


DEPARTMENT OF HOMELAND SECURITY
UNITED STATES COAST GUARD
ENGINEERING SERVICES DIVISION

SCOPE OF WORK
FOR
ARCHITECTURAL/ENGINEERING SERVICES
FOR
REPAIR OF CONCRETE PIER
AT
U.S. COAST GUARD SECTOR
DETROIT
DETROIT, MI

APRIL 2022

COMMANDING OFFICER
UNITED STATES COAST GUARD
CIVIL ENGINEERING UNIT, RM 2179
1240 EAST NINTH STREET
CLEVELAND, OHIO 44199-2060

P/N 20605920 (A/E DESIGN)
P/N 10360127 (CONSTRUCTION)

AUTHOR: 

FINAL

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1. BACKGROUND:

- 1.1 Definition of Scope: The project is to investigate, design and coordinate the repairs of the concrete pier at Coast Guard Sector Detroit in Detroit, MI. Submission of plans, specifications, and estimates at various stages of design will be required as deliverables. The basis for the work is from the attached report, Waterfront Facilities Inspections & Assessments at USCG Sector Detroit, Michigan dated October 2017, that rated the pier in "poor condition". The pier has widespread advanced deterioration of the concrete pile caps and localized moderate damage to the beams, columns, and deck. The A/E shall provide design documentation for the repair of spalls in the concrete deck slab, corroded sections of steel decking, fender connections and repair of the concrete masonry block utility enclosure.

A project to rehab the pier was completed in 2012. The A/E shall coordinate any additional repairs to the pier with the reference design documentation provided. The design shall include, but is not limited to the following:

- 1.1.1 Perform a site inspection and evaluation of the concrete pier. The detailed inspection shall establish existing condition of the structure and verify conditions found in attached report. The A-E shall create a new report that includes repair recommendations for deficiencies found during the inspection and perform necessary non-destructive testing as required for analysis and design.
- 1.1.2 Concrete Pier (RPUID 70755): Repair spalls in concrete deck slab, corroded sections of galvanized steel decking, failed fender connections and repair the concrete masonry block utility enclosure. The pier was originally designed as timber pile supported, but portions of the pier underwent a rehab in 2012. The pier is also used for the on-loading and off-loading of buoys and concrete sinkers that weigh up to 10 tons. The allowable load-carrying capacity for the pier is unknown, nor was a structural load limit posting identified. Based on the age of the pier, current loading configuration, and extent of the deterioration identified, it's possible that these conditions have compromised the structural integrity of the pier. The A-E shall provide design documentation for the repair of the pier. The design documentation shall include the repair or relocation of any existing utilities impacted by the pier repair.
- 1.1.3 Provide calculations for the updated load rating for the pier after repairs that include a maximum uniform loading, maximum point loading and forklift capacity. The design documents for the concrete pier repair shall include the installation of new signs and pavement markings with the pier load limits.
- 1.1.4 The design documents shall include the replacement of cleats on west side of the pier. The new cleats shall match existing cleat size and location to the greatest extent possible.
- 1.1.5 Based on site inspection, provide recommendations for repairs to other components not mentioned above that are found to be deficient. If the estimated cost for the pier repairs exceeds the estimated construction amount, the A-E shall notify the COR immediately

per Section 2.6.

- 1.1.6 Develop and design for project phasing to limit impacts to Coast Guard operations during construction.
- 1.2 Design Requirements: The A-E shall generate design plans, specifications, cost estimate and other documentation necessary for the Coast Guard to solicit and advertise for the contract to repair waterfront. Prepare permit applications and other documentation necessary for construction to be included in the final design package. The Coast Guard will sign any applications/forms as the applicant/property owner.
- 1.3 Site Location: The work is located at the U.S. Coast Guard Sector Detroit, 110 Mt. Elliot St, Detroit, Michigan.
- 1.4 Site Visit: Coordinate visits to the site with the Chief Warrant Officer, ENG4 Mitchell Evans at (313) 568-9531 or Mitchell.L.Evans2@uscg.mil. Schedule site visit at least 7 calendar days in advance.
- 1.5 Project Purpose: The project is to repair the concrete pier. The project will address the deficiencies found in the Waterfront Facilities Inspections & Assessments report and repairs of the concrete pier.
- 1.6 Budget Cost: The total estimated construction cost for this project is approximately \$1,200,000.
- 1.7 Performance Period: The performance period is 150 calendar days after receipt of order. See Timetable in Paragraph 2.9.1.

