# BLUE HILL HARBOR
# MAINE
# NAVIGATION IMPROVEMENT PROJECT

# APPENDIX D

# COST ENGINEERING

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## COST ESTIMATE

The cost estimate is based on dredge quantities developed by the Civil Engineering Section. The Recommended Plan includes constructing a new 80-ft wide, 6-ft deep channel along with a new turning basin. There is no pre-existing federal navigation project in this area.

Environmental testing in the harbor indicates that the top 2-ft of sediment are contaminated with PAHs; thus, the Recommended Plan also includes construction of a new CAD cell to place and cap this material.

Numerous alternatives were considered for this project, including different channel depths (5-ft and 7-ft), as well as overland disposal for the contaminated material. The Recommended Plan was selected through an economic analysis.

### Assumptions

- Construction methodology for clean material: the CEDEP estimate assumes that mechanical dredging equipment will be used throughout the project. The estimate assumes an 8-cy bucket will place clean material directly into two 1,500-cy bottom dump scows which will be towed 14-miles to the Eastern Passage Disposal Site (EPDS) and disposed of. Some of the clean material is to be used as a cap for the CAD cell, and will therefore only be hauled for ¼-mile. The estimate assumes one 3000 HP tug will haul the scows to/from the dredge site and the disposal areas.
- Construction methodology for contaminated material: the CEDEP estimate assumes that mechanical dredging equipment will be used throughout the project. The estimate assumes an 8-cy bucket will place contaminated material directly into a 1,500-cy bottom dump scow which will be towed ¼-mile to the CAD cell and disposed of. The estimate assumes one 3000 HP tug will haul the scows to/from the dredge site and the CAD cell area. It should be noted that, due to the substantial tide changes at this site, it's assumed that there will be a "dedicated" scow for storing the contaminated material. That way, the contractor will be able to continue excavating both material types, even if he can't access the CAD cell area due to the tides.
- Estimate assumes the prime contractor will self-perform all work.
- Estimate assumes that the prime contractor will mobilize from Maine, based on historic information of available contractors in the area.
- Estimate assumes that contractor will pay Davis Bacon wage rates for Hancock County in Maine. If the winning contractor ends up coming from outside of Maine, this could cause a rise in costs due to potentially higher wage rates.
- Estimate assumes open competition and invitation for bid procurement method.

## RISK ANALYSIS

Risk Mitigation was conducted through an Abbreviated Risk Analysis (ARA) of the project as it is currently presented in addition to the acknowledgement of risk in the scope and estimated quantities. The District has mitigated this risk through a conservative approach to the excavation and hauling of dredge material as well as utilizing a conservative cost of fuel. The values included in the project cost provide an amount that the PDT is confident will provide substantive costs to mitigate any issues. The District will continue to monitor and include all risks in continuing assessment of contingency and amend as necessary as an essential element to the continued development of the project. The potential risk areas identified through formal risk and sensitivity analysis were mobilization & demobilization, dredge & disposal of clean material to the EPDS and dredge & disposal of contaminated material to the CAD cell.

The ARA was developed relying on local District staff to provide expertise and information gathering. The cost engineer facilitated a risk assessment meeting with the PDT in addition to a qualitative analysis to produce a risk register that served as the framework for the risk analysis.

The ARA assumes the Project Development Stage/Alternative is “Feasibility (Recommended Plan)” with a “Low Risk” risk category based on the experience of the cost engineer and vetted with the PDT. The resultant contingencies are 15.04% for the Total Construction Estimate, 13.62% for Total Planning, Engineering & Design, and 16.83% for Total Construction Management. These contingency percentages were then utilized in the Total Project Cost Summary.

There is no one significant risk factor for this project that stands above the rest. The risks associated with the project are typical for improvement dredging and are derived from the district’s standard practices for developing quantities, acquisition strategy, and cost estimate assumptions regarding what equipment will be utilized to construct the project.

## TOTAL PROJECT COST SUMMARY (TPCS)

The Total Project Cost Summary (TPCS) was then computed to summarize the construction cost, project first cost, and the Total Project Cost or the Fully Funded Cost. The TPCS was utilized to calculate the construction cost estimate applied contingency and escalated to the midpoints of the features of work and the remaining work breakdown structure to include Planning, Engineering & Design (PED) and Construction Management. The inputs of the TPCS, to include percentages for the PED phase and Construction Management were obtained from the project manager.

