S3D2FT1-40.8.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Modify the existing field terminal cabinet by installing 48 fiber patch panels as shown on the plans and making the required fiber optic jumper connections to provide communication paths for the ITS devices. Remove the required existing fiber optic jumpers required for the connections and install new jumpers to complete the proposed circuits.

Remove the existing telecommunication equipment and terminal server that currently provide communications service to the ITS devices being changed over to fiber optic communications over Ethernet network.

Securely mount the equipment and make the required connections. Ensure that a fully functional system is provided. 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, network interface, etc.).

9. Communication Hub Modifications, Location S3D1FT3-45.2.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Remove the existing telecommunication equipment, terminal server and fiber optic modem cards that currently provide communications service to the ITS devices being removed. Remove the required existing fiber optic jumpers required for the connections and install new jumpers to complete the proposed circuits. Disconnect, pull out and remove existing fiber optic cable L-Cable # 2 and westbound L-Cable from patch panels LE-2 and LW respectively. Disconnect, pull back and reinstall L-Cable #1 from S3D1FT3-45.2 to existing 38" junction box at Route 80 MP 45.9 as shown on the plans. Provide splice for fiber optic cable, L Cable # 1 at existing 38" junction boxes at Rt. 80 EB MP 45.7, and MP 45.9 to ensure continuity of all 18 fibers from field terminal S3D1FT3-45.2 to Splice Cabinet-46.1.

Make the required connections and ensure that a fully functional system is provided. 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, network interface, etc.).

10. Communication Hub Modifications, Location Splice Cabinet-46.1.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Modify the existing field terminal cabinet by installing 48 fiber patch panels as shown on the plans and making the required fiber optic jumper connections to provide communication paths for the ITS devices. Remove the required existing fiber optic jumpers required for the connections and install new jumpers to complete the proposed circuits.

Securely mount the equipment and make the required connections. Ensure that a fully functional system is provided. 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, network interface, etc.).

11. Control Center System, Location S3D1FT1-43.7.

Install 48 fiber patch panels as shown on the plans and make the required fiber optic jumper connections to provide communication paths for the ITS devices. Remove the required existing fiber optic jumpers required for the connections and install new jumpers to complete the proposed circuits.

Remove the existing terminal server and fiber optic modem cards as shown on the plans that currently provide communications service to the ITS devices being removed. Remove the existing single channel encoders, code translators, and cables that currently provide communications service to the ITS devices being changed over to fiber optic communications over Ethernet network. Remove the required existing fiber optic jumpers required for the connections and install new jumpers to complete the proposed circuits.

Securely mount the equipment, configure, and make the required connections. Procure technicians that are certified by the NJDOT current operating system developer to integrate the ITS devices into the existing operating system. Coordinate with NJDOT Office of Information Technology to establish Firewall/Network/IP addresses as required. Ensure that a fully functional and operational system is provided.

At least 30 days before beginning the work, submit working drawings for approval. Identify each component by manufacturer and model number. Submit an ITS System Network working drawing 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 network 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 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 Controller software is updated by integrating the new cameras and ensure video and control is achieved for all required Bureau of Mobility and Systems Engineering personnel the local and central control centers
4. Ensure DMS signs are fully integrated and remotely operable by the DMS controller software. Ensure the DMS's are integrated into the existing operation system, the central and local control software, the SWIFT ™ system , and the 511 System.
5. Secure and provide all necessary Network configurations and assignments as directed by the RE.
6. 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.)
7. 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 RE will provide information regarding the respective system, on particulars for authorized remote users.
8. 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 RE.
9. Direct all network support requests to the RE at least 60 days prior to the installation of any device to be included in the network.

12. Controller Modifications, HAR.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Prior to start of work coordinate with Traffic Operation Center and document the device operations. Remove fiber optic modem providing point-to-point communications and return to the Traffic Operation Center. Install the Terminal Server, Ethernet switch, patch cables, communication cables and power cables as required and as shown on the plans. Coordinate with NJDOT office of information technology to establish Firewall/Network/IP addresses as required.

Securely mount the equipment, configure, and make connections as shown on the plans. Ensure that a fully functional system is provided. 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, network interface, etc.).

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 FOLLOWING IS ADDED AT THE END OF FIRST PARAGRAPH:

At the completion of construction, the contractor is required to fulfill all testing criteria of the affected systems in this contract.

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.

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.

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.

THE FOLLOWING SUBSECTION IS DELETED FROM SECTION 704.03.01:

F. Equipment Training.

704.03.02 Camera Surveillance System (CSS)

B. Installation.

The Department will allow existing DMS system shutdowns beginning at 10 P.M. daily and continuing through to 4 A.M. on weekdays, and 6 A.M. on Saturday and Sunday mornings

The Department will allow existing camera system shutdowns beginning at 10 P.M. daily and continuing through to 4 A.M. on weekdays, and 6 A.M. on Saturday and Sunday mornings

THE FOLLOWING IS ADDED

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G

H. Controller Modifications, Camera.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Prior to start of work coordinate with Traffic Operation Center and document the device operations. Remove fiber optic modem providing point-to-point communications and return to the Traffic Operation Center. Install the Video Encoder, Ethernet switch, patch cables, communication cables and power cables as required and as shown on the plans. Coordinate with NJDOT office of information technology to establish Firewall/Network/IP addresses as required.

Securely mount the equipment, configure, and make connections as shown on the plans. Ensure that a fully functional system is provided. 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, network interface, etc.).

704.03.03 Fiber Optic Cable

A. Components.

THE FOLLOWING IS ADDED TO THE LIST OF ITEMS:

9. **S**taging of the fiber optic cable installation that ensures the proposed fiber optic cable is installed, terminated, and tested prior to disconnection of the existing communications network.

B. Installation.

The Department will allow existing system shutdowns on the fiber network beginning at 10 P.M. daily and continuing through to 4 A.M. on weekdays, and 6 A.M. on Saturday and Sunday mornings.

THE FOLLOWING IS ADDED TO THE SIXTH PARAGRAPH:

When installing fiber optic cable in existing conduits, install a tracer wire as specified in 701.03.15.A. Perform testing of existing tracer wires for continuity and perform splicing required to ensure access to the tracer wire from cabinet to cabinet.

THE FIRST SENTENCE OF THE LAST PARAGRAPH IS REVISED TO:

Splice a manufacturer recommended fiber optic breakout kit with connectors to each end of the strands for a cable that terminates at a device cabinet.

THE FOLLOWING IS ADDED:

Clean and test the existing conduit that is designated for installation of the fiber optic cables per Section 701.

C. Testing

THE LAST PARAGRAPH IS CHANGED TO:

After completion of Level 1 and 2 tests, perform network communication system testing and demonstrate that the communication system is fully operational to meet the material specifications and project requirements. Complete the testing as specified on the Department provided forms and instructions.

704.03.07 Dynamic Message System (DMS)

B. Installation.

The Department will allow existing DMS system shutdowns beginning at 10 P.M. daily and continuing through to 4 A.M. on weekdays, and 6 A.M. on Saturday and Sunday mornings.

C. Testing.

THE FOLLOWING IS ADDED:

Ensure both Level B and Level C Testing are performed with integration into the Department's current control software system.

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. Controller Modifications, DMS.

At least 30 days before beginning of the work, submit working drawings for approval that include a block diagram illustrating the interconnections of the system components. Identify each component by manufacturer and model number.

Prior to start of work coordinate with Traffic Operation Center and document the device operations. Remove fiber optic modem providing point-to-point communications and return to the Traffic Operation Center. Install the terminal server, Ethernet switch, patch cables, communication cables and power cables as required and as shown on the plans. Coordinate with NJDOT office of information technology to establish Firewall/Network/IP addresses as required.

Securely mount the equipment, configure, and make connections as shown on the plans. Ensure that a fully functional system is provided. 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, network interface, etc.).

704.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
ITS CONDUITS, TYPE _____	LINEAR FOOT
COMMUNICATION HUB MODIFICATIONS, LOCATION S3D2FT1-40.8	UNIT
COMMUNICATION HUB MODIFICATIONS, LOCATION S3D1FT3-45.2	UNIT
COMMUNICATION HUB MODIFICATIONS, LOCATION SPLICE CABINET-46.1	UNIT
CONTROL CENTER SYSTEM, LOCATION S3D1FT1-43.7	LUMP SUM
CONTROL CENTER SYSTEM, LOCATION STMC-WOODBRIDGE	LUMP SUM
CONTROL CENTER SYSTEM, LOCATION TOCN-ELMWOOD PARK	LUMP SUM
CONTROLLER MODIFICATIONS, HAR	LUMP SUM
CONTROLLER MODIFICATIONS, CAMERA	UNIT
CONTROLLER MODIFICATIONS, DMS	UNIT

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 CONDUIT, TYPE A 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 Department will include payment for repair or replacement of existing damaged conduit discovered as part of the work performed for Section 704.03.03, under ITS CONDUIT TYPE A. For the purposes of bidding, it is assumed that there are five (5) existing damaged sections of conduit in need of repair or replacement beneath the roadway surface.

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 804 – TOPSOILING

804.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section shall include furnishing and installing bioretention soil mixture within stormwater bioretention basins.

804.02 MATERIALS

Materials shall conform to the following subsections:

THE FOLLOWING IS ADDED:

Bioretention Soil Mixture……..……917.01

804.03 CONSTRUCTION
THE FOLLOWING SUBSECTION IS ADDED:

804.03.03 Bioretention Soil Mixture (Planting Soil Bed)

Use Bioretention Soil Mixture specified in Subsection 917.01, **5**. Submit the source of the soil for the Bioretention Soil Mixture to the RE for approval at least 45 days prior to the start of construction of the Bioretention Basins. No time extensions will be granted should the proposed soil fail to meet the requirements of Subsection 917.01, **5**. Once a stockpile of the soil has been sampled, do not add material to the stockpile.

Do not mix or dump any other materials or substances within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

Mix the Bioretention Soil Mixture to a homogeneous consistency. Place soil planting mix as shown on Bioretention Basin detail. Additional material may be necessary to account for the subsequent settling of the material over time.

804.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

Pay Item	*Pay Unit*
PLANTING SOIL BED, ___" THICK	SQUARE YARD

SECTION 811 – PLANTING

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 $_125,000_____.

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

902.03.02 Mix Design

THE FOURTH PARAGRAGH IS CHANGED TO:

The ME will test 2 specimens to verify that the final JMF produces a mixture that has a minimum void content as specified in Table 902.03.03-1. The ME will determine percent air voids according to AASHTO T 209, and either NJDOT B-6 or AASHTO T 331.

902.03.03 Sampling and Testing

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material.

THE SECOND PARAGRAPH IS CHANGED TO:

During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct air voids and draindown tests as directed by the ME.

THE FOURTH PARAGRAPH IS CHANGED TO:

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308 or NJDOT B-5. Perform testing for air voids according to AASHTO T 209 and either NJDOT B-6 or AASHTO T 331. Perform testing for draindown according to NJDOT B-7 or NJDOT B-8.

902.04.03 Sampling and Testing

THE FIRST PARAGRAPH IS CHANGED TO:

Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material. Maintain the temperature of the mix between 300 °F and 330 °F. Perform and meet requirements for quality control testing as specified in 902.02.04.C.

THE SECOND PARAGRAPH IS CHANGED TO:

During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct draindown tests as directed by the ME.

902.05.01 Composition of Mixture
THE FIFTH PARAGRAPH IS CHANGED TO:

For fine aggregate, use stone sand conforming to 901.05.02. Ensure that the combined fine aggregate in the mixture conforms to the requirements in Table 902.02.02-2.

902.05.02 Mix Design
THE FIRST PARAGRAPH IS CHANGED TO:

Design the SMA to meet the requirements in Table 902.05.02-1 and Table 902.05.02-2. Prepare the JMF according to AASHTO R 46. Determine the JMF at 4 percent air voids and 75 gyrations of the Superpave gyratory compactor.

TABLE 902.05.02-2 IS CHANGED TO:

Table 902.05.02-2 SMA Mixtures Volumetrics For Design and Plant Production

Property	Production Control Tolerances	Requirement
Air Voids	±1%	4.0%
Voids in Mineral Aggregate (VMA)	–	17.0% minimum
VCA_{mix}	–	Less than VCA_{dry}
Draindown @ production temperature	–	0.30% maximum
Asphalt Binder Content (NJDOT B-5)	±0.15%	6% minimum
Asphalt Binder Content (AASHTO T 308)	±0.40%	6% minimum
Tensile Strength Ratio (AASHTO T 283)	–	80% minimum

902.05.03 Sampling and Testing
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material.

THE SECOND PARAGRAPH IS CHANGED TO:

During production at the plant, the ME will take a sample from each 700 tons of production to verify composition and air voids. Conduct draindown, VCAmix, VCAdry, and VMA testing as directed by the ME. Perform tests according to AASHTO R 46.

THE FOURTH PARAGRAPH IS CHANGED TO:

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308, or NJDOT B-5. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166 or AASHTO T 331. The ME will use the most current QC maximum specific gravity test result, obtained according to AASHTO T 209, in calculating the volumetric properties of the SMA. Perform testing for draindown according to AASHTO T 305.

902.06.03 Sampling and Testing
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that the mix meets the requirements as specified in 902.02.04.A, except that the temperature of the mix at discharge is required to be between 230 °F and 275 °F, otherwise the RE or ME will reject the material.

THE SECOND PARAGRAPH IS CHANGED TO:

During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct draindown tests as directed by the ME.

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

909.02 PIPE

909.02.06 Corrugated Steel Pipe and Pipe Arches

ADD THE FOLLOWING SENTENCE TO THE FIRST PARAGRAPH:

Use corrugated steel pipe conforming to ASTM A 760, Type III for corrugated steel underdrains.

THE FOLLOWING IS ADDED:

3. **Type III.** Use the sheet metal thickness for the various pipe sizes:

Pipe Diameter	**Gauge Thickness**
6"	18 (0.052")
8" and larger	16 (0.064")

Ensure that corrugated steel underdrain pipe, couplings bands and elbows a have a bituminous or polymeric coating. When polymeric coating is used, ensure the pipe, coupling bands and elbows conform to AASHTO M 246, Grade 36/11 (interior 0.010 inches and exterior 0.003 inches). When bituminous coating is used, ensure the pipe and coupling bands conform to AASHTO M 190, Type A.

LAST SENTENCE IN THIS PARAGRAPH IS REVISED AS FOLLOWS:

Submit a certification of compliance, as specified in 106.07, for corrugated steel pipe, corrugated steel underdrain pipe and pipe arches.

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

917.01 TOPSOIL

THE FOLLOWING IS ADDED TO, PART **2. PH**:

3. pH in the range of 5.5 – 6.5 is acceptable for the Bioretention Soil Mixture. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or iron sulfate plus sulfur (to lower). The lime or iron sulfate must be mixed uniformly into the Bioretention Soil Mixture prior to use in the Bioretention System.

THE FOLLOWING IS ADDED TO, PART **3. ORGANIC CONTENT**:

Ensure that Bioretention Soil Mixture has an organic content in the range of 3 percent to 7 percent by weight.

THE FOLLOWING PART IS ADDED AT THE END OF SUBSECTION:

5. Bioretention Soil Mixture. Ensure that the Bioretention Soil Mixture is a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches.

Ensure that the Bioretention Soil Mixture meets the gradation requirements of Table 917.01-3.

Table 917.01-3 Gradation of Bioretention Soil Mixture

ASTM E11 Sieve Size	Minimum Percent Passing by Weight
2 in.	100
No. 4	90
No. 10	80

Provide a soil mix for the Bioretention System soil planting bed conforming to the particle size requirements specified in Table 917.01-4 when tested by the Department according to AASHTO T 88.

Table 917.01-4 Particle Size Distribution for Bioretention Soil Mixture

Particle Size	Percent
Sand (2.0 – 0.074 mm)[1]	85 - 95
Silt (0.074 – 0.002 mm)	0 - 10
Clay (less than 0.002 mm)	2 - 5

1. No more than 25% of the sands are to be fine sands (0.42 – 0.074 mm).

Ensure that the Bioretention Soil Mixture meets the requirements of Table 917.01-5.

Table 917.01-5 Planting Soil Characteristics

Parameter	Value
pH Range	5.2 to 7.0
Organic Matter	1.5 to 4%
Magnesium	35 lbs. per acre, minimum

Phosphorous (P205)	75 lbs. per acre, minimum
Potassium (K20)	85 lbs. per acre, minimum
Soluble Salts	<= 500 ppm
Clay	10 to 35%
Silt	30 to 55%
Sand	35 to 60%

Testing to determine the concentrations of the required chemicals is to be done by a certified laboratory (e.g., Rutgers Soil Testing Laboratory). Submit a certification of compliance, as specified in 106.07, with the test results attached.

The Department will sample Bioretention Soil Mixture at a rate of at least 1 sample per source to ensure conformance to the requirements.

If the Bioretention Soil Mixture does not meet the minimum requirement for magnesium, modify it with magnesium sulfate. Likewise, if the Bioretention Soil Mixture does not meet the minimum requirement for potassium, modify it with potash. Magnesium sulfate and potash must be mixed uniformly into the Bioretention Soil Mixture prior to use in the Bioretention System.

SECTION 918 – ELECTRICAL MATERIALS

918.01 CONDUIT AND FITTINGS

4. Flexible Nonmetallic Conduit.

THE FOLLOWING IS ADDED:

For colored conduits (other than black and natural) ensure the minimum Cell Classification requirements according to ASTM D 3350 is PE 334464E.

For ITS Conduit Type A, one of the conduits is to be extruded integrally colored red to indicate its use for Electrical wiring.

918.12 PEDESTALS, POLES, TRANSFORMER BASES, AND MAST BRACKET ARMS

THE FIRST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate pedestals, poles, transformer bases, and mast bracket arms for traffic signal, highway lighting, and camera standards with materials according to the appropriate ASTM standard and the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

SECTION 919 – MISCELLANEOUS

THE FOLLOWING SUBSECTIONS ARE ADDED:

918.15 FIBER OPTIC CABLE

SECTION I - GENERAL

Ensure that the fiber optic cable used for outdoor applications is single mode single jacket single armor gel-free with loose buffer tubes and it meets or exceeds all applicable Standards

When the fiber optic cable is not used for outdoor applications:

- Ensure that general use cable is resistant to the spread of fire and labeled OFN.
- Ensure that fiber optic cable installed in plenums, ducts or other space used for environmental air has fire-resistant and low smoke producing characteristics and is labeled OFNP.

- Ensure that fiber optic cable installed in risers, spaces used for vertical runs in a shaft or from floor to floor has fire-resistant characteristics capable of preventing the spreading of fire from floor to floor and is labeled OFNR.

Standards

- Electronic Industry Standards (EIA/TIA), EIA/TIA-455, EIA/TIA -472, EIA/TIA -598
- Fiber Optic Testing Parameters (FOTP)
- International Telecommunications Union (ITU), ITU G.652.D
- ASTM standards, ASTM D3349, ASTM D1248
- National Fire Protection Code (NFPA), NFPA 70, National Electrical Code (NEC)

Environmental

- Operating temperature range: -40 °F to +158 °F
- Installation temperature range: -22 °F to +158 °F
- Storage Temperature: -40 °F to +158 °F

SECTION II – CABLE CHARACTERISTICS

2-1 Ensure that the optical fibers are contained within loose, gel-free buffer tubes that are stranded around an all-dielectric central strength member.

2-2 Ensure that the cable core is a tensile strength member and is surrounded by a water swellable yarn.

2-3 Ensure that a high or medium density polyethylene outer jacket is provided for overall protection.

2-4 Ensure that the fiber optic cable includes the following components:

- Color coded single mode optical fibers.
- Gel-free color coded buffer tubes.
- Central strength member - glass reinforced plastic dielectric rod.
- Filler rod - medium or high density polyethylene.
- Stranding – buffer tubes stranded around central member and held in place with binders.
- Water- swellable yarn and tape that is non-nutritive to fungus, electrically non-conductive, non-toxic, dermatological safe and compatible with all other cable components.
- Core separator or binders - non-hygroscopic, non-wicking and dielectric with low shrinkage.
- Tensile outer strength member - high tensile strength aramid yarns and fiberglass helically stranded. evenly around the cable core
- Ripcord – minimum two ripcords, equally spaced (180° for 2)
- Outer jacket - HDPE or MDPE, co-extruded colored stripe, coded and labeled.
- Each optical fiber is to be distinguishable from others in the same buffer tube by means of color coding according to EIA/TIA -598-B color coding for fiber optic cable.
- In cables containing multiple buffer tubes each buffer tube is to be distinguishable from others in the same cable by means of color coding according to EIA/TIA -598 color coding for fiber optic cable.

2-5 Mechanical Characteristics

- Maximum tensile loading during installation: 600 lbf (also called loaded)
- Maximum tensile loading for the unloaded application: 130 lbf (also called installed)
- Minimum bending radius of during installation: 20 times the cable diameter
- Minimum bending radius for unloaded application: 10 times the cable diameter

2-6 Fiber Characteristics

Parameters	Single Mode Fiber
Type:	Step Index
Core diameter:	8.3 µm (nominal)
Cladding diameter:	125 µm ± 0.7 µm
Core to Cladding Concentricity:	≤ 0.5 µm
Cladding Non-circularity:	≤ 1.0 %
Coating Diameter:	245 µm ± 5 µm
Proof/ Tensile Test:	100 kpsi, minimum
Attenuation:	
@ 1310 nm	≤ 0.64 dB/mile (≤ or 0.4 dB/km)
@ 1550 nm	≤ 0.48 dB/mile (≤ or 0.3 dB/km)
Attenuation at the Water Peak:	≤ 2.1 dB/km @ 1383 ± 3 nm
Chromatic Dispersion:	
Zero Dispersion Wavelength	1302 to 1322 nm
Zero Dispersion Slope	0.092 ps/ (nm^2•km)
Maximum Dispersion:	≤ 3.5 ps/ (nm•km for 1285-1330 nm ≤ 18 ps/ (nm•km) for 1550 nm
Cut-Off Wavelength:	<1260 nm
Mode Field Diameter:	9.2 ± 0.4 µm at 1310 µm, 10.4 ± 0.8 µm at 1550 µm
Macro bending Loss Measured on loose fiber of 100 turns of 75 mm diameter (tested in accordance with EIA-455-62):	≤ 0.05 dB @ 1310 nm ≤ 0.10 dB @ 1550 nm

2-7 Buffer Tubes

- Minimum buffer tube diameter: 0.078 inch
- Maximum buffer tube diameter: 0.12 inch
- Fibers per tube: 2 – 6
- Tubes per cable: 1 – 24
- Water blocking protection: Water-Swellable yarn

2-8 Outer Jacket

- Materials- For fiber optic cable designated for outdoor use application: high density or medium density polyethylene as defined by ASTM D1248, Type II, Class C, Category 4, Grade J4, E7 and E8.

  For fiber optic cable designated for other applications: Provide material meeting specifications under section 1-1.
- Minimum jacket thickness - 0.055 inch.
- Labeling:

Additional parameters required on the label are:

"NJDOT FIBER OPTIC CABLE"
FIBERS "FIBER"
"SINGLE MODE"
Manufacturer's name, Date of manufacture.

- Sequential Cable labeling is to be printed on the cable outer jacket every two feet or as designated in the contract documents. Use capital letters for labeling with a text height of 0.1 inch.
- Use contrasting color to the cable jacket for marking.

- Co-extruded stripe color-coded with 0.04 inch stripe width.
- Provide ultra-violet light protection.

2-9 Cable Armor

Cable Armor to provide rodent and corrosion resistance while minimizing the susceptibility to lightning damage. Use of stranded wires in conjunction with tape armor is not permitted.

Design and Test Criteria:	ANSI/ICEA S-87-640
Material:	Electrolytically chrome coated, low carbon steel tape, coated with Polymer material on both sides
Application:	Corrugated Single armor applied longitudinally around outside of water-swellable tape with overlapping seam

2-10 Cable Types

Number of fibers, number of buffer tubes, number of fibers per buffer tube, outer jacket stripe color and outer diameter are to be as shown below:

FIBER OPTIC CABLE TYPE	NUMBER OF FIBERS	NUMBER OF BUFFER TUBES	NUMBER OF FIBERS PER BUFFER TUBE	OUTER JACKET STRIPE COLOR	Nominal Outer Diameter (inch)
Type A	48	8	6	Green	0.63
Type B	36	6	6	Blue	0.55
Type C	24	4	6	Orange	0.52
Type D	18	3	6	White	0.52
Type E	12	2	6	Red	0.52
Type F	6	1	6	Red	0.52

918.16 FIBER OPTIC PATCH PANEL

GENERAL - I

Standards

- Electronic Industry Standards (EIA/TIA)
- International Telegraph and Telephone Consultative Committee (CCITT)
- ANSI
- ASTM standards

Ensure that the Fiber Optic Patch Panel is designed for termination of single mode optical fibers with SC Type connectors inside field equipment cabinets or equipment enclosure racks located within the buildings.

Ensure that the same model of Fiber Optic Patch Panel is in use for a minimum of three (3) years under conditions similar to State of New Jersey.

PATCH PANEL CHARACTERISTICS - II

2-1 Ensure that the patch panel includes the following accessories:
- Mounting bolts
- SC Type receptacle, Interconnect sleeve or bulkhead adapter
- Jumper cables
- Fiber drawers (for 24/48 port patch panels)
- Storage for fiber (for 6 port fiber patch panel)
- Cable clamps with strain relief
- Flipcard for easier record keeping

2-2 Ensure that number of ports is as noted below:
- 6 port patch panel for 6 fiber cable termination
- 2-6 port patch panel for 8,12 fiber cable termination
- 24 port patch panel for 18 or 24 fiber cable termination
- 48 port patch panel for 36 or 48 fiber cable termination

2-3 Ensure that SC Connector is for single mode application, pre-radiused, zirconia ferrule, and metallic or composition body with strain relief boot. Ensure that the SC connector meets the following requirements:
- Operating temperature: -40º F to 140º F
- Insertion Loss: < 0.25 dB
- Reflectance: < -55 dB
- Durability: < 0.3dB change for > 200 matings

2-4 Ensure that 6-port fiber patch panel provides for termination of 6 single mode optical fibers in field equipment cabinets. Ensure that the patch panels are wall mountable with a nominal size of 9" high x 8" wide x 2.5" deep. Ensure that the storage compartment for excess fiber storage is lockable.

2-5 Ensure that 24/48 port fiber patch panel is suitable for installation in EIA 19 inch rack. Ensure that the 24 port fiber patch panel does not exceed 6 inches in height and 18 inches in depth and the 48 port fiber patch panel does not exceed 11 inches in height and 18 inches in depth. Ensure that the patch panel is constructed from 24 gauge (minimum) sheet metal, painted gray.

2-6 Ensure that 24/48 port fiber patch panel has a clear front cover that is easily removable or opened to provide easy access for cable installation. Ensure that the cover is attached to panel enclosure via hinge or fastened thumbscrews. Ensure that the bottom/back panels provide openings for cable entrance, and provide for strain relief at each entrance point. Ensure that the patch panel provides drawers and other fixtures to maintain the minimum bending radius of fiber cables without strain placed on the cable.

2-7 Ensure that all SC connectors on the patch panel and plug end on jumper cables are capped with an approved cap.

2-8 Ensure that jumper cables (patch cables) are compatible with single mode fiber and provided with factory installed SC type single mode connectors. Ensure that the number of jumper cables is equal to the number of patch panel ports. Ensure that length of jumper cables connecting field equipment is as required for each connection. Ensure that spare jumper cables are 10 feet long. Ensure the fiber optic characteristics of the patch jumper cables meet the same requirements as the ITS Material Specifications for Fiber Optic Cable and manufacturers requirements.

918.17 FIBER OPTIC SPLICE ENCLOSURE

GENERAL

Standards

- Electronic Industry Standards (EIA/TIA)
- International Telegraph and Telephone Consultative Committee (CCITT)
- ANSI
- ASTM standards
- FDDI specifications
- UL

Ensure that the Splice Enclosure is a complete kit for fusion splicing the single mode optical fibers of loose tube fiber optic cables inside underground junction boxes in the field using fusion splicer.

Ensure that the Splice Enclosure is re-enterable and designed to hold spliced fibers packaged in a protective sieving and housing and pass through un-spliced fibers.

Ensure that Splice Enclosure is equipped with terminations for cable strength members and bonding wire.

Ensure that Splice Enclosure is in use for a minimum of three years under weather conditions similar to State of New Jersey and in underground junction boxes.

SPLICE ENCLOSURE CHARACTERISTICS

Mechanical:

- Nominal size: 8" Dia. x 28" Long
- Nominal weight: 5.0 to 9.0 lb

Environmental

- Ensure that Splice Enclosure has gasket-sealing technology that enables ease of installation and re-entry requiring no special tools.
- Ensure that Splice Enclosure does not allow water entry when sprayed for fifteen minutes from a distance of one meter with water at a flow rate of 25 liters per minute at any angle.
- Ensure that Splice Enclosure does not allow water entry when immersed in a six feet head for seven days.
- Ensure that the Splice Enclosure is manufacturer certified for below ground, junction box (pull box) installation.
- Storage and operation temperature: -40°F to + 158°F
- Installation temperature: -22°F to + 158°F

Other Requirements

- Rigid non-filled case molded out of polyester/polycarbonate blend.
- Ensure that splice enclosure provides strain relief around the cable jacket and cable strength member.
- Ensure that splice enclosure is rodent proof, water proof, re-enterable and consist of moisture proof case.
- Ensure that all hardware is corrosion resistant aluminum or stainless steel.
- Ensure that splice enclosure is capable of holding hardware made from corrosion resistant aluminum or stainless steel.
- Ensure that splice enclosure is able to re-enter and re-assemble without the use of special tools.
- Ensure the number of cable entries meet project requirement at each location. 2 to 6 cables entries for 0.5" to 1" dia. loose tube single mode fiber optic cables are required.
- Ensure that splice enclosure meets minimum fiber bending radius requirements.
- Ensure grounding strap is provided.
- Ensure that splice enclosure is capable of holding fusion splice trays and slack baskets to organize and store splices.
- Ensure that splice enclosure is equipped with the necessary mounting hardware.
- Ensure that splice enclosure has air valve for flash testing.

Splice tray specifications

- 12-fiber fusion splice trays compatible with fusion splicing single mode optical fibers.
- Ensure that number of splice trays is sufficient to splice all fibers.
- Ensure that it is compatible with splice enclosure.
- Ensure that splice trays are stackable within the splice enclosure.
- Ensure that splice tray is designed to accommodate loose tube buffers secured with tube guide or channel snap.
- Ensure that no cable ties are required to secure loose tube buffers.

918.18 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 or Etherwan 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)

918.19 HARDENED VIDEO ENCODER

Provide Hardened Video Encoders that conforms to the following specifications:

1-1 Standards and Certifications
Institute of Electrical and Electronics Engineers (IEEE) and Operating Standards:
- IEEE 802.3 10 Base-T
- ISO/IEC 14496-2 Simple profile video standard

Safety Certifications:

- Electromagnetic Emissions: Federal Communication Commission (FCC) Part 15, (Sub Part B, Class A)

1-2 Functional Requirements

- Convert analog video and serial PTZ data to MPEG4 Video stream for transmission over Ethernet Network.
- Compatible with NJDOT digital video operating system - GENETEC Omnicast.
- Transparent serial port supporting any asynchronous serial protocol.
- Compression: MPEG-4 simple profile and MJPEG
- Number of MPEG-4 Streams: Dual Streams
- MPEG Resolution: Scalable from 176x128 to 704x480 pixels 1CIF, 2CIF, 4CIF, user selectable for each stream.
- Bandwidth: 30 Kbps to 6Mbps user selectable for each stream.
- Transport Protocols: RTP/IP, UDP/IP, TCP/IP, Multicast IP
- Other Protocols: DNS, NTP, HTTP, FTP and DHCP client

1-3 Management

- HTML Web Browser with Password Protection, Telnet
- Flash memory of video codec and firmware upgrade over the network
- *HTTPS based Authentication

*For Broadband and ISP applications

1-4 Interface and Connectors

- Serial Interface (PTZ): EIA RS-422/RS-485 Transparent serial port supporting any asynchronous serial protocol.
- Video: 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: 5” L X 4”W x 2” H
- Max. Weight not to exceed: 1 lb

1-7 Environmental Specifications

- Operating Temperature: -22°F to +140°F
- Operating Humidity: 95% non-condensing at 122°F

1-8 Electrical Power

The power supply is to be equipped with a minimum of a six (6) foot power cord terminating in a standard three (3) prong line plug. Maximum power requirement is not to exceed 10 watts for each unit.

1-9 Software

Provide Software License(s) with the unit.

1-10 Identification

Identify Hardened Video Encoder 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

Input		Output	
Minimum Number of Required Ports		Minimum Number of Required Ports	
NTSC Video	1	Ethernet RJ45	1
RS-422/485 (PTZ)	1		

The 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:

- Documentation
- External power supply (if required)
- All required custom connections
- Mounting brackets/shelf (if required)

918.20 TERMINAL SERVER

Ensure that the Terminal Servers conform to the following specifications:

1-1 Standards and Certifications

- IEEE 802.3 10 BaseT
- IEEE 802.3u 100 Base TX
- IEEE802.3u 100 Base FX
- EIA/TIA -232E; EIA/TIA-574
- Product Safety: Underwriters Laboratories (UL) Standard 1950 or 60950
- Electromagnetic Emissions: FCC Part 15, subpart B, Class A
- IEC 61000-4-5 Surge protection

1-2 Functional Requirements

- The Terminal Server is to be an IP addressable device that converts the serial RS-232/RS-422/RS-485 communication protocols to 10/100 Base T/TX Ethernet protocol.
- Supports Broadcast Storm Filtering.
- TCP, IP, UDP, Telnet, DHCP, HTTP, SNMP, TFTP.
- Speed: 230.4 Kbps
- Port Buffer: 512 kb
- Data Bits: 5-8
- Stop Bits: 1, 2
- Parity: Odd, Even, None

1-3 Management

- Direct console port access via RS-232
- HTML Web Browser, Telnet

1-4 Interface and Connectors

- Serial Connector: Software selectable RS-232/RS-422/RS-485 with DB9 Female Connector for Type A and B; RJ50 for Type C.
- Ethernet Network: Auto-detecting 10/100 Base-TX, RJ 45 Connector.

1-5 Indicators

- LED Indicator showing Power Status.
- LED Indicators showing status and activity of each port.

1-6 Mechanical Specifications

- Maximum dimension: 17.25″ (L) X 10.8″ (W) X 1.75″ (H)
- Maximum weight: 8 lbs

1-7 Environmental Specifications

- Operating Temperature: -13°F to +158°F
- Storage Temperature: -13°F to +185°F
- Operating Humidity: 5% to 95% relative humidity non-condensing

1-8 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 is not to exceed 20 watts for each unit.

1-9 Software

Provide Software License(s) with the unit.

1-10 Identification

Identify Terminal Server 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

Type	Minimum Number of Required Ports	
	10 Base-T/100 Base –TX*	RS-232/RS-422/RS-485**
Type A	1	1
Type B	1	2
Type C	1	4
Type D	1	8

*Maximum distance for Ethernet UTP: 300’ (Cat5e)
** Maximum distance for RS-232 connections 50’ & RS-422/RS-485 connections 3600’

1-12 List of Equipment

- Documentation
- External power supply (if required)
- All required custom connections
- Mounting brackets/shelf, mounting plates (if required)

DIVISION 1000 – EQUIPMENT

SECTION 1001 – TRAFFIC CONTROL EQUIPMENT

THE FOLLOWING SUBSECTIONS ARE ADDED:

1001.04 PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION

Provide a NTCIP compliant portable variable message sign as described under 1001.02 equipped with broadband cellular modem.

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 back up 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.

THE FOLLOWING SUBSECTION IS ADDED AFTER 1009.02:

1009.03 ASPHALT-RUBBER BINDER BLENDING EQUIPMENT

Provide equipment for preparation of Asphalt-Rubber Binder. Ensure that the unit is equipped with a crumb rubber feed system capable of continuously supplying the asphalt cement feed system, and is capable of fully blending the individual crumb rubber particles with the asphalt cement. Use an asphalt-rubber binder storage tank that is equipped with a heating system capable of maintaining the temperature of the binder between 325 and 375 °F during the reaction. Ensure the asphalt-rubber binder storage tank is also equipped with an internal auger mixing device, oriented horizontally in the tank, capable of maintaining a uniform mixture of the asphalt-rubber binder.

Ensure that the tanks for storage of asphalt-rubber binder are equipped to uniformly heat the material to the required temperature under effective and positive control at all times. Ensure that heating is accomplished so that no flame comes in contact with the heating tank.

Provide a circulating system of sufficient capacity for the binder to ensure continuous circulation between the storage tank and proportioning units during the entire operating period. Ensure that the discharge end of the binder circulating pipe is maintained below the surface of the binder in the storage tank to prevent discharge of hot binder into the open air.

Ensure that pipe lines and fittings are steam or oil jacketed, electrically or otherwise heated, and insulated to prevent heat loss.

Provide valves according to AASHTO T 40, except ensure that a sampling valve is also located in the lowest third of each storage tank.

If the plant has been equipped with a water injection type asphalt foaming system, ensure that the system will allow the proper amount of asphalt rubber binder to be supplied continuously or provide a by-pass to ensure that the proper amount of asphalt rubber binder is supplied to the mix.

SECTION 1011 – PRECAST AND PRESTRESSED CONCRETE PLANT EQUIPMENT

1011.03 ME'S OFFICE
THE SECOND PARAGRAPH SUBPART 2 &3 ARE CHANGED TO:

2. One high-speed broad band connection with a minimum speed of 3 megabits per second (mbps) with dynamic IP address (DSL, Cable, etc.).
3. Two desks and 2 chairs.

NJDOT TEST METHODS

NJDOT B-8 – DETERMINING JOB MIX FORMULA FOR MODIFIED OPEN-GRADED FRICTION COURSE MIXES

C. Procedure.

3. Relative VMA Asphalt Content.

THE FOURTH SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Determine the bulk specific gravity, Gmb from each specimen according to NJDOT B-6 or AASHTO T 331.

THE FOOTNOTE FOR GMB IN THE SECOND EQUATION IS CHANGED TO:

Gmb = the bulk specific gravity of the specimen as determined by NJDOT B-6 or AASHTO T 331.

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 B-11- DETERMINING GRADATION OF CRUMB RUBBER FOR ASPHALT MODIFICATION

A. Scope. This method is used to determine the gradation of the crumb rubber for asphalt-rubber binder

B. Apparatus. Use the following apparatus:

1. Oven capable of maintaining a temperatures of 140 ± 10 °F for drying sample to a constant weight.
2. Rubber balls having a weight of 8.5 ± 0.5 grams, a diameter of 24.5 ± 0.5mm mm, and a Shore Durometer "A" hardness of 50 ± 5 per ASTM Designation D 224
3. No. 8, 16, 30, 50, 100, and 200 sieves conforming to AASHTO M 92.
4. Mechanical sieve shaker conforming to AASHTO T 27.
5. Balance conforming to AASHTO M 231 and having a minimum capacity of 100 grams with a precision of 0.1 gram.

C. Procedure. The crumb rubber for asphalt rubber binder is required to conform to the gradations specified below when tested in accordance with ASTM Designation C 136 except as follows:

1. Obtain 100 ± 5 grams from the crumb rubber sample and dry to a constant weight at a temperature of not less than 135 °F nor more than 145 °F and record the dry sample weight.
2. Place the crumb rubber sample and 5.0 grams of talc in a one pint jar, then shake it by hand for a minimum of one minute to mix the crumb rubber and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
3. Place one rubber ball on each sieve. After sieving the combined material for 10 ± 1 minutes, disassemble the sieves. Brush remaining material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the weight of the material retained on the No. 8 sieve and leave this material

(do not discard) on the scale or balance. Ensure that observed fabric balls remain on the scale or balance and are placed together on the side of the scale or balance to prevent the fabric balls from being covered or disturbed when placing the material from finer sieves on to the scale or balance. Add the material retained on the next finer sieve (No. 16 sieve) to the scale or balance. Weigh and record that weight as the accumulative weight retained on that sieve (No. 16 sieve). Continue weighing and recording the accumulated weights retained on the remaining sieves until the accumulated weight retained in the pan has been determined. Before discarding the crumb rubber sample, separately weigh and record the total weight of the fabric balls in the sample.

4. Determine the weight of material passing the No. 200 sieve (or weight retained in the pan) by subtracting the accumulated weight retained on the No. 200 sieve from the accumulated retained weight in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight of 5 grams or less, cross out the recorded number for the accumulated weight retained in the pan and copy the number recorded for the accumulated weight retained on the No. 200 sieve and record that number (next to the crossed out number) as the accumulated weight retained in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight greater than 5 grams, cross out the recorded number for the accumulated weight retained in the pan, subtract 5 grams from that number and record the difference next to the crossed out number. The adjustment to the accumulated with retained in the pan is made to account for the 5 grams of the talc added to the sample. For calculation purposes, the adjusted accumulated weight is the same as the adjusted accumulated weight retained in the pan. Determine the percent passing based on the adjusted total sample weight and recorded to the nearest 0.1 percent.

D. Report. Report all test results on ME provided forms.

NJDOT B-12 – DETERMINING ROTATIONAL VISCOSITY OF ASPHALT RUBBER BINDER

A. Scope. This method presents procedures for sampling and testing of asphalt-rubber binder in the field using a hand held portable rotational analog or digital viscometer.

B. Apparatus. Use the following apparatus:

1. **Viscometer.** A hand held high range rotational viscometer. Analog models with indicator needles and scaled dial displays or digital read out viscometers may be used. Analog models that have been found acceptable include Rion Model VT-04E and Haake Model, VT-02. Digital models that have been found acceptable include Haake VT 2 Plus.
2. **Rotor.** A cylinder with a diameter of 24 ± 1.1 millimeters, height of 53 ± 0.1 millimeters, and a vent hole attached to a spindle or shaft with length of 87 ± 2 millimeters that is compatible with the selected viscometer. Acceptable rotors include Rion No. 1, Haake No 1, or an equivalent.
3. **Thermometer.** Digital with metal jacket probe accurate to 1 °F.
4. **Sample Containers.** Clean 1 gallon metal cans with lids and wire bale.
5. **Viscosity Standard Oils.** Fluids calibrated in absolute viscosity centipoise (cP).
6. **Viscometer Holder.** Clean metal container or stand for safely storing the viscometer between tests.
7. **Level Surface.** Level surface not directly on the ground.
8. **Heat Source.** A controllable heat source (i.e. a hot plate, gas stove, or burner) to maintain the temperature of the asphalt-rubber sample at 350 ± 3 °F while measuring viscosity.
9. **Personal Equipment.** Eye protection and heat resistant gloves.

C. Procedure. Perform the following steps:

1. **Calibration of Equipment.** Calibrate the equipment as follows:

   a. Verify the accuracy of the viscometer by comparing the viscosity results obtained with the hand held viscometer to 3 separate calibration fluids of known viscosities ranging from 1000 cP to 5000 cP. The known viscosity value are based on the fluid manufacturer's standard test temperature or based on the test temperature versus viscosity correlation table provided by the fluid manufacturer.

   b. The viscometer is considered accurate if the values obtained are within 300 cP of the known viscosity.

   c. Verify the calibration of the rotational viscometer using viscosity standards before use at each site.

2. **Sampling Asphalt-Rubber Binder.** Provide new sample containers and ensure that they are clean before using. Before sampling, draw at least 1 gallon from an appropriate sample valve on the interaction tank and discard. Then reopen the sample valve and draw at least 3/4 of a gallon for testing.

3. **Preparing Asphalt-Rubber Binder Samples for Testing.** Prepare the asphalt-rubber binder as follows:

   a. Immediately transport the sample to the testing area. Ensure that the testing area is close to the sampling location to reduce the potential for temperature loss.

   b. Set the open asphalt-rubber binder sample container on the level surface on or over the heat source.

   c. To prevent scorching or burning, manually stir the asphalt-rubber binder sample using a metal stir rod or the temperature probe.

   d. Continue stirring until a consistent asphalt-rubber binder temperature of 350 ± 3 °F is achieved. Record the actual test temperature with the corresponding viscosity measurement.

   e. Insert the viscometer spindle and rotor into the hot asphalt-rubber binder sample near the edge of the can. Ensure that the spindle and rotor are not inserted deeper than the immersion depth mark on the shaft and are not plugging the vent hole. During insertion, the spindle and rotor may be tilted slightly to keep the vent hole clear.

   f. Allow the rotor to acclimate to the temperature of the asphalt-rubber binder for approximately 1 minute. During acclimation, stir the sample thoroughly and measure the temperature.

   g. Orient the sample and the rotor so that the rotor is near the center of the sample, align the depth mark on the shaft with the asphalt-rubber binder surface, and level the viscometer in order to measure viscosity.

4. **Testing.** Analog viscometers include a level bubble to help orient the device to ensure that the rotor and shaft remain vertical. Digital viscometers may not include a level bubble. If a level bubble is not included, attach a small adhesive bubble to the viscometer or use a framework with a level bubble.

   Test the asphalt-rubber binder as follows:

   a. As soon as the viscometer is leveled and the depth mark is even with the asphalt-rubber binder surface, begin rotor rotation. When using a digital viscometer, activate the continuous digital display according to the manufacturer's recommendations. Read and record the peak viscosity value (The peak measurement typically represents the viscosity of the asphalt-rubber binder; report and log that value. As the rotor continues to turn, it "drills" into the sample and spins rubber particles out of its measurement area. This may cause thinning of the material in contact with the rotor erroneously indicating a drop in the apparent viscosity of the asphalt-rubber binder) from the graduated scale labeled with the corresponding rotor number or from the digital display.

   b. After completing the first measurement, move the viscometer rotor away from the center of the sample can without removing it from the asphalt-rubber binder sample. Turn off the rotor rotation.

   c. Stir the asphalt-rubber binder sample thoroughly.

   d. Repeat Steps 1, 2, and 3. Take 3 measurements and average the results to determine the viscosity.

   e. Return the viscometer to its holder with the rotor suspended in a suitable solvent. Before using the rotor again, wipe off the solvent and dry the rotor to avoid solvent contamination of the next sample.

D. Calculations. Some meters read in units of mPa·s (0.001 Pascal·seconds) or dPa·s (0.1 Pa·s), while others may read in centipoise (cPs) units. The conversion is 1 Pa·s = 1000 cPs.

E. Report. Include the following items in the report:

1. Date and time sampled.
2. Location of asphalt-rubber binding blending plant.
3. Test temperature and viscosity.
4. Rotor designation.
5. Viscometer model and serial n

NJDOT R-1 – OPERATING INERTIAL PROFILER SYSTEMS FOR EVALUATING PAVEMENT PROFILES

THIS ENTIRE PROCEDURE 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..

ATTACHMENTS

FHWA ATTACHMENT NO. 1

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Payment of Predetermined Minimum Wage
V. Statements and Payrolls
VI. Record of Materials, Supplies, and Labor
VII. Subletting or Assigning the Contract
VIII. Safety: Accident Prevention
IX. False Statements Concerning Highway Projects
X. Implementation of Clean Air Act and Federal Water Pollution Control Act
XI. Certification Regarding Debarment, Suspension Ineligibility, and Voluntary Exclusion
XII. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I GENERAL

1. 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.
2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.
3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.
4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

   Section I, paragraph 2;

   Section IV, paragraphs 1, 2, 3, 4, and 7;

   Section V, paragraphs 1 and 2a through 2g.
5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 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 DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

    a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

    b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

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 and 41 CFR 60) 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 Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American 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 State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

    b. The contractor will accept as his 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, preapprenticeship, and/or on-the-job training."

2. **EEO Officer**: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO 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 minority group employees.

    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 minority groups 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 minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group 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, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, 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 group applicants for employment. Information and procedures with regard to referring minority group 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 his 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 his avenues of appeal.

6. **Training and Promotion:**

   a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

   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. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

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 minority group and women employees 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 his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. 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 best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best 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 SHA 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 minority and women 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 minority group persons and women. (The DOL 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 SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **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 completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:
   1. The number 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;
   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 DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA 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. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

a. All mechanics and laborers 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 (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates

conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) 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. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, 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 paragraphs 4 and 5 of this Section IV.

b. 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.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:
   1. the work to be performed by the additional classification requested is not performed by a classification in the wage determination;
   2. the additional classification is utilized in the area by the construction industry;
   3. the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
   4. with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification 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 DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour 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.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional 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. Said 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

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. 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 or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a 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.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

1. 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 DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/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 Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.
2. The allowable ratio of apprentices to journeyman-level employees 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 employee 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 listed in 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 or subcontractor 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-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.
3. 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 journeyman-level 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 for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
4. In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

1. 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 DOL, Employment and Training Administration.
2. The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. 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.
3. Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level 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-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.
4. In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor 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. Helpers:
Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. **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.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor 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, as 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 SHA contracting officer 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.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her 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, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies 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 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. **Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. **Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, the social security number of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof 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. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found 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 and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or

subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
   1. that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;
   2. that such 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 the Regulations, 29 CFR 3;
   3. that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. 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 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, 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 SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions 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.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

   a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

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 State. 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).

   a. "Its own organization" shall be construed to include only workers employed and paid directly 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, assignee, or agent of the prime contractor.

   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 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 VII 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 SHA 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 SHA 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 SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

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 SHA 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. 333).

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. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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, the following notice 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:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

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 not more that $10,000 or imprisoned not more than 5 years or both."*

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions**:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary 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 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 primary 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 department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary 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," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary 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 primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the

"Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. 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.

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.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
   a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
   b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement 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;
   c. 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 1b of this certification; and
   d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
2. Where the prospective primary 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 Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

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," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules

implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

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.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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 Covered Transactions:

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 participation in this transaction 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.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(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 his or her bid or proposal that he or she 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 PREFERENCE FOR APPALACHIAN CONTRACTS

(APPLICABLE TO APPALACHIAN CONTRACTS ONLY.)

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 he 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, he 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 1 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 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. 1

REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA-1273).

V. STATEMENTS AND PAYROLLS

2. Payrolls and Payroll Records:

THE FOLLOWING SUBPART IS CHANGED TO:

b. The payroll records shall contain the name, the last four digits of the social security number of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof 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. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found 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 and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs. Contractors or subcontractors shall maintain complete social security numbers and home addresses for employees. Government agencies are entitled to request or review all relevant payroll information, including social security numbers and addresses of employees. Contractors and subcontractors are required to provide such information upon request.

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 actions 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 median, 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.

The notices referred to in paragraphs a and c may be obtained from the Supervising Engineer of Construction or his representative 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 A) 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 6 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 "A" - 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 "A" - A list of all subcontractors who submitted bids or quotes on this project.
3. DBE Form B - Affidavit of Disadvantaged Business Enterprise. Each proposed DBE not listed in the NJDOT DBE directory must submit Form B attesting to its validity as a DBE. (All firms must be certified by the Department's D/ESBE Liaison Officer prior to award of the contract).
4. 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 Resident Engineer, 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 Resident Engineer.
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 Resident Engineer 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 Resident Engineer. 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 7, where feasible, consisting of at least 2 APPRENTICES and 5 TRAINEES. TRAINEE HOURS= 4,170.

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 Resident Engineer 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 Resident Engineer, 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." 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 Resident Engineer 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", showing hours of training satisfactorily completed.
(2) The Contractor shall maintain and submit an accurate and complete "NJDOT Contractor's 1409 Quarterly Training Report" to the Resident Engineer 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" to the Resident Engineer, 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 Resident Engineer 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/procurement/ConstrServ/documents/NJ_StimulusReportingNotification-Contractor.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 NO. 8

JERSEY CENTRAL POWER AND LIGHTING

BID PACKAGE

FirstEnergy - CREWS System
Work Request Cover Sheet

Work Request: 50039695
SAP Notification No: 318127246
SAP Order No: 12451866
WR Type Code: DHWY

	DATE	INITIALS
Construction Complete:		
Built As-Designed?	Yes ☐ No ☐	
All Material Issued/Returned?	Yes ☐ No ☐	
Print Sent to Engineering:		

Customer Cat: COM
District: Boonton
Substation: 80198 HALSEY SUB
Circuit: 0417 37818-M
Designer: SOTC SOTO,ROBERTO
Designer Phone: (973) 401 - 8582 x
WR Name: NJDOT RT 80 EB RAMP @ LITTLETON RD ROC JOB

Description:
Relo poles along eastbound entrance ramp to Route 80 at LIttleton Road in Parsippany, for an NJDOT ramp realignment, Install 2 -45'/4 poles, 1 set of 600a disconnects with inline d.e., 3ph pri riser/disconnects, 3 spans of 3ph 3 36.4 AA pri & 4/0 tx secondaries Between poles JC300pth and BT1366PTH, temporarily remove secondaires between bt1368 & bt1369...RSoto

Service Street No:
Street No Frac:
Street Name: FRONTAGE RD
Unit #: DHWY **Block:** 003712 **Lot:**
City: PARSIPPANY
Customer Home #: (973) 770 - 5047 x.
Customer Work #: ( ) - x.

Contacts:

Name	Type	Primary	Phone	Type	Phone	Type
Larry Bongiovanni - Dewberry	MISWR	N	(973) 338 - 9100 x		( ) - x	

OUPS / One Call #: _____
Clearance Control #: _____
Flagging: _____
Forestry: _____
Foreign Utilities: _____
Permit: _____
Special Equipment Needs: _____

Upstream Devices: _____

Additional Notes: _____

WR No:	50039695	**Operating Area:**	BN
Revision No:	1	**WR Type:**	DHWY
Company:	JL	**SAP Notification No:**	318127246
SAP Order No:	12451866	**SAP Network ID:**	
SAP Activity ID:		**SAP Cost Collector Type:**	UNIQUE
WR Name:	NJDOT RT 80 EB RAMP @ LITTLETON RD ROC JOB		
Address:	FRONTAGE RD		
City:	PARSIPPANY		
Estimated Start:	12/10/12	**Requested Completion:**	12/31/12

P/S	Work Code	From Tax District
P/1	OH	000002

Site No: JC3800PTH

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-140550	CROSSARM-DOUBLE 10' W/4 BRACES (35" LONG)	91	C	C	N	N	Scrap	1		
DS-140550	CROSSARM-DOUBLE 10' W/4 BRACES (35" LONG)	86	C	C	N	N	Install	1		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	91	C	C	N	N	Scrap	6		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	86	C	C	N	N	Install	3		
DS-170100	RACK- 1 SPOOL	86	C	C	N	N	Install	2		
DS-170100	RACK- 1 SPOOL	91	C	C	N	N	Scrap	1		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	86	C	C	N	N	Install	3		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	91	C	C	N	N	Scrap	6		
DS-210700	INSULATOR SUSPENSION-EPOXY OR POLYMER 15KV	86	C	C	N	N	Install	6		
DS-230300	CLAMP-STR LINE AL- #4-4/0 ACSR	86	C	C	N	N	Install	3		
DS-230400	CLAMP-STR LINE AL- 4/0 ACSR-556.5 AL/ACSR	86	C	C	N	N	Install	1		
DS-898800	ARM-TEMPORARY EXTENSION F/ COND LAYOUT (LABOR ONLY)	86	C	C	N	N	Install	1		
DS-898800	ARM-TEMPORARY EXTENSION F/ COND LAYOUT (LABOR ONLY)	91	C	C	N	N	Scrap	1		
DS-898810-H	TRANSFER PRIMARY DEADEND-4/0 & UP-PER CONDUCTOR	86	C	C	N	N	Transfer	3		
DS-898830-CBL	TRANSFER SECONDARY DEAD END-TPX/QPX-PER CABLE	86	C	C	N	N	Transfer	1		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	2		
DS-898990-3	SWITCHING-OVHD OR UNDG -3 MAN CREW-PER 1/4 HR	86	C	C	N	N	Install	16		

P/S	Work Code	From Tax District	To Tax District		Length
S/2	OH	000002	000002	Site No: From JC3800PTH To JC3618PTH	110

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-240350-3P	ZZ-WIRE ACSR 4/0-(3PH PRI) (MAINTENANCE) (NJ/PA)	91	C	C	N	N	Scrap	1		
DS-240500-3P	WIRE AL 336.4 KCMIL-(3PH PRI)	86	C	C	N	N	Install	1		
DS-410550-SEC	Z-CABLE OH AL XLPE TPX 2/0 STR W/ 2/0 ACSR NEUT-(SEC)(MAINTENANCE)(NJ/PA)	91	C	C	N	N	Scrap	1		
DS-410610-SEC	CABLE OH AL XLPE TPX 4/0 STR W/2/0 ACSR NEUT-(SEC)	86	C	C	N	N	Install	1		

P/S	Work Code	From Tax District		
P/3	OH	000002	Site No: JC3618PTH	

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-105400-CL4	POLE 45' CLASS 4	91	C	C	N	N	Scrap	1		
DS-105400-CL4	POLE 45' CLASS 4	86	C	C	N	N	Install	1		
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	86	C	C	N	N	Install	5		
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	91	C	C	N	N	Scrap	2		
DS-165050	PIN ADAPTER FOR 5/8" BOLT 5-1/4" HEIGHT	86	C	C	N	N	Install	7		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	91	C	C	N	N	Scrap	6		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	86	C	C	N	N	Install	6		
DS-170100	RACK- 1 SPOOL	86	C	C	N	N	Install	1		
DS-170100	RACK- 1 SPOOL	91	C	C	N	N	Scrap	1		
DS-210015	INSULATOR FLOATING DEADEND 15KV W/CLAMPS (336.4 - 556.5 AAC & ACSR)	86	C	C	N	N	Install	3		
DS-210015	INSULATOR FLOATING DEADEND 15KV W/CLAMPS (336.4 - 556.5 AAC & ACSR)	91	C	C	N	N	Scrap	3		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	91	C	C	N	N	Scrap	6		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	86	C	C	N	N	Install	7		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	86	C	C	N	N	Install	6		
DS-295100	MARKER-OH PHASE (3PH A/B/C) (NJ/PA)	86	C	C	N	N	Install	1		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	4		
DS-898990-3	SWITCHING-OVHD OR UNDG -3 MAN CREW-PER 1/4 HR	86	C	C	N	N	Install	16		

P/S	Work Code	From Tax District	To Tax District		Length
S/4	OH	000002	000002	Site No: From JC3618PTH To JC3801PTH	70

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-240350-3P	ZZ-WIRE ACSR 4/0-(3PH PRI) (MAINTENANCE) (NJ/PA)	91	C	C	N	N	Scrap	1		
DS-240500-3P	WIRE AL 336.4 KCMIL-(3PH PRI)	86	C	C	N	N	Install	1		
DS-410550-SEC	Z-CABLE OH AL XLPE TPX 2/0 STR W/ 2/0 ACSR NEUT-(SEC)(MAINTENANCE)(NJ/PA)	91	C	C	N	N	Scrap	1		
DS-410610-SEC	CABLE OH AL XLPE TPX 4/0 STR W/2/0 ACSR NEUT-(SEC)	86	C	C	N	N	Install	1		

P/S	Work Code	From Tax District
P/5	OH	000002

Site No: JC3801PTH

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-105400-CL4	POLE 45' CLASS 4	91	C	C	N	N	Scrap	1		
DS-105400-CL4	POLE 45' CLASS 4	86	C	C	N	N	Install	1		
DS-130300	BRACKET ARRESTER OR CUTOUT- F/ CROSSARM MOUNTING	91	C	C	N	N	Scrap	3		
DS-130300	BRACKET ARRESTER OR CUTOUT- F/ CROSSARM MOUNTING	86	C	C	N	N	Install	3		
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	91	C	C	N	N	Scrap	3		
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	86	C	C	N	N	Install	5		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	91	C	C	N	N	Scrap	3		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	86	C	C	N	N	Install	6		
DS-170100	RACK- 1 SPOOL	91	C	C	N	N	Scrap	1		
DS-170100	RACK- 1 SPOOL	86	C	C	N	N	Install	1		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	86	C	C	N	N	Install	6		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	91	C	C	N	N	Scrap	3		
DS-295100	MARKER-OH PHASE (3PH A/B/C) (NJ/PA)	86	C	C	N	N	Install	1		
DS-312050-B	ARRESTER-RISER POLE 10KV MOV-(4.8/8.32 KV OR 4.8KV DELTA)	86	C	C	N	N	Install	3		
DS-312050-B	ARRESTER-RISER POLE 10KV MOV-(4.8/8.32 KV OR 4.8KV DELTA)	91	C	C	N	N	Scrap	3		
DS-330100	GROUND-F/OVERHEAD	86	C	C	N	N	Install	1		
DS-330100	GROUND-F/OVERHEAD	91	C	C	N	N	Scrap	1		
DS-360220	SWITCH DISC 15KV 600A F/MTNG ON CROSSARM	91	C	C	N	N	Scrap	3		
DS-360220	SWITCH DISC 15KV 600A F/MTNG ON CROSSARM	86	C	C	N	N	Install	3		
DS-803885-RS	CONDUIT-RISER APPL-FE INSTLD-STRAIGHT PVC SCH 40 5" (NJ/PA)	86	C	C	N	N	Install	30		
DS-803885-RS	CONDUIT-RISER APPL-FE INSTLD-STRAIGHT PVC SCH 40 5" (NJ/PA)	91	C	C	N	N	Scrap	30		
DS-805959-A	ELBOW CONDUIT PVC SCH-40 5" 90DG 48"R (NJ/PA)	91	C	C	N	N	Scrap	2		
DS-805959-A	ELBOW CONDUIT PVC SCH-40 5" 90DG 48"R (NJ/PA)	86	C	C	N	N	Install	2		
DS-813200	TERM-CABLE-OUTDOOR 15KV 1/0 AL	91	C	C	N	N	Scrap	3		
DS-813200	TERM-CABLE-OUTDOOR 15KV 1/0 AL	86	C	C	N	N	Install	3		
DS-857500-21	BRACKET-CONDUIT AL 6" STANDOFF W/21" T-SLOT F/ 2"-6" STRAPS	91	C	C	N	N	Scrap	4		
DS-857500-21	BRACKET-CONDUIT AL 6" STANDOFF W/21" T-SLOT F/ 2"-6" STRAPS	86	C	C	N	N	Install	4		
DS-857500-5S	STRAP-CONDUIT-5"- F/ STANDOFF BRACKET	91	C	C	N	N	Scrap	4		
DS-857500-5S	STRAP-CONDUIT-5"- F/ STANDOFF BRACKET	86	C	C	N	N	Install	4		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	4		

P/S	Work Code	From Tax District	To Tax District		Length
S/6	OH	000002	000002	Site No: From JC3801PTH To BT1366PTH	170

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-240350-3P	ZZ-WIRE ACSR 4/0-(3PH PRI) (MAINTENANCE) (NJ/PA)	91	C	C	N	N	Scrap	1		
DS-240500-3P	WIRE AL 336.4 KCMIL-(3PH PRI)	86	C	C	N	N	Install	1		
DS-410550-SEC	Z-CABLE OH AL XLPE TPX 2/0 STR W/ 2/0 ACSR NEUT-(SEC)(MAINTENANCE)(NJ/PA)	91	C	C	N	N	Scrap	1		
DS-410610-SEC	CABLE OH AL XLPE TPX 4/0 STR W/2/0 ACSR NEUT-(SEC)	86	C	C	N	N	Install	1		

P/S	Work Code	From Tax District		
P/7	OH	000002	Site No: BT1366PTH	

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-135400	CROSSARM-SINGLE 8' W/2 BRACES	91	C	C	N	N	Scrap	1		
DS-140550	CROSSARM-DOUBLE 10' W/4 BRACES (35" LONG)	86	C	C	N	N	Install	1		
DS-165500	PIN POLE TOP STEEL 24" HEIGHT	91	C	C	N	N	Scrap	1		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	91	C	C	N	N	Scrap	3		
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	86	C	C	N	N	Install	3		
DS-170100	RACK- 1 SPOOL	91	C	C	N	N	Scrap	1		
DS-170100	RACK- 1 SPOOL	86	C	C	N	N	Install	2		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	91	C	C	N	N	Scrap	3		
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	86	C	C	N	N	Install	3		
DS-210700	INSULATOR SUSPENSION-EPOXY OR POLYMER 15KV	86	C	C	N	N	Install	6		
DS-230300	CLAMP-STR LINE AL- #4-4/0 ACSR	86	C	C	N	N	Install	3		
DS-230400	CLAMP-STR LINE AL- 4/0 ACSR-556.5 AL/ACSR	86	C	C	N	N	Install	3		
DS-898800	ARM-TEMPORARY EXTENSION F/ COND LAYOUT (LABOR ONLY)	86	C	C	N	N	Install	1		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	2		

P/S	Work Code	From Tax District	To Tax District		Length
S/8	OH	000002	000002	Site No: From JC3801PTH To M34PTH	200

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-809350-3P-B	CABLE-15KV AL TRXLPE JCN 1/0 STR 1/C-(3PH PRI-CD)	91	C	C	N	N	Scrap	1		
DS-809350-3P-B	CABLE-15KV AL TRXLPE JCN 1/0 STR 1/C-(3PH PRI-CD)	86	C	C	N	N	Install	1		

P/S	Work Code	From Tax District
P/9	OH	000002

Site No: BT41368PTH

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-898825-CBL	TRANSFER SECONDARY-TPX/QPX-PER CABLE	86	C	C	N	N	Transfer	2		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	2		

P/S	Work Code	From Tax District
P/11	OH	000002

Site No: BT41369PTH

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-898825-CBL	TRANSFER SECONDARY-TPX/QPX-PER CABLE	86	C	C	N	N	Transfer	2		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	2		

P/S	Work Code	From Tax District
P/13	OH	000002

Site No: M34PTH

Comments

(Bold indicates excluded CU costs.)

Compatible Unit	Description	CC	HC	Cat	CM	CL	Action	Qty.	Action	Qty.
DS-790803-G	ARM-UG CABLE RACK (HD) GALV 10-1/2" LENGTH (NJ/PA)		C	C	N	N	Install	4		
DS-790804-G	ARM-UG CABLE RACK (HD) GALV 15" LENGTH (NJ/PA)		C	C	N	N	Install	4		
DS-790808	PUMP VAULT OR PUMP TRENCH (INCLUDES 0.5 HOUR LABOR & WATER PUMP)	86	C	C	N	N	Install	2		
DS-845200	SPLICE-CABLE 15KV STRAIGHT 1/0 AL	86	C	C	N	N	Install	3		
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	84	C	C	N	N	Install	4		
ND-301010	RACK-UG CABLE HEAVY DUTY GALV 27-1/2" -14 HOLE	86	C	C	N	N	Install	4		
ND-302000	OPEN MANHOLE	86	C	C	N	N	Install	2		

Total for all CU's: **$4,956.35**
Total for excluded material CU costs: **$0.00**
Total for CU's minus total material excluded costs: **$4,956.35**

WR No:	50039695	**Operating Area:**	BN
Revision No:	1	**WR Type:**	DHWY
Company:	JL	**SAP Notification No:**	318127246
SAP Order No:	12451866	**SAP Network ID:**	
SAP Activity ID:		**SAP Cost Collector Type:**	UNIQUE
WR Name:	NJDOT RT 80 EB RAMP @ LITTLETON RD ROC JOB		
Address:	FRONTAGE RD		
City:	PARSIPPANY		
Estimated Start:	12/10/12	**Requested Completion:**	12/31/12

Compatible Units

(Bold indicates excluded CU costs.)

Compatible Unit	Description	HC	Cat	CM	CL	Design Action	Qty
DS-105400-CL4	POLE 45' CLASS 4	C	C	N	N	Scrap	2
DS-105400-CL4	POLE 45' CLASS 4	C	C	N	N	Install	2
DS-130300	BRACKET ARRESTER OR CUTOUT- F/ CROSSARM MOUNTING	C	C	N	N	Install	3
DS-130300	BRACKET ARRESTER OR CUTOUT- F/ CROSSARM MOUNTING	C	C	N	N	Scrap	3
DS-135400	CROSSARM-SINGLE 8' W/2 BRACES	C	C	N	N	Scrap	1
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	C	C	N	N	Install	10
DS-135600	CROSSARM-SINGLE 10' (3.5" X4.5") W/2 BRACES	C	C	N	N	Scrap	5
DS-140550	CROSSARM-DOUBLE 10' W/4 BRACES (35" LONG)	C	C	N	N	Scrap	1
DS-140550	CROSSARM-DOUBLE 10' W/4 BRACES (35" LONG)	C	C	N	N	Install	2
DS-165050	PIN ADAPTER FOR 5/8" BOLT 5-1/4" HEIGHT	C	C	N	N	Install	7
DS-165500	PIN POLE TOP STEEL 24" HEIGHT	C	C	N	N	Scrap	1
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	C	C	N	N	Scrap	18
DS-165900	PIN L SHANK F/WOOD XARM 5" HGT 5/8"X5-3/4"	C	C	N	N	Install	18
DS-170100	RACK- 1 SPOOL	C	C	N	N	Install	6
DS-170100	RACK- 1 SPOOL	C	C	N	N	Scrap	4
DS-210015	INSULATOR FLOATING DEADEND 15KV W/CLAMPS (336.4 - 556.5 AAC & ACS	C	C	N	N	Install	3
DS-210015	INSULATOR FLOATING DEADEND 15KV W/CLAMPS (336.4 - 556.5 AAC & ACS	C	C	N	N	Scrap	3
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	C	C	N	N	Install	25
DS-210100	INSULATOR PIN TYPE 15 KV CLASS 55-3 "C" NECK	C	C	N	N	Scrap	18
DS-210700	INSULATOR SUSPENSION-EPOXY OR POLYMER 15KV	C	C	N	N	Install	12
DS-230300	CLAMP-STR LINE AL- #4-4/0 ACSR	C	C	N	N	Install	6
DS-230400	CLAMP-STR LINE AL- 4/0 ACSR-556.5 AL/ACSR	C	C	N	N	Install	4
DS-240350-3P	ZZ-WIRE ACSR 4/0-(3PH PRI) (MAINTENANCE) (NJ/PA)	C	C	N	N	Scrap	3
DS-240500-3P	WIRE AL 336.4 KCMIL-(3PH PRI)	C	C	N	N	Install	3
DS-295100	MARKER-OH PHASE (3PH A/B/C) (NJ/PA)	C	C	N	N	Install	2
DS-312050-B	ARRESTER-RISER POLE 10KV MOV-(4.8/8.32 KV OR 4.8KV DELTA)	C	C	N	N	Install	3
DS-312050-B	ARRESTER-RISER POLE 10KV MOV-(4.8/8.32 KV OR 4.8KV DELTA)	C	C	N	N	Scrap	3
DS-330100	GROUND-F/OVERHEAD	C	C	N	N	Scrap	1
DS-330100	GROUND-F/OVERHEAD	C	C	N	N	Install	1
DS-360220	SWITCH DISC 15KV 600A F/MTNG ON CROSSARM	C	C	N	N	Install	3
DS-360220	SWITCH DISC 15KV 600A F/MTNG ON CROSSARM	C	C	N	N	Scrap	3
DS-410550-SEC	Z-CABLE OH AL XLPE TPX 2/0 STR W/ 2/0 ACSR NEUT-(SEC)(MAINTENANCE	C	C	N	N	Scrap	3
DS-410610-SEC	CABLE OH AL XLPE TPX 4/0 STR W/2/0 ACSR NEUT-(SEC)	C	C	N	N	Install	3
DS-790803-G	ARM-UG CABLE RACK (HD) GALV 10-1/2" LENGTH (NJ/PA)	C	C	N	N	Install	4
DS-790804-G	ARM-UG CABLE RACK (HD) GALV 15" LENGTH (NJ/PA)	C	C	N	N	Install	4
DS-790808	PUMP VAULT OR PUMP TRENCH (INCLUDES 0.5 HOUR LABOR & WATER PU	C	C	N	N	Install	2
DS-803885-RS	CONDUIT-RISER APPL-FE INSTLD-STRAIGHT PVC SCH 40 5" (NJ/PA)	C	C	N	N	Scrap	30
DS-803885-RS	CONDUIT-RISER APPL-FE INSTLD-STRAIGHT PVC SCH 40 5" (NJ/PA)	C	C	N	N	Install	30
DS-805959-A	ELBOW CONDUIT PVC SCH-40 5" 90DG 48"R (NJ/PA)	C	C	N	N	Scrap	2
DS-805959-A	ELBOW CONDUIT PVC SCH-40 5" 90DG 48"R (NJ/PA)	C	C	N	N	Install	2

(Bold indicates excluded CU costs.)

Compatible Unit	Description	HC	Cat	CM	CL	Design Action	Qty
DS-809350-3P-B	CABLE-15KV AL TRXLPE JCN 1/0 STR 1/C-(3PH PRI-CD)	C	C	N	N	Install	1
DS-809350-3P-B	CABLE-15KV AL TRXLPE JCN 1/0 STR 1/C-(3PH PRI-CD)	C	C	N	N	Scrap	1
DS-813200	TERM-CABLE-OUTDOOR 15KV 1/0 AL	C	C	N	N	Scrap	3
DS-813200	TERM-CABLE-OUTDOOR 15KV 1/0 AL	C	C	N	N	Install	3
DS-845200	SPLICE-CABLE 15KV STRAIGHT 1/0 AL	C	C	N	N	Install	3
DS-857500-21	BRACKET-CONDUIT AL 6" STANDOFF W/21" T-SLOT F/ 2"-6" STRAPS	C	C	N	N	Scrap	4
DS-857500-21	BRACKET-CONDUIT AL 6" STANDOFF W/21" T-SLOT F/ 2"-6" STRAPS	C	C	N	N	Install	4
DS-857500-5S	STRAP-CONDUIT-5"- F/ STANDOFF BRACKET	C	C	N	N	Install	4
DS-857500-5S	STRAP-CONDUIT-5"- F/ STANDOFF BRACKET	C	C	N	N	Scrap	4
DS-898800	ARM-TEMPORARY EXTENSION F/ COND LAYOUT (LABOR ONLY)	C	C	N	N	Scrap	1
DS-898800	ARM-TEMPORARY EXTENSION F/ COND LAYOUT (LABOR ONLY)	C	C	N	N	Install	2
DS-898810-H	TRANSFER PRIMARY DEADEND-4/0 & UP-PER CONDUCTOR	C	C	N	N	Transfer	3
DS-898825-CBL	TRANSFER SECONDARY-TPX/QPX-PER CABLE	C	C	N	N	Transfer	4
DS-898830-CBL	TRANSFER SECONDARY DEAD END-TPX/QPX-PER CABLE	C	C	N	N	Transfer	1
DS-898881	WORK AREA PROTECTION-PER JOB SITE-PER DAY	C	C	N	N	Install	20
DS-898990-3	SWITCHING-OVHD OR UNDG -3 MAN CREW-PER 1/4 HR	C	C	N	N	Install	32
ND-301010	RACK-UG CABLE HEAVY DUTY GALV 27-1/2" -14 HOLE	C	C	N	N	Install	4
ND-302000	OPEN MANHOLE	C	C	N	N	Install	2