2. SCOPE OF WORK FOR DESIGN:

- 2.1 Design Requirements:
 - 2.1.1 The A-E shall provide a fully completed design that satisfies all functional and operational requirements of the intended project use. Design documents shall be technically correct, fully detailed, and complying with all applicable codes. All disciplines shall be separated and clearly identified. Work requirements shall be reasonably attainable with standard construction equipment and methods available. The A-E shall visit the site, perform calculations, develop plans and specifications and prepare cost estimates as required for a completed design. Prepare all other documentation as required under this scope of work.
 - 2.1.2 Professional Stamp: Drawings, calculations and reports shall be prepared under the direction of and signed and sealed by a licensed professional engineer with at least 10 years of experience in waterfront design.

2.2 Site Investigation: The A-E shall perform a thorough site investigation for the project. Investigation shall identify and document existing construction, conditions, deficiencies, and usage. Investigation shall cover all site features that may be affected by project design. Reference drawings/reports provided to the A-E shall also be verified during the site investigation and note any potential problems that will impact the project.

2.2.1 Hours: The A-E shall visit the site during the normal unit operational hours, Monday through Friday, 0700 through 1630 with at least a 7 day notice in advance.

2.2.2 Visual Observations: The A-E shall document the site investigation and present these in the Site Survey Report. Baseline drawings exist and can be used for annotating.

2.3 Design Criteria:

2.3.1 General: Complete all design work to conform with good engineering and architectural practices and in accordance with all applicable building codes and standards. These include, but not limited to:

American National Standards Institute (ANSI)
American Standard for Testing and Materials (ASTM)
American Institute of Steel Construction (AISC)
American Concrete Institute (ACI)
National Electrical Code (NEC)
International Building Code (IBC)
United States Environmental Protection Agency (USEPA)
Unified Facilities Criteria (UFC)

2.4 Permits:

2.4.1 The A-E shall prepare, pay for and obtain all permits required for project work. The A-E shall at the beginning of the design process establish and obtain all necessary federal, state and local application and permit requirements for project work. The A-E shall coordinate with appropriate agencies during design to ensure that the project design will be in compliance with federal, state and local permit requirements. The A-E shall prepare all forms, drawings, and supporting documentation necessary to apply for permits and also coordinate with the appropriate agency officials to assure the application is properly completed. Completed applications shall be forwarded to CEU Cleveland for signature and subsequent forwarding by the A-E to the appropriate Federal, State or local agency. The applicant for permits shall be:

Commanding Officer
U. S. Coast Guard
Civil Engineering Unit, Room 2179
1240 East Ninth Street
Cleveland, Ohio 44199-2060

- 2.4.2 Local building permits are not required as work performed on federal property is exempt. Environmental permits are required as applicable.
- 2.5 Calculations: The A-E shall prepare calculations as required to design new or analyze existing project components. Calculations shall be complete, legible, detailed, and shall indicate clearly all assumptions, criteria, references, manufacturer's data, codes, and standards used. Calculations shall be provided for all major civil, structural, electrical, and mechanical components of the project. Provide an electronic copy of the cost estimate as a ".pdf" file in addition to hard copies of the calculations.
- 2.6 Cost Estimates: The A-E shall prepare estimates that are of a detail appropriate to design stage using the "Cost Estimate and Summary" estimate form provided electronically (prepared in Microsoft Excel 2016). If it becomes apparent at any stage of the design that the estimate will exceed the budgeted amount, notify the Contracting Officer immediately and provide recommendations to save costs. Each estimate shall consist of line items of work in the CSI format, with each section beginning on a separate sheet.
- 2.6.1 Conceptual Estimates: (*Shall be submitted at design development stage only.*) This estimate will be used for initial budgeting and feasibility determinations. Preliminary construction estimates will be used for programming and budgeting purposes and will be a major factor in determining if the project is to proceed through the final design and construction phases. If at any time, it becomes apparent that the project cost will exceed the programmed amount, the A-E shall notify the Contracting Officer immediately. The A-E shall suggest cost saving measures. These cost saving measures shall be considered basic to the design and shall not be considered value engineering studies.
- 2.6.2 Design Estimates: (*Shall be submitted at each design stage.*) Use the "Cost Estimate and Summary" estimate form provided electronically to prepare construction cost estimates. The estimate shall be detailed and accurate to the degree practical. Line items shall be separated to enable comparisons with a Contractor's line item breakout. Quantities, unit labor and material costs, equipment costs (if applicable), and total costs shall be shown. Work anticipated for subcontractor work shall be prepared on separate sheets and imported into the "sub-contractor" section on the estimate summary sheet. Provide background cost information and/or sources (i.e. R.S. Means data) in the comment column on the estimate form for all significant work items. Labor rates shall be based upon the Davis-Bacon Wage Determination, which may be higher or lower than local labor rates (*Copies of labor rates can be obtained from Contracting Officer*). Where applicable, include separate sheets for unit work items. CEU Cleveland will provide the A-E with an electronic version of the standard Government Cost Estimate form (Microsoft Excel 2016) to use in the preparation of the estimate. The costs provided shall be grouped to the asset of repair to the greatest extent possible.
- 2.7 Specifications and Drawings: The A-E shall prepare project specifications and drawings. The specifications and drawings shall be coordinated and be consistent in format, wording, referencing, and extent of descriptions. Specifications and drawings shall be clear, concise, and complete. Use the following project identifying information on specifications and drawings:

Project Title: Repair Concrete Pier
Project Number: 10360127
Drawing Number: 10360127-D

2.7.1 Specifications:

2.7.1.1 Prepare specifications using the 49 Division, CSI format with the paragraph numbering system compatible with the three-part Unified Facility Guide Specifications (DOD) format. **CEU Cleveland will provide an electronic copy of Division One, and the corresponding instruction guide, to be used in preparation of the specifications. All remaining sections shall be prepared using the same type size, font and margins as used in the written portions of Division One.** If standardized specification sections are used, omit all unused or non-applicable references, paragraphs and related wording, as well as all hidden text. Additionally, any reference notes or specification preparation instructions shall also be omitted. Division One is prepared in Microsoft Word 2016 and contains the imbedded automated formatting features. Completed specifications shall be compatible with Microsoft Word 2016 and prepared as one single file.

2.7.1.2 Items Peculiar to One Manufacturer (Brand Name): Requirements shall not be written so as to require a particular brand name, product, or a feature of a product, peculiar to one manufacturer, thereby precluding a consideration of a product manufactured by another company, unless the particular brand name, product, or feature is essential to the Government's requirements, and market research indicates that other companies' similar products, or products lacking the particular feature, do not meet or cannot be modified to meet, the agency's needs. The required justifications and approvals shall support use of brand name.

2.7.1.3 Brand Name or Equal: Brand name or equal purchase descriptions must include, in addition to the brand name, a general description of those salient physical, functional, or performance characteristics of the brand name item that an "equal" item must meet to be acceptable for award. Use brand name or equal descriptions when the salient characteristics are firm requirements. The required justifications and approvals shall support use of a brand name or equal.

2.7.1.4 Key Submittals: In the List of Submittals "General Use Column", the A-E shall designate what submittal line items they deem as Key Submittals which they believe should be reviewed by an A-E (i.e. Structural system shop drawings, fire protection system shop drawings, critical pieces of mechanical/electrical equipment).

2.7.2 Drawings: Drawings shall be prepared in AutoDesk AutoCAD 2020 using the standard Coast Guard templates. All drawings shall follow Coast Guard CAD Standards, which are based on the US Army Corps of Engineers (USACE) led Tri-Service Standard (a subset of the National CAD Standards). AutoCAD drawing templates and CAD support files are provided electronically. **All borders, dimensions and text shall be in paper (layout) space. The title block shall not be exploded or modified. Plans, elevations, details and sections shall be placed in individual view ports. All images shall be**

drawn in model space on a one-to-one scale. For final submittal of AutoCAD drawings each sheet/layout shall have its own AutoCAD drawing file. Files shall be named C[Project Number][Discipline Designator][Sheet Number].dwg. It is requested that no XREF's be used in the preparation of the drawings. If XREF's are used, then the A-E shall "bind" all XREF's to the drawings so that no external files will be required to view the drawings. All drawings (including all disciplines and sub-contractors) in the submitted set will be uniform in format. The drawings shall be reviewed by the A-E prior to submittal to ensure all requirements of this section are met and to verify the uniformity of the drawings. If any drawing(s) fail to meet the requirements of this section, it will result in the rejection of the entire submittal.

2.8 Design Stage Requirements:

2.8.1 **Site Survey:** Coordinate site visits with point of contact noted in paragraph 1.4 and the CEU Project Engineer-in-Charge at least five working days in advance of all site visits. CEU will arrange to have a representative on site with the A-E during the preliminary site survey and during the final design site check. Contact information is listed in Paragraph 4.1 of this scope. Submit to the Contracting Officer (1) copy of the Site Survey Report and one electronic copy via CD/DVD, email or secure file sharing link that summarizes information collected. The report shall cover the following areas:

- Existing conditions
- Existing utilities
- Operational criteria/requirements
- Comments/suggestions collected
- Drawings of existing site and facilities
- Analyze programmed budget in relation to Facility Pre-design Program
- Identify permits and coordination required and their requirements
- Identify problem areas/questions
- Suitability of existing items/equipment for continued use
- Verify previously determined deficiencies and identify any new deficiencies
- Site and topographic survey of the project area
- Photographs of the work area

2.8.2 **Design Development Task (35%):** This task shall be complete to the 35 percent stage of the overall project. Submit (2) copies of the 35 percent drawings (one 1/2 size set and one full size set) and (2) hard copies (double-sided and bound) of each item to be submitted unless otherwise noted. One electronic copy of all files shall be submitted on CD/DVD or via a secure file sharing link. Review comments from the Design Development Task submittal will be provided to the A-E and shall be incorporated into the 95 percent submittal. The submittal shall include the following:

- a. Construction Drawings complete to the 35 percent stage overall, with no individual discipline less than 30 percent complete. Drawings shall include at least

the following:

1. General Project Info (Drawing index, scales, north arrow, legends, abbreviations, location, etc.)
2. Existing Conditions Survey
3. Demolition Plans
4. Demolition Sections
5. Repair Plans
6. Repair Sections
7. Utility Plans
8. Phasing Plan
9. Details

b. Scope of Work and List of specification sections that will be in the final specification.

c. Conceptual Design Estimates

d. Construction Timeline

e. Photographs

f. Design Calculations

g. Permit applications and information.

2.8.3 **Construction Document Task:** This task consists of developing the selected design into complete construction drawings and specifications. Government reviews are included in this task at the 95 and 100 percent design stages. Review comments in the form of marked up drawings and specifications, and written comments, will be returned to the A-E for inclusion into the construction documents for each succeeding level of review. Deliver finalized construction documents reflecting all review comments and changes to the Contracting Officer.

2.8.3.1 95 Percent Submittal: This task shall be complete to the **95 percent stage of the overall project**. Submit (1) hard copy and (1) electronic copy (via CD/DVD or secure file transfer link) of each of the following: drawings (one 1/2 size sets and one full size set), specification (double-sided and bound), government estimate, construction timeline and written response from 35% review comments to the Contracting Officer for review. **The submittal shall include construction drawings completed to 100 percent level**, specifications fully typed and edited and the final cost estimate prepared on the Government cost estimate noted in Paragraph 2.6.2. Include final design calculations as specified in Paragraph 2.5 on CD-ROM as required. The A-E shall identify Key Submittals in accordance with Paragraph 2.7.1.4 and also identify items in the submittal log that require a long lead-time to facilitate in subsequent project management.

2.8.3.2 100 Percent Submittal: Submit (1) hard copy and (1) electronic copy (CD/DVD or secure file transfer link) of the 100 percent drawings (11x17), specifications (double-sided and bound), government estimate and construction and written response from the 95% review comments to the Contracting Officer for review.

2.8.3.3 Final Submittal: After Government approval, electronically submit the full size original drawings, sealed and signed on all sheets by a licensed engineer who can legally represent the design firm. Additionally, submit (1) hard copy of 11x17 size drawing set, specifications (double sided and bound), government estimate, construction timeline and 100% review comment response. Provide the Contracting Officer with the final copy of specifications, drawings, cost estimate, calculations, geotechnical reports, construction timeline, site inspection report and 100% review comment response on CD/DVD or secure file transfer link. The respective files shall have the correct naming convention as indicated in Paragraph 4.2. All files will also be provided in their native format.

2.8.3.4 Shop Drawing Review: The A-E shall provide 20 hours of key submittal review and provide recommendation for acceptance or resubmission of submittals of major structural elements of building design, major mechanical equipment and major electrical equipment based on the qualifications as specified by the A-E.

2.9 Schedule: The A-E shall provide a Design Submittal Schedule within (10) days of the order identifying submission dates and durations for all milestones such as site visits and design submittals. The initial schedule shall be submitted prior to conducting the site survey. The schedule shall be in the form of a bar chart and based upon the dates and durations shown in the Timetable provided in Paragraph 2.9.1 and shall begin on the date of the A-E contract award. The design schedule shall be resubmitted any time a change is made in the schedule with an explanation of the changes made.

2.9.1 Timetable: Provide professional services upon issuance of the Order for Supplies or Services in the number of calendar days (consecutive) outlined in the following timetable:

	CALENDAR DAYS ⁽¹⁾		
	A-E SUBMITTAL	GOV'T REVIEW	TOTAL DAYS
A-E Contract Award		0	0
Site Survey Report	28 ⁽²⁾	0	28
35% (Design Development) Submittal / Begin Permitting Process	21	14	64
95% Submittal	28	14	106
100% Submittal	20	10	136
FINAL A-E Submittal	7	7	150

(1) Consecutive days after preceding submission or review

(2) Submit site survey report following initial site visit. There is no government review. Proceed with Design Development Task after submission of the site survey report.