The resultant TPCS from the cost estimate, risk analysis, and escalation is $3,138,000 with an estimated Federal cost of $2,824,000 and Non-Federal cost of $628,000

utilizing a 90%/10% Federal to Non-Federal cost split, plus an additional 10% of project costs to be paid to the US Treasury in accordance with Congressional mandates. Including feasibility study costs of $352,000, the total estimated Federal cost of the project is $3,050,000.

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****** TOTAL PROJECT COST SUMMARY ******

PROJECT: **Blue Hill Section 107**
PROJECT NO: **328230**
LOCATION: **Blue Hill, Maine**

DISTRICT: **New England District**
PREPARED: **5/19/2021**
UPDATED: **2/1/2022**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

**Dispose Dredged Material in CAD Cell**

Program Year (Budget EC): 2022
Effective Price Level Date: 1-Oct- 21

| WBS NUMBER | Civil Works Feature & Sub-Feature Description | ESTIMATED COST COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | PROJECT FIRST COST (Constant Dollar Basis) ESC (%) | COST ($K) | CNTG ($K) | REMAINING COST ($K) | Spent Thru: 1-Oct-21 ($K) | TOTAL FIRST COST ($K) | TOTAL PROJECT COST (FULLY FUNDED) ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | NAVIGATION PORTS & HARBORS - MOB | $467 | $70 | 15% | $537 | 11.7% | $521 | $78 | $599 | | $599 | 6.4% | $554 | $83 | $637 |
| 12 | NAVIGATION PORTS & HARBORS - DREDG | $1,618 | $243 | 15% | $1,861 | 11.7% | $1,807 | $272 | $2,078 | | $2,078 | 6.4% | $1,922 | $289 | $2,211 |
| | | - | - | | | - | | | | | | - | | | |
| | | - | | | | - | | | | | | - | | | |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | | $2,398 | 11.7% | $2,328 | $350 | $2,678 | | $2,678 | 6.4% | $2,476 | $372 | $2,848 |
| 01 | LANDS AND DAMAGES | $9 | | | $9 | 8.4% | $10 | | $10 | | $10 | 6.4% | $10 | | $10 |
| 30 | PLANNING, ENGINEERING & DESIGN | $304 | $41 | 14% | $345 | 2.4% | $311 | $42 | $354 | | $354 | 3.6% | $322 | $44 | $366 |
| 31 | CONSTRUCTION MANAGEMENT | $177 | $30 | 17% | $207 | 2.4% | $181 | $31 | $212 | | $212 | 5.1% | $191 | $32 | $223 |
| | **PROJECT COST TOTALS:** | $2,575 | $385 | 15% | $2,960 | | $2,830 | $423 | $3,253 | | **$3,253** | 6.0% | $2,999 | $448 | $3,447 |

D-5a

_____ CHIEF, COST ENGINEERING, Jeffrey Gaeta

_____ PROJECT MANAGER, Mark Habel

_____ CHIEF, REAL ESTATE, Timothy Shugert

_____ CHIEF, PLANNING, John Kennelly

_____ CHIEF, ENGINEERING, Dave Margolis

_____ CHIEF, OPERATIONS, Eric Pedersen

_____ CHIEF, CONSTRUCTION, Sean Dolan

_____ CHIEF, CONTRACTING, Sheila Winston-Vincuilla

_____ CHIEF, PM-PB, Janet Harrington

_____ CHIEF, DPM, Scott Acone

| | | |
|---|---|---|
| **ESTIMATED TOTAL PROJECT COST:** | | **$3,447** |
| ESTIMATED FEDERAL COST: | **90%** | $3,103 |
| ESTIMATED NON-FEDERAL COST: | **10%** | $345 |
| ADDITIONAL 10% NON-FEDERAL COST: | | $345 |
| **22 - FEASIBILITY STUDY (CAP studies):** | | **$352** |
| ESTIMATED FEDERAL COST: | 64% | $226 |
| ESTIMATED NON-FEDERAL COST: | 36% | $126 |
| **ESTIMATED FEDERAL COST OF PROJECT** | | **$3,329** |
| ESTIMATED NON-FEDERAL COST OF PROJECT | | $815 |

****** TOTAL PROJECT COST SUMMARY ******

****** CONTRACT COST SUMMARY ******

PROJECT: Blue Hill Section 107
LOCATION: Blue Hill, Maine
This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

DISTRICT: New England District
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta

PREPARED: 5/19/2021
UPDATED: 2/1/2022

| WBS Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material in CAD Cell** | | Estimate Prepared: 19-May-21<br>Estimate Price Level: 1-Oct-20 | | | | Program Year (Budget EC): 2022<br>Effective Price Level Date: 1 -Oct-21 | | | | | | | | |
| | | | | RISK BASED | | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | TOTAL ($K) | Mid-Point Date | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* | *I* | *J* | *P* | *L* | *M* | *N* | *O* |
| | **PHASE 1 or CONTRACT 1** | | | | | | | | | | | | | |
| **12** | NAVIGATION PORTS & HARBORS - MOB | $467 | $70 | 15.0% | $537 | 11.7% | $521 | $78 | $599 | 2024Q1 | 6.4% | $554 | $83 | $637 |
| **12** | NAVIGATION PORTS & HARBORS - DREDG | $1,618 | $243 | 15.0% | $1,861 | 11.7% | $1,807 | $272 | $2,078 | 2024Q1 | 6.4% | $1,922 | $289 | $2,211 |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | 15.0% | $2,398 | | $2,328 | $350 | $2,678 | | | $2,476 | $372 | $2,848 |
| **01** | LANDS AND DAMAGES | $9 | | | $9 | 8.4% | $10 | | $10 | 2024Q1 | 6.4% | $10 | | $10 |
| **30** | PLANNING, ENGINEERING & DESIGN | | | | | | | | | | | | | |
| *8.6%* | Project Management | $40 | $5 | 13.6% | $45 | 2.4% | $41 | $6 | $47 | 2023Q2 | 3.1% | $42 | $6 | $48 |
| *4.3%* | Planning & Environmental Compliance | $20 | $3 | 13.6% | $23 | 2.4% | $20 | $3 | $23 | 2023Q2 | 3.1% | $21 | $3 | $24 |
| *30.6%* | Engineering & Design | $143 | $19 | 13.6% | $162 | 2.4% | $146 | $20 | $166 | 2023Q2 | 3.1% | $151 | $21 | $172 |
| *5.4%* | Reviews, ATRs, IEPRs, VE | $25 | $3 | 13.6% | $28 | 2.4% | $26 | $3 | $29 | 2023Q2 | 3.1% | $26 | $4 | $30 |
| | Life Cycle Updates (cost, schedule, risks) | | | 13.6% | | | | | | | | | | |
| *4.3%* | Contracting & Reprographics | $20 | $3 | 13.6% | $23 | 2.4% | $20 | $3 | $23 | 2024Q1 | 5.1% | $22 | $3 | $24 |
| *1.3%* | Engineering During Construction | $6 | $1 | 13.6% | $7 | 2.4% | $6 | $1 | $7 | 2024Q1 | 5.1% | $6 | $1 | $7 |
| *6.4%* | Planning During Construction | $30 | $4 | 13.6% | $34 | 2.4% | $31 | $4 | $35 | 2023Q2 | 3.1% | $32 | $4 | $36 |
| | Adaptive Management & Monitoring | | | 13.6% | | | | | | | | | | |
| *4.3%* | Project Operations | $20 | $3 | 13.6% | $23 | 2.4% | $20 | $3 | $23 | 2025Q1 | 7.7% | $22 | $3 | $25 |
| **31** | CONSTRUCTION MANAGEMENT | | | | | | | | | | | | | |
| *6.0%* | Construction Management | $125 | $21 | 16.8% | $146 | 2.4% | $128 | $22 | $150 | 2024Q1 | 5.1% | $135 | $23 | $157 |
| *2.0%* | Project Operation: | | | 16.8% | | | | | | | | | | |
| *2.5%* | Project Management | $52 | $9 | 16.8% | $61 | 2.4% | $53 | $9 | $62 | 2024Q1 | 5.1% | $56 | $9 | $65 |
| | **CONTRACT COST TOTALS:** | $2,575 | $385 | | $2,960 | | $2,830 | $423 | **$3,253** | | | $2,999 | $448 | **$3,447** |

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Filename: CAP BlueHillSection107_TPCS ver Sep 2021_rev 4_02-01-22.xlsx
TPCS - CAD DETAILED

# WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

# COST AGENCY TECHNICAL REVIEW CERTIFICATION STATEMENT

For Project No. 32830

NAE – Blue Hill Harbor
Section 107 Navigation Improvement Project

The Blue Hill Harbor Section 107 – Navigation Improvement Project as presented by New England District, has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of June 25, 2021, the Cost MCX certifies the estimated total project cost:

| | |
|---|---|
| FY21 Project First Cost: | $2,960,000 |
| Fully Funded Total Project Cost: | $3,138,000 |
| Federal Cost of Project: | $3,050,000 |

It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management through the period of Federal participation.

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**Michael P. Jacobs, PE, CCE**
**Chief, Cost Engineering MCX**
**Walla Walla District**

# **** TOTAL PROJECT COST SUMMARY ****

PROJECT: **Blue Hill Section 107**
PROJECT NO: **328230**
LOCATION: **Blue Hill, Maine**

DISTRICT: **New England District**
PREPARED: **5/19/2021**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

**Dispose Dredged Material in CAD Cell**

Program Year (Budget EC): 2021
Effective Price Level Date: 1-Oct- 20

| Civil Works Work Breakdown Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | REMAINING COST ($K) | Spent Thru: 1-Oct-20 ($K) | TOTAL FIRST COST ($K) | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| 12 | NAVIGATION PORTS & HARBORS | $2,085 | $314 | 15% | $2,398 | | $2,085 | $314 | $2,398 | | $2,398 | 6.0% | $2,209 | $332 | $2,541 |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | | $2,398 | | $2,085 | $314 | $2,398 | | $2,398 | 6.0% | $2,209 | $332 | $2,541 |
| 01 | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | | $9 | 6.0% | $10 | | $10 |
| 30 | PLANNING, ENGINEERING & DESIGN | $304 | $41 | 14% | $345 | | $304 | $41 | $345 | | $345 | 5.4% | $320 | $44 | $364 |
| 31 | CONSTRUCTION MANAGEMENT | $177 | $30 | 17% | $207 | | $177 | $30 | $207 | | $207 | 7.9% | $191 | $32 | $223 |
| | **PROJECT COST TOTALS:** | $2,575 | $385 | 15% | $2,960 | | $2,575 | $385 | $2,960 | | **$2,960** | 6.0% | $2,730 | $408 | $3,138 |



_____ CHIEF, COST ENGINEERING, Jeffrey Gaeta

_____ PROJECT MANAGER, Mark Habel

_____ CHIEF, REAL ESTATE, Timothy Shugert

_____ CHIEF, PLANNING, John Kennelly

_____ CHIEF, ENGINEERING, Dave Margolis

_____ CHIEF, OPERATIONS, Eric Pedersen

_____ CHIEF, CONSTRUCTION, Sean Dolan

_____ CHIEF, CONTRACTING, Sheila Winston-Vincuilla

_____ CHIEF, PM-PB, Janet Harrington

_____ CHIEF, DPM, Scott Acone

| | | |
|---|---|---|
| **ESTIMATED TOTAL PROJECT COST:** | | **$3,138** |
| ESTIMATED FEDERAL COST: | **90%** | $2,824 |
| ESTIMATED NON-FEDERAL COST: | **10%** | $314 |
| ADDITIONAL 10% NON-FEDERAL COST: | | $314 |
| **22 - FEASIBILITY STUDY (CAP studies):** | | **$352** |
| ESTIMATED FEDERAL COST: | 64% | $226 |
| ESTIMATED NON-FEDERAL COST: | 36% | $126 |
| **ESTIMATED FEDERAL COST OF PROJECT** | | **$3,050** |
| ESTIMATED NON-FEDERAL COST OF PROJECT | | $754 |

****** TOTAL PROJECT COST SUMMARY ******

****** CONTRACT COST SUMMARY ******

PROJECT: Blue Hill Section 107
LOCATION: Blue Hill, Maine
This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

DISTRICT: New England District
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta

PREPARED: 5/19/2021

| WBS Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material in CAD Cell** | | Estimate Prepared: 19-May-21<br>Estimate Price Level: 1-Oct-20 | | | | Program Year (Budget EC): 2021<br>Effective Price Level Date: 1 -Oct-20 | | | | | | | | |
| | | | | RISK BASED | | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | TOTAL ($K) | Mid-Point Date | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* | *I* | *J* | *P* | *L* | *M* | *N* | *O* |
| | **PHASE 1 or CONTRACT 1** | | | | | | | | | | | | | |
| **12** | NAVIGATION PORTS & HARBORS | $2,085 | $314 | 15.0% | $2,398 | | $2,085 | $314 | $2,398 | 2023Q1 | 6.0% | $2,209 | $332 | $2,541 |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | 15.0% | $2,398 | | $2,085 | $314 | $2,398 | | | $2,209 | $332 | $2,541 |
| **01** | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | 2023Q1 | 6.0% | $10 | | $10 |
| **30** | PLANNING, ENGINEERING & DESIGN | | | | | | | | | | | | | |
| *1.9%* | Project Management | $40 | $5 | 13.6% | $45 | | $40 | $5 | $45 | 2022Q2 | 5.0% | $42 | $6 | $48 |
| *1.0%* | Planning & Environmental Compliance | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2022Q2 | 5.0% | $21 | $3 | $24 |
| *6.9%* | Engineering & Design | $143 | $19 | 13.6% | $162 | | $143 | $19 | $162 | 2022Q2 | 5.0% | $150 | $20 | $171 |
| *1.2%* | Reviews, ATRs, IEPRs, VE | $25 | $3 | 13.6% | $28 | | $25 | $3 | $28 | 2022Q2 | 5.0% | $26 | $4 | $30 |
| | Life Cycle Updates (cost, schedule, risks) | | | 13.6% | | | | | | | | | | |
| *1.0%* | Contracting & Reprographics | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| *0.3%* | Engineering During Construction | $6 | $1 | 13.6% | $7 | | $6 | $1 | $7 | 2023Q1 | 7.9% | $6 | $1 | $7 |
| *1.4%* | Planning During Construction | $30 | $4 | 13.6% | $34 | | $30 | $4 | $34 | 2022Q2 | 5.0% | $31 | $4 | $36 |
| | Adaptive Management & Monitoring | | | 13.6% | | | | | | | | | | |
| *1.0%* | Project Operations | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| **31** | CONSTRUCTION MANAGEMENT | | | | | | | | | | | | | |
| *6.0%* | Construction Management | $125 | $21 | 16.8% | $146 | | $125 | $21 | $146 | 2023Q1 | 7.9% | $135 | $23 | $158 |
| *2.0%* | Project Operation: | | | 16.8% | | | | | | | | | | |
| *2.5%* | Project Management | $52 | $9 | 16.8% | $61 | | $52 | $9 | $61 | 2023Q1 | 7.9% | $56 | $9 | $66 |
| | **CONTRACT COST TOTALS:** | $2,575 | $385 | | $2,960 | | $2,575 | $385 | **$2,960** | | | $2,730 | $408 | **$3,138** |



Filename: CAP BlueHillSection107_TPCS ver Mar 2019_rev 3_5-19-21.xlsx
TPCS - CAD

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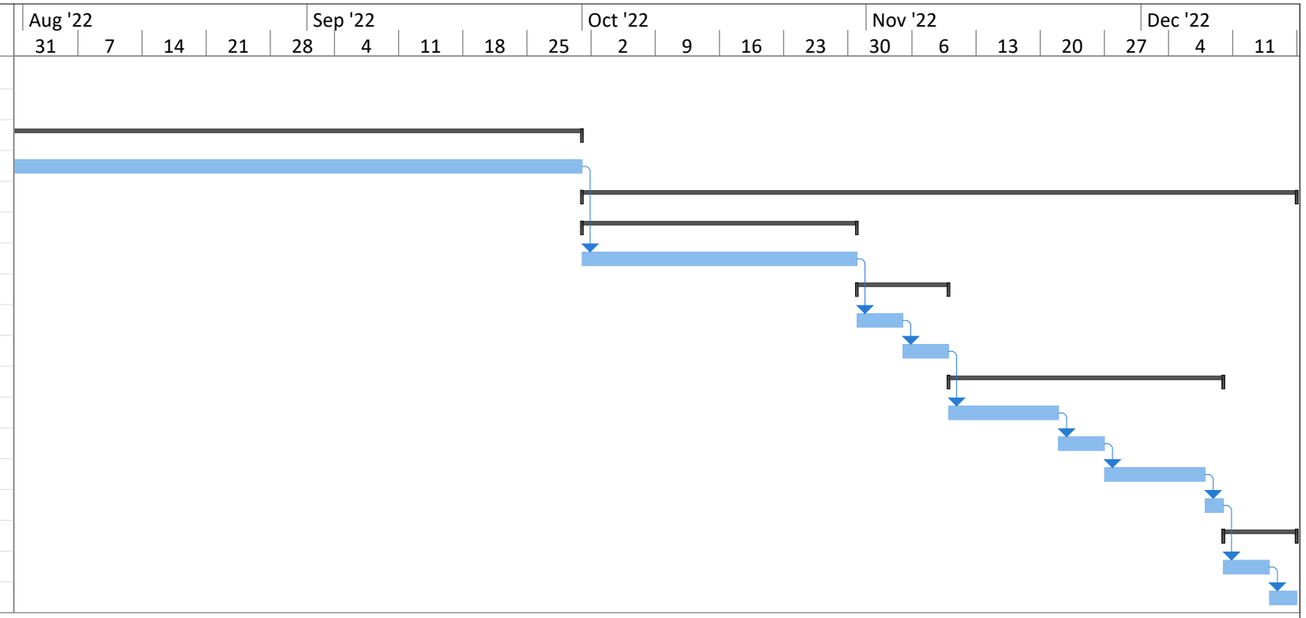
| ID | Task Mode | Task Name | Duration | Start | Finish |
|---|---|---|---|---|---|
| 1 | | **Recommended Plan: Place Material in CAD Cell** | | | |
| 2 | | | | | |
| 3 | | **PED Phase** | **365 days** | **Fri 10/1/21** | **Sat 10/1/22** |
| 4 | | Develop, Solicit, & Award Construction Contract | 365 days | Fri 10/1/21 | Sat 10/1/22 |
| 5 | | **Construction Phase** | **78 days** | **Sat 10/1/22** | **Sun 12/18/22** |
| 6 | | **Pre-Construction Activities** | **30 days** | **Sat 10/1/22** | **Mon 10/31/22** |
| 7 | | Pre-Con Submittals | 30 days | Sat 10/1/22 | Mon 10/31/22 |
| 8 | | **Mobilization** | **10 days** | **Mon 10/31/22** | **Thu 11/10/22** |
| 9 | | Prepare for Mobilization | 5 days | Mon 10/31/22 | Sat 11/5/22 |
| 10 | | Mobilize to Site | 5 days | Sat 11/5/22 | Thu 11/10/22 |
| 11 | | **Dredging** | **30 days** | **Thu 11/10/22** | **Sat 12/10/22** |
| 12 | | Dredge Clean Mat'l - Haul to EPDS | 12 days | Thu 11/10/22 | Tue 11/22/22 |
| 13 | | Dredge CAD Cell - Haul to EPDS | 5 days | Tue 11/22/22 | Sun 11/27/22 |
| 14 | | Dredge Contam Mat'l - Haul to CAD Cell | 11 days | Sun 11/27/22 | Thu 12/8/22 |
| 15 | | Place CAD Cell Cap | 2 days | Thu 12/8/22 | Sat 12/10/22 |
| 16 | | **Demobilization** | **8 days** | **Sat 12/10/22** | **Sun 12/18/22** |
| 17 | | Demobilize | 5 days | Sat 12/10/22 | Thu 12/15/22 |
| 18 | | Prepare Dredge for Storage | 3 days | Thu 12/15/22 | Sun 12/18/22 |




D-9

Project: msproj11
Date: Mon 5/31/21

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Task | Project Summary | Inactive Milestone | Manual Summary Rollup | Deadline |
| Split | External Tasks | Inactive Summary | Manual Summary | Progress |
| Milestone | External Milestone | Manual Task | Start-only | Manual Progress |
| Summary | Inactive Task | Duration-only | Finish-only | |

****** TOTAL PROJECT COST SUMMARY ******

PROJECT: **Blue Hill Section 107**
PROJECT NO: **328230**
LOCATION: **Blue Hill, Maine**

DISTRICT: **New England District**
PREPARED: **5/19/2021**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

| Civil Works Work Breakdown Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material in CAD Cell** | | | | | | Program Year (Budget EC): 2021<br>Effective Price Level Date: 1-Oct- 20 | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | REMAINING COST ($K) | Spent Thru: 1-Oct-20 ($K) | TOTAL FIRST COST ($K) | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| **12** | NAVIGATION PORTS & HARBORS | $2,085 | $314 | 15% | $2,398 | | $2,085 | $314 | $2,398 | | $2,398 | 6.0% | $2,209 | $332 | $2,541 |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | | $2,398 | | $2,085 | $314 | $2,398 | | $2,398 | 6.0% | $2,209 | $332 | $2,541 |
| 01 | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | | $9 | 6.0% | $10 | | $10 |
| 30 | PLANNING, ENGINEERING & DESIGN | $304 | $41 | 14% | $345 | | $304 | $41 | $345 | | $345 | 5.4% | $320 | $44 | $364 |
| 31 | CONSTRUCTION MANAGEMENT | $177 | $30 | 17% | $207 | | $177 | $30 | $207 | | $207 | 7.9% | $191 | $32 | $223 |
| | **PROJECT COST TOTALS:** | $2,575 | $385 | 15% | $2,960 | | $2,575 | $385 | $2,960 | | **$2,960** | 6.0% | $2,730 | $408 | $3,138 |

D-10

_____ CHIEF, COST ENGINEERING, Jeffrey Gaeta

_____ PROJECT MANAGER, Mark Habel

_____ CHIEF, REAL ESTATE, Timothy Shugert

_____ CHIEF, PLANNING, John Kennelly

_____ CHIEF, ENGINEERING, Dave Margolis

_____ CHIEF, OPERATIONS, Eric Pedersen

_____ CHIEF, CONSTRUCTION, Sean Dolan

_____ CHIEF, CONTRACTING, Sheila Winston-Vincuilla

_____ CHIEF, PM-PB, Janet Harrington

_____ CHIEF, DPM, Scott Acone

| | | |
|---|---|---|
| **ESTIMATED TOTAL PROJECT COST:** | | **$3,138** |
| ESTIMATED FEDERAL COST: | **90%** | $2,824 |
| ESTIMATED NON-FEDERAL COST: | **10%** | $314 |
| ADDITIONAL 10% NON-FEDERAL COST: | | $314 |
| **22 - FEASIBILITY STUDY (CAP studies):** | | **$352** |
| ESTIMATED FEDERAL COST: | 64% | $226 |
| ESTIMATED NON-FEDERAL COST: | 36% | $126 |
| **ESTIMATED FEDERAL COST OF PROJECT** | | **$3,050** |
| ESTIMATED NON-FEDERAL COST OF PROJECT | | $754 |

**** CONTRACT COST SUMMARY ****

PROJECT: Blue Hill Section 107
LOCATION: Blue Hill, Maine
This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

DISTRICT: New England District
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta

PREPARED: 5/19/2021

| WBS Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material in CAD Cell** | | Estimate Prepared: 19-May-21<br>Estimate Price Level: 1-Oct-20 | | | | Program Year (Budget EC): 2021<br>Effective Price Level Date: 1 -Oct-20 | | | | | | | | |
| | | | | RISK BASED | | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | TOTAL ($K) | Mid-Point Date | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* | *I* | *J* | *P* | *L* | *M* | *N* | *O* |
| | **PHASE 1 or CONTRACT 1** | | | | | | | | | | | | | |
| **12** | NAVIGATION PORTS & HARBORS | $2,085 | $314 | 15.0% | $2,398 | | $2,085 | $314 | $2,398 | 2023Q1 | 6.0% | $2,209 | $332 | $2,541 |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $2,085 | $314 | 15.0% | $2,398 | | $2,085 | $314 | $2,398 | | | $2,209 | $332 | $2,541 |
| **01** | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | 2023Q1 | 6.0% | $10 | | $10 |
| **30** | PLANNING, ENGINEERING & DESIGN | | | | | | | | | | | | | |
| *1.9%* | Project Management | $40 | $5 | 13.6% | $45 | | $40 | $5 | $45 | 2022Q2 | 5.0% | $42 | $6 | $48 |
| *1.0%* | Planning & Environmental Compliance | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2022Q2 | 5.0% | $21 | $3 | $24 |
| *6.9%* | Engineering & Design | $143 | $19 | 13.6% | $162 | | $143 | $19 | $162 | 2022Q2 | 5.0% | $150 | $20 | $171 |
| *1.2%* | Reviews, ATRs, IEPRs, VE | $25 | $3 | 13.6% | $28 | | $25 | $3 | $28 | 2022Q2 | 5.0% | $26 | $4 | $30 |
| | Life Cycle Updates (cost, schedule, risks) | | | 13.6% | | | | | | | | | | |
| *1.0%* | Contracting & Reprographics | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| *0.3%* | Engineering During Construction | $6 | $1 | 13.6% | $7 | | $6 | $1 | $7 | 2023