



**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION**



**2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546**

Phone: 860-594-3128

October 7, 2016

Subject: Project No. 94-252

Project No. 94-252: I-95 SB Bridge No. 02514A and I-95 SB (TR817) Bridge No. 02514B over Thames River, SR 635 (Williams St.), Railroads, Local Roads and State Pier Road.

NOTICE TO CONTRACTORS:

This is to notify all concerned and especially the prospective bidders that the bid opening for the subject project is still scheduled for October 19, 2016 at 2:00 P.M. in the Conference Room of the Department of Transportation Administration Building, 2800 Berlin Turnpike, Newington, Connecticut.

Addendum No. 1 is attached

This Addenda is necessary to revised contract documents.

The Department has established a general mailbox to receive contractor questions. Please send all future questions to DOTContracts@ct.gov

Philip J. Melchionne

For: Gregory D. Straka
Contracts Manager
Division of Contracts Administration

OCTOBER 6, 2016

I-95 SB BRIDGE NO. 02514A & I-95 SB (TR 817) BRIDGE NO. 02514B OVER THAMES RIVER, SR 635 (WILLIAMS ST.), RAILROADS, LOCAL ROADS AND STATE PIERS

FEDERAL AID PROJECT NO. N/A
STATE PROJECT NO. 0094-0252
TOWNS OF NEW LONDON AND GROTON

ADDENDUM NO. 1

This Addendum addresses the following question and answer contained on the “CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS”:

Question and Answer No. 1

SPECIAL PROVISIONS
NEW SPECIAL PROVISION

The following Special Provision is hereby added to the Contract:

- **ITEM NO. 0601231A – LIGHTWEIGHT CONCRETE**

REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- **SMALL CONTRACTOR AND SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISES (SET-ASIDE)**
- **SECTION 1.08 – PROSECUTION AND PROGRESS**
- **ITEM #1018007A – NAVIGATION LIGHT (PIER)**

CONTRACT ITEMS

NEW CONTRACT ITEM

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>
<u>0601231A</u>	<u>LIGHTWEIGHT CONCRETE</u>	<u>CY</u>	<u>35</u>

REVISED CONTRACT ITEM

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>ORIGINAL QUANTITY</u>	<u>REVISED QUANTITY</u>
<u>0601201</u>	<u>CLASS "F" CONCRETE</u>	<u>60 CY</u>	<u>93 CY</u>

PLANS

REVISED PLANS

The following Plan Sheets are hereby deleted and replaced with the like-numbered Plan Sheets:

02.01.A1

04.002.A1

04.095.A1

04.096.A1

The Detailed Estimate Sheets do not reflect these changes.

The Bid Proposal Form has been revised to reflect these changes.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

Route I-95 (US Route 1)

On the following State observed Legal Holidays:

New Year's Day
Good Friday, Easter*
Memorial Day
Independence Day
Labor Day
Thanksgiving Day**
Christmas Day

The following restrictions also apply:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday, and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday, and Monday immediately following any of the above Holidays celebrated on a Friday.

* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

During all other times

The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the minimum number of lanes that must remain open for each day of the week.

The Contractor will be allowed to halt Route I-95 traffic for a period not to exceed 10 minutes to perform necessary work for the erection and setting of structural steel, and for the removal of the existing bridge superstructure, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Ramps and Turning Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

Additional Lane Closure Restrictions

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

Sidewalk on Bridge

The Contractor shall be required to maintain pedestrian traffic on the bridge's northern sidewalk for the duration of the project with the following exceptions:

The Contractor can close the sidewalk to pedestrian traffic on a nightly basis from 9:00 p.m. to 5:00 a.m. Monday through Friday.

The Contractor will be allowed to completely close the sidewalk for one continuous period that shall be limited to seven (7) consecutive days or one (1) week.

**Limitation of Operations Chart
Minimum Number of Lanes to Remain Open**

Route: I-95 SB at Gold Star Bridge Number of Through Lanes: 4							
Hour Beginn - ing	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	2	2	2	2	2	1	1
5 AM	3	3	3	3	3	1	1
6 AM	4	4	4	4	4	2	2
7 AM	4	4	4	4	4	3	2
8 AM	4	4	4	4	4	3	3
9 AM	3	3	3	3	3	4	4
10 AM	3	3	3	3	3	4	4
11 AM	3	3	3	3	3	4	4
Noon	3	3	3	3	3	4	4
1 PM	3	3	3	3	4	4	4
2 PM	3	3	3	3	4	4	4
3 PM	4	4	4	4	4	4	4
4 PM	4	4	4	4	4	4	4
5 PM	4	4	4	4	4	3	3
6 PM	3	3	3	3	3	3	3
7 PM	2	2	2	2	2	3	3
8 PM	2	2	2	2	2	2	2
9 PM	1	1	1	1	2	2	2
10 PM	1	1	1	1	1	1	1
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period.

**SMALL CONTRACTOR AND SMALL CONTRACTOR MINORITY
BUSINESS ENTERPRISES (SET-ASIDE)**

March, 2001

NOTE: Certain of the requirements and procedures stated in this "Special Provision" are applicable prior to the execution of the Contract.

I. GENERAL

- A. The Contractor shall cooperate with the Connecticut Department of Transportation (CONNDOT) in implementing the required contract obligations concerning "Small Contractor" and "Small Contractor Minority Business Enterprise" use on this Contract in accordance with Section 4a-60g of the Connecticut General Statutes as revised. References, throughout this "Special Provision", to "Small Contractors" are also implied references to "Small Contractor Minority Business Enterprises" as both relate to Section IIA of these provisions. The Contractor shall also cooperate with CONNDOT in reviewing the Contractor's activities relating to this provision. This "Special Provision" is in addition to all other equal opportunity employment requirements of this Contract.
- B. For the purpose of this "Special Provision", the "Small Contractor(s)" and "Minority Business Enterprise(s)" named to satisfy the set-aside requirement must be certified by the Department of Administrative Services, Business Connections/ Set-Aside Unit [(860) 713-5236 www.das.state.ct.us/busopp.htm] as a "Small Contractor" and "Minority Business Enterprises" as defined by Section 4a-60g Subsections (1) and (3) of the Connecticut General Statutes as revised and is subject to approval by CONNDOT to do the work for which it is nominated pursuant to the criteria stipulated in Section IIC-3.
- C. Contractors who allow work which they have designated for "Small Contractor" participation in the pre-award submission required under Section IIC to be performed by other than the approved "Small Contractor" organization and prior to concurrence by CONNDOT, will not be paid for the value of the work performed by organizations other than the "Small Contractor" designated.
- D. If the Contractor is unable to achieve the specified contract goals for "Small Contractor" participation, the Contractor shall submit written documentation to CONNDOT's Manager of Construction Operations indicating his/her good faith efforts to satisfy goal requirements. Documentation is to include but not be limited to the following:

1. A detailed statement of the efforts made to select additional subcontract opportunities for work to be performed by each "Small Contractor" in order to increase the likelihood of achieving the stated goal.
 2. A detailed statement, including documentation of the efforts made to contact and solicit contracts with each "Small Contractor", including the names, addresses, dates and telephone numbers of each "Small Contractor" contacted, and a description of the information provided to each "Small Contractor" regarding the scope of services and anticipated time schedule of items proposed to be subcontracted and the nature of response from firms contacted.
 3. For each "Small Contractor" that placed a subcontract quotation which the Contractor considered not to be acceptable, provide a detailed statement of the reasons for this conclusion.
 4. Documents to support contacts made with CONNDOT requesting assistance in satisfying the contract specified or adjusted "Small Contractor" dollar requirements.
 5. Document other special efforts undertaken by the Contractor to meet the defined goal.
- E. Failure of the Contractor to have at least the specified dollar amount of this contract performed by "Small Contractor" as required in Section IIA of this "Special Provision" will result in the reduction in contract payment to the Contractor by an amount equivalent to that determined by subtracting from the specific dollar amount required in Section IIA, the dollar payments for the work actually performed by each "Small Contractor". The deficiency in "Small Contractor" achievement, will therefore, be deducted from the final contract payment. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified or adjusted dollar amount to the satisfaction of CONNDOT, no reduction in payments will be imposed.
- F. All records must be retained for a period of three (3) years following completion of the contract and shall be available at reasonable times and places for inspection by authorized representatives of CONNDOT.
- G. Nothing contained herein, is intended to relieve any contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

II. SPECIFIC REQUIREMENTS

In order to increase the participation of "Small Contractors", CONNDOT requires the following:

A. Not less than **Fifteen Percent (15%)** of the **final** value of this Contract shall be subcontracted to and performed by, and/or supplied by, manufactured by and paid to "Small Contractors" and/or "Small Contractors Minority Business Enterprises".

If the above percentage is zero (0%) AND an asterisk () has been entered in the adjacent brackets [], this Contract is 100% solely set-aside for participation by "Small Contractors" and/or "Small Contractors Minority Business Enterprises".*

B. The Contractor shall assure that each "Small Contractor" will have an equitable opportunity to compete under this "Special Provision", particularly by arranging solicitations, time for the preparation of Quotes, Scope of Work, and Delivery Schedules so as to facilitate the participation of each "Small Contractor".

C. The Contractor shall provide to CONNDOT's Manager of Contracts within Seven (7) days after the bid opening the following items:

1. An affidavit (Exhibit I) completed by each named "Small Contractor" subcontractor listing a description of the work and indicating the dollar amount of all contract(s) and/or subcontract(s) that have been awarded to him/her for the current State Fiscal Year (July 1 - June 30) does not exceed the Fiscal Year limit of \$10,000,000.00.
2. A certification of work to be subcontracted (Exhibit II) signed by both the Contractor and the "Small Contractor" listing the work items and the dollar value of the items that the nominated "Small Contractor" is to perform on the project to achieve the minimum percentage indicated in Section IIA above.
3. A certification of past experience (Exhibit III) indicating the scope of work the nominated "Small Contractor" has performed on all projects, public and private, for the past two (2) years.
4. In instances where a change from the originally approved named "Small Contractor" (see Section IB) is proposed, the Contractor is required to submit, in a reasonable and expeditious manner, a revised submission, comprised of the documentation required in Section IIC, Paragraphs 1, 2 and 3 and Section E together with documentation to substantiate and

justify the change, (i.e., documentation to provide a basis for the change) to CONNDOT's Manager of Construction Operations for its review and approval prior to the implementation of the change. The Contractor must demonstrate that the originally named "Small Contractor" is unable to perform in conformity to specifications, or unwilling to perform, or is in default of its contract, or is overextended on other jobs. The Contractor's ability to negotiate a more advantageous contract with another "Small Contractor" is not a valid basis for change. Documentation shall include a letter of release from the originally named "Small Contractor" indicating the reason(s) for the release.

- D. After the Contractor signs the Contract, the Contractor will be required to meet with CONNDOT's Manager of Construction Operations or his/her designee to review the following:
1. What is expected with respect to the "Small Contractor" set aside requirements.
 2. Failure to comply with and meet the requirement can and will result in monetary deductions from payment.
 3. Each quarter after the start of the "Small Contractor" the Contractor shall submit a report to CONNDOT's Manager of Construction Operations indicating the work done by, and the dollars paid to each "Small Contractor" to date.
 4. What is required when a request to sublet to a "Small Contractor" is submitted.
- E. The Contractor shall submit to CONNDOT's Manager of Construction Operations all requests for subcontractor approvals on standard forms provided by the Department.

If the request for approval is for a "Small Contractor" subcontractor for the purpose of meeting the contract required "Small Contractor" percentage stipulated in Section IIA, a copy of the legal contract between the Contractor and the "Small Contractor" subcontractor must also be submitted at the same time. Any subsequent amendments or modifications of the contract between the Contractor and the "Small Contractor" subcontractor must also be submitted to CONNDOT's Manager of Construction Operations with an explanation of the change(s). The contract must show items of work to be performed, unit prices and, if a partial item, the work involved by both parties.

In addition, the following documents are to be attached:

- (1) A statement explaining any method or arrangement for renting equipment. If rental is from a Contractor, a copy of Rental Agreement must be submitted.
- (2) A statement addressing any special arrangements for manpower.
- (3) A statement addressing who will purchase material.

F. Contractors subcontracting with a "Small Contractor" to perform work or services as required by this "Special Provision" shall not terminate such firms without advising CONNDOT, in writing, and providing adequate documentation to substantiate the reasons for termination if the designated "Small Contractor" firm has not started or completed the work or the services for which it has been contracted to perform.

G. Material Suppliers or Manufacturers

If the Contractor elects to utilize a "Small Contractor" supplier or manufacturer to satisfy a portion or all of the specified dollar requirements, the Contractor must provide the Department with:

1. An executed Affidavit Small Contractor (Set-Aside) Connecticut Department of Transportation Affidavit Supplier or Manufacturer (sample attached), and
2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

Brokers and packagers shall not be regarded as material Suppliers or manufacturer.

H. Non-Manufacturing or Non-Supplier "Small Contractor" Credit

Contractors may count towards its "Small Contractor" goals the following expenditures with "Small Contractor" firms that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, material or supplies necessary for the performance of the contract provided that the fee or commission is determined by the Department of Transportation to be reasonable and consistent with fees customarily allowed for similar services.

2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.
3. The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the Contract, provided that the fee or commission is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.

III. **BROKERING**

For the purpose of this "Special Provision", a "Broker" is one who acts as an agent for others in negotiating contracts, purchases, sales, etc., in return for a fee or commission. Brokering of work by a "Small Contractor" is not allowed and is a contract violation.

IV. **PRE-AWARD WAIVERS:**

If the Contractor's submission of the "Small Contractor" listing, as required by Section IIC indicates that it is unable, by subcontracting to obtain commitments which at least equal the amount required by Section IIA, it may request, in writing, a waiver of up to 50% of the amount required by Section IIA. To obtain such a waiver, the Contractor must submit a completed "Application for Waiver of Small Contractor Minority Business Enterprise Goals" to CONNDOT's Manager of Contracts which must also contain the following documentation:

1. Information described in Section ID.
2. For each "Small Contractor" contacted but unavailable, a statement from each "Small Contractor" confirming its unavailability.

Upon receipt of the submission requesting a waiver, the CONNDOT's Manager of Contracts shall submit the documentation to the Director of the Office of Contract Compliance who shall review it for completeness. After completion of the Director of Contract Compliance's review, she/he should write a narrative of his/her findings of the application for a waiver, which is to include his/her recommendation. The Director of Contract Compliance shall submit the written narrative to the Chairperson of the DBE Screening Committee at least five (5) working days before the scheduled meeting. The Contractor shall be invited to attend the meeting and present his/her position. The DBE Screening Committee shall render a decision on the waiver request within five (5)

working days after the meeting. The DBE Screening Committee's decision shall be final. Waiver applications are available from the CONNDOT Manager of Contracts.

SMALL CONTRACTOR/*MINORITY BUSINESS ENTERPRISE

(* Delete if not Applicable)
SET-ASIDE PROGRAM
(QUALIFICATION AFFIDAVIT)

PROJECT(s) _____
(INCLUDING TOWN & DESCRIPTION)

STATE OF _____ CONNECTICUT _____

COUNTY OF _____

I _____, ACTING IN BEHALF

NAME OF PARTY SIGNING AFFIDAVIT

OF _____, DO HEREBY CERTIFY

PERSON FIRM OR ORGANIZATION

AND AFFIRM THAT THE INFORMATION SET FORTH BELOW IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE. AS OF THIS DATE _____ THE LIST OF SMALL CONTRACTOR SET-ASIDE PROGRAM - CONTRACTS AND/OR SUBCONTRACTS AWARDED DURING THE CURRENT FISCAL YEAR (JULY 1 - JUNE 30) 20 _____ IS AS FOLLOWS:

<u>Col. 1</u> TOWN AND PROJECT NUMBER	<u>Col. 2</u> STATE AGENCY WHICH AWARDED CONTRACT	<u>Col. 3</u> CONTRACT AMOUNT AWARDED UNDER THIS PROGRAM	<u>Col. 4</u> AMOUNT OF WORK SUBCONTRACTED FROM OTHER FIRMS UNDER THIS PROGRAM	<u>Col. 5</u> TOTAL AMOUNT OF ALL WORK UNDER THIS PROGRAM Col. 3 Plus Col. 4
	TOTALS	\$	\$	\$

NAME OF PERSON, FIRM OR ORGANIZATION

(FIRM SEAL)

SIGNATURE & TITLE OF OFFICIAL

SWORN TO AND SUBSCRIBED BEFORE ME BY _____

WHO IS PERSONALLY KNOWN TO ME, THIS _____ DAY OF _____, 20 _____

(NOTARY PUBLIC)

MY COMMISSION EXPIRES _____ SEAL

PLEASE NOTE THAT ALL THE WORK AWARDED OR SUBCONTRACTED TO YOUR FIRM UNDER THE SET-ASIDE PROGRAM IN A FISCAL YEAR (JULY 1-JUNE 30) INCLUDING THIS PROJECT, CANNOT BE MORE THAN \$10,000,000.00

EXHIBIT III

CERTIFICATION
PAST CONSTRUCTION EXPERIENCE

Mar.01

SMALL CONTRACTOR / * MINORITY BUSINESS ENTERPRISES

* Delete if not applicable

PLEASE LIST ALL CONSTRUCTION PROJECTS YOUR ORGANIZATION HAS WORKED ON IN THE PAST TWO FISCAL YEARS

PROJECT LOCATION NUMBER AND DESCRIPTION APPLICABLE	CONTRACT AMOUNT	IF WORK PERFORMED AS PRIME GIVE OWNERS NAME IF WORK PERFORMED AS SUBCONTRACTOR GIVE CONTRACTORS NAME	START DATE	ACTUAL OR ESTIMATED COMPLETION DATE	NAME AND PHONE OF OWNER OR PRIME CONTRACTOR AS

SIGNED BY: _____

SMALL BUSINESS CONTRACTOR
*MINORITY BUSINESS ENTERPRISES

D.O.T. PROJECT NO. _____

* Delete if not applicable

MARCH, 2001

**SMALL CONTRACTOR/SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISE
(MBE) (SET-ASIDE) CONNECTICUT DEPARTMENT OF TRANSPORTATION
AFFIDAVIT – SUPPLIER OR MANUFACTURER**

This affidavit must be completed by the State Contractor's designated Small Contractor/ Small Contractor Minority Business Enterprise (MBE), notarized and attached to the contractor's request to utilize a Small Contractor/Small Contractor Minority Business Enterprise (MBE) supplier or manufacturer as a credit towards its Small Contractor/Small Contractor Minority Business Enterprise (MBE) contract requirement; failure to do so will result in not receiving credit towards the contract Small Contractor/Small Contractor Minority Business Enterprise (MBE) requirement.

State Project No. _____
Federal Aid Project No. _____
Description of Project _____

I, _____, acting in behalf of _____
(Name of person signing Affidavit) (Small Contractor/Small Contractor MBE contractor person,
_____ of which I am the _____ affirm that _____
firm, association or certify and corporation) (Title of Person) (Small
Contractor/Small Contractor MBE person, firm, association or corporation)
_____ is a certified Small Contractor/Small
Contractor Minority Business Enterprise, as defined by Section 4a-60g of the Connecticut General
Statutes, as revised.

I further certify and affirm that _____
(Small Contractor/Small Contractor MBE person, firm, association or corporation)
will assume the actual and contractual responsibility for the provision of the materials and/or supplies
sought by _____. If a manufacturer, I produce goods from raw
(State Contractor)
materials or substantially alter them before resale, or if a supplier, I perform a commercially useful
function in the supply process.

I understand that false statements made herein are punishable at Law (Sec. 53a-157, CGS, as revised).

(Name of Small Contractor/Small Contractor MBE person, firm, association or corporation)

(Signature and Title of Official making the Affidavit)

Subscribed and sworn to before me, the _____ day of _____ 200_____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires _____

CERTIFICATE OF CORPORATION

I, _____, certify that I am the _____
(Official) of the Corporation named in the foregoing instrument; that I have been duly authorized to affix
the seal of the Corporation to such papers as require the seal; that _____, who
signed said instrument on behalf of the Corporation, was then _____ of
said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority
of its governing body and is within the scope of its corporation powers.

(Signature of Person Certifying)

(Date)

(Corporate Seal)

ITEM #0601231A—LIGHTWEIGHT CONCRETE

Section 6.01 *is revised as follows:*

6.01.01—Description: *Delete this Article in its entirety and replace with the following:*

The work under this item consists of furnishing lightweight concrete for use in bridge superstructures. The concrete shall be composed of Portland cement, supplementary cementitious material, fine and coarse aggregates (normal weight and/or lightweight), air entraining admixtures, chemical admixtures and water, prepared and constructed in accordance with these specifications.

The mix design shall be developed by the Contractor and submitted for approval by the Engineer.

Work under this item shall also include furnishing and application of a uniform protective compound to the exposed concrete surfaces of the parapets constructed using lightweight concrete. The protective compound shall be applied to the parapets from the curb line to the top face of the parapets.

6.01.02—Materials: *Delete the first sentence and add the following:*

The materials for this work shall meet the requirements of Section M.03 with the following additions:

In Article M.03.01—Component Materials, add the following:

1. Portland cement shall meet the requirements of AASHTO M 85 (ASTM C150).
2. Supplementary Cementitious Material (SCM): Approved supplementary cementitious material may be used to replace a portion of the required Portland cement. Fly ash shall meet the requirements of AASHTO M 295 (ASTM C618). Silica fume shall meet the requirements of AASHTO M 307 (ASTM C1240). Ground Granulated Blast-Furnace Slag (GGBFS) shall meet the requirements of AASHTO M 302 (ASTM C989). Supplementary cementitious material will not be allowed for use in the mix design for furnishing lightweight concrete in winter.
3. Coarse Aggregate:

Normal weight coarse aggregate shall meet the requirements of M.03.01-1.

Lightweight coarse aggregate shall be expanded or sintered materials such as shale, slate and clay and shall conform to AASHTO M 195 (ASTM C330) and meet the following requirements:

- a) Soundness: When tested with sodium sulfate solution for soundness, using AASHTO Method T 104, lightweight coarse aggregate shall not have a loss by weight of more than 15% at the end of five cycles.
 - b) Loss on Abrasion: When tested by means of the Los Angeles Machine, using AASHTO T 96 (ASTM C131), lightweight coarse aggregate shall not have a loss by weight (Grading B or C) of more than 50%. The procedures of AASHTO T 96 shall be modified for lightweight coarse aggregate so that approximately the same volume of lightweight aggregate shall be used in the testing as would be used for normal weight aggregate.
 - c) Gradation: Lightweight coarse aggregate shall have a gradation in the 3/4 inches to No. 4 size designation in accordance with AASHTO M 195 (ASTM C330).
4. Fine aggregate and lightweight fine aggregate shall meet the requirements of M.03.01-2 except as follows:

Lightweight fine aggregates shall be composed of the same materials as lightweight coarse aggregates. The fine aggregate may be made up of crushed coarse aggregate that is sieved to produce the required gradation.

5. Storage and Mixing:

Each gradation and type of coarse and fine aggregates shall be stored and stockpiled separately. Storage shall minimize segregation and prevent contamination. Lightweight aggregate shall be pre-soaked to provide absorbed moisture content consistent with the trial batching and as per manufacturer's recommendations. The methods chosen for pre-soaking shall provide aggregates that are kept continuously moist prior to and during batching. Temperature controlled storage shall be used when applicable to avoid freezing the water. Mixing of the stockpile shall be performed in order to prevent crusting and to ensure even distribution of moisture

In Article M.03.02—Mix Design Requirements, add the following:

1. Lightweight Concrete Mix Design Development: The Contractor shall develop and submit a lightweight concrete mix design for approval a minimum of 60 days prior to placement in the field. All testing shall be completed prior to submission of the mix design. The lightweight concrete shall be proportioned in accordance with ACI 211.2-98 and shall meet the following requirements:
 - Minimum 28 day cylinder strength of 4400 psi.
 - The equilibrium unit weight (final in place density after curing) measured in accordance with ASTM C567 at 28 days shall not exceed 115 pcf.
 - The fresh unit weight at the time of placement measured in accordance with AASHTO T 121 shall not exceed 118 pcf at the point of discharge from the mixer.

- The fresh unit weight at the time of placement measured in accordance with AASHTO T 121 shall not exceed 120 pcf at the point of discharge from the pump or chute.
 - Maximum Water/Cementitious Material ratio, by weight: 0.42
 - Slump: 3 to 5 inches measured in accordance with AASHTO T 119
 - Air Content: 4.5%-7.5% measured in accordance with AASHTO T 196
 - Permeability: Minimum 29 kΩ-cm per AASHTO T 358 @ 28 days.
2. Trial Mixes: It is required that during the development of the mix design, the Contractor must perform testing on trial mixes to determine the properties listed of the concrete produced with the proposed mix design.

When submitting the mix design for approval, the Contractor shall also include the following:

- Source of all materials
- Gradation and type of fine and coarse aggregates
- The maximum and average fresh unit weight (density during placement), measured in accordance with AASHTO T 121.

A series of trial mixes shall be made by the Contractor with the actual aggregate the concrete supplier proposes to use.

The Contractor shall conduct field trials for trial mix design for at least 4 different proportions of Portland cement, water, fine and lightweight coarse aggregates and shall prepare at least 4 cylinders from each batch for testing by an approved laboratory. If the Contractor chooses to pump the concrete as a placement method, the trial mixes shall also include a pump truck to mimic the placement conditions. Field trials shall be conducted until a suitable mix design has been supplied, placed, and tested meeting the specified criteria.

6.01.03—Construction Methods: *Add the following:*

1. **Transportation and Delivery of Concrete:** *Add the following:*

Pumping of lightweight concrete will be allowed. Pump lines shall be minimum 5 inches diameter and shall maximize the amount of straight steel line while minimizing the number of elbows, reducers, and rubber hose in the system. Pump lines shall also be properly lubricated before placing concrete.

2. **Acceptance Testing and Test Specimens:** *Add the following:*

a) **Temperature, Air Content and Slump:** *Add the following:*

- Slump: Between 3 and 5 inches measured in accordance with AASHTO T 119
- Air Content: Between 4.5% and 7.5% when measured in accordance with AASHTO T 196.
- Strength: Minimum 28-day compressive strength of 4,400 psi.

b) **Additional Field Testing:** *Add the following:*

Fresh Unit weight: The unit weight during placement shall be measured in accordance with AASHTO T 121.

3. **Protective Compound:** *Add the following:*

Surface preparation, minimum number of days between casting of concrete and application of protective compound, number of coats, rate of coverage, method of application, and other pertinent criteria shall be in strict accordance with the instructions supplied by the manufacturer and as directed by the Engineer. All surfaces to be coated shall be thoroughly cleaned of any dust, dirt, oil, or other objectionable materials prior to application of the protective compound.

6.01.04—Method of Measurement: *Add the following:*

Furnishing and application of protective compound on parapets will not be measured for payment.

6.01.05—Basis of Payment: *Add the following:*

Lightweight Concrete: This material will be paid for at the Contract unit price per cubic yard for “Lightweight Concrete,” complete in place, which price shall include development of mix design, trial mixes, testing, field trials, furnishing and application of protective compound including preparation of concrete surfaces, all materials, equipment, tools, labor and work incidental thereto, including structures and equipment required for proper curing of the in-place concrete, all admixtures and joint sealer.

ITEM #1018007A - NAVIGATION LIGHT (PIER)

DESCRIPTION: This item shall consist of furnishing and installing a solar powered, pier mounted, light emitting diode (LED) 180 degree red navigation light of the wattage, distribution, and voltage as specified, completely wired and attached to the bridge structure in accordance with the plans and specifications.

MATERIALS: The navigation light shall have LED optics and shall produce a 180° sectored red light output. The navigation light shall be U.S. Coast Guard approved and shall carry the following certifications:

CE (European Conformity)	EN61000-6-3:1997, EN61000-6-1:1997
IALA	E-200-1
USCG	33 CFR Part 66
Quality Assurance	ISO9001:2008
IP	IP67

The LED navigation light shall have a visible range of up to 4NM and shall operate at 12 VDC with power provided by a 12 VDC sealed lead acid gel battery and solar panel. The navigation light body and lens material shall be LEXAN polycarbonate which shall be UV stabilized. The following characteristics shall apply:

Visible Range:	AT@0.74: 2 NM (nominal) AT@0.85: 2.3 NM (nominal)
Vertical Divergence:	9°
LED Life Expectancy:	>100,000 hours
Temperature Range:	-40 to 80°C
Lens Diameter:	4.25"
Mounting:	2" O.D. slip-fitter
Height:	4"
Width	4.25"
Mass:	2.625 lbs.
Warranty:	3 Years

The LED navigation light shall feature an aluminum slip fitter type post mount fabricated of aluminum and powder coated red. All hardware used in the construction of the light shall be stainless steel. The navigation light shall feature a factory connected, 3 conductor, outdoor rated, flexible power cable. The Contractor shall take field measurements to determine the required length of the power cable allowing enough slack in the cable to create a suitable drip loop and allow for conductor splicing in the adjacent junction box as indicated on the plans.

The bracket arm shall be manufactured from 2" stainless steel tubing and shall provide a right angle (90°) mounting platform for the light. The 90° bracket shall be supplied by the same manufacturer as the navigation light.

This item shall also include a power supply consisting of: solar panel, battery box, lead acid gel type battery, and 90° mounting bracket arm.

The power supply shall carry the following certifications:

Quality Assurance: ISO 9001:2008
Waterproof: IP66 (Battery Compartment)

The power supply shall provide the following characteristics:

Solar Module Type: Multi-crystalline
Output watts: 20 watts
Nominal Voltage: 12 volts
Solar Module Efficiency: 14%
Battery Capacity: 26 Ah
Battery Service Life: 5 Years Average
Temperature Range: -40 to 80° C
Height: 18.125”
Width: 25.75”
Mass: 65 lbs.
Warranty: 3 Years

The solar panel shall have an adjustable mount which can be angled to maximize solar collection. The power supply shall come complete with solar module and battery contained in a rugged, powder coated aluminum housing. The battery box shall come with a padlock hasp and brass padlock. The top surface of the battery box shall be covered with a “bird spike” mat.

The power supply shall be mounted to the concrete bridge pier using a stainless steel 90° mounting bracket designed to support the 65 lb. weight of the unit and as detailed on the plans.

Concrete mechanical type anchors shall be used to mount the bracket arm to the concrete bridge pier. Mechanical anchors shall be stainless steel and shall be sized per the manufacturer’s recommendations for the given loads.

CONSTRUCTION METHOD: The pier mounted 180° red navigation light shall be used to light the pier locations and shall be installed in conformance with Section 10.18 and the plans and details.

The 90° navigation light mounting bracket and 90° power supply bracket shall be installed at the locations indicated on the plans and details. Care shall be taken when drilling into the concrete bridge pier to avoid drilling through existing reinforcing bars. Stainless steel mechanical anchors shall be installed in strict conformance with the manufacturer’s recommendations.

The 180° red navigation light shall be installed on the 90° bracket arm and the power supply cable shall be run to the surface mounted junction box as indicated on the plan details.

The power supply (solar panel, battery box, and battery) shall be installed at the location as indicated on the plans and details. The power cable of the power supply and the power cable of the navigation light shall be connected as indicated on the plans and details.

The battery shall be fully charged prior to hook-up of the solar panel and navigation light.

The navigation light shall be tested for proper operation.

The installation of the navigation light shall be carried out during daylight hours and the installation shall be completed prior to sunset. Under no circumstances shall the proper nighttime demarcation of the pier be disrupted.

METHOD OF MEASUREMENT: This work will be measured for payment by the number of navigation lights installed, complete and accepted.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Navigation Light (Pier)" of the type and size specified, complete and accepted in place, which price shall include all materials including navigation light, stainless steel bracket arms, power cables, slip-fitter, solar panel, battery box, battery, bird spikes, connections, pad lock with keys, mounting hardware, drilling, mounting, measuring, testing, and all labor, tools, equipment and work incidental thereto.