2.10 A-E Design Support:

2.10.1 Pre-Award Design Support: The A-E shall answer any design related questions that may arise during the solicitation phase of the construction contract. The A-E shall provide the response, in writing, within 72 hours after notification by the Contracting Officer or Project Engineer. This shall include interpretation of all design questions that may arise during the solicitation process. These consultations shall be at no additional cost to the Government as part of the A-E's professional responsibility as the engineer of record.

2.10.2 Post-Award Design Support: If the Contracting Officer determines that any post-award deficiencies, questions or ambiguities are the responsibility of the A-E, they will be forwarded to the A-E for correction or clarification at no cost to the Government. The A-E shall provide a response or a corrective action plan/timetable in writing within 72 hours after notification by the Contracting Officer.

3. **SUBMITTALS:**

3.1 Submittals: Submittals shall be completed and presented as indicated herein. Items to be submitted shall be transmitted using the attached Submittal Approval Request Form and be delivered to the Contracting Officer.

3.2 The following is a List of Submittals required:

3.2.1 DESIGN SUBMITTAL SCHEDULE

3.2.2 SITE SURVEY REPORT

3.2.3 DESIGN DEVELOPMENT TASK (35% DESIGN SUBMITTAL)

- Construction Drawings
- Specification Outline
- Conceptual Design Estimates
- Design Calculations
- Permit Applications and Information
- Construction Timeline
- Photographs

3.2.4 CONSTRUCTION DOCUMENT TASKS (95%, 100% & FINAL SUBMITTALS)

- Drawings
- Specification (complete)
- Government Estimate
- Construction Timeline
- Electronic Files of Drawings, Specifications, Government Estimate, Construction Timeline, Photographs, Final Design Calculations, etc. on CD/DVD
- Response/Actions taken from Review Comments

Note: Final Submittal shall have electronic files on CD/DVD of ALL submittal stages with all documents (previous and current submissions included).

- 3.3 Rejection: If a submittal fails to meet the requirements specified, the Contracting Officer will reject it with the reasons explained. Rejected submittals shall be revised and resubmitted.

4. INFORMATION SOURCES AND ATTACHMENTS:

4.1 Government Contacts and Resources Available:

4.1.1 Engineer-in-Charge: [REDACTED] U.S.C.G. Civil Engineering Unit, Cleveland, OH, phone: [REDACTED]

4.1.2 Point of Contact at Unit: Chief Warrant Officer [REDACTED] U.S.C.G. Sector Detroit, Detroit, MI, phone: [REDACTED]

4.1.3 Contracting Officer: Point of contact for all contractual questions and official correspondence.

4.2 Attachments: The following attachments are provided on CD-ROM.

4.2.1 CG Contract Drawing:

a. C10360127.dwg, etc.

4.2.2 CG Reference Drawings:

- a. C7816 Sheets 1 thru 11 of 11.pdf
- b. C7816RefDrawings1.pdf
- c. C7816RefDrawings2.pdf

4.2.3 CG Reference Documents

- a. 2017 Sector Detroit Waterfront Inspection Report.pdf
- b. C7816DesignCalcs.pdf
- c. C7816GeotechReport.pdf
- d. C7816 SHPO.pdf
- e. C7816 Permits.pdf
- f. C7816XstampedNR.pdf
- g. C7816-RPT1.pdf
- h. C7816-R

4.2.4 Specification Division 1: C10360127X.doc (This section must be used in final specification)

- 4.2.5 Division 1 Instruction Guide: CEUC DIVISION ONE SPECIFICATION INSTRUCTIONS.doc
- 4.2.6 Government Estimating Form: C10360127_IGE.xls
- 4.2.7 Construction Timeline Form: C10360127_KTRTIME.xls
- 4.2.8 Submittal Approval Request Form
- 4.2.9 CAD Support Files: CAD Support files.zip

SUBMITTAL APPROVAL REQUEST

Submittal # _____ Location: _____

Description of Item(s) Submitted	A P P	D I S	Next Submittal Due Date	C M (Y/N)
Typed Name & Title	Contractor		By (Signature & Date)	

Abbreviations: APP – Approved DIS – Disapproved CM – Comments Attached

From: CEU Cleveland
To: CONTRACTOR

1. See below and/or on submittal for comments.

Typed Name & Title	Signature	Date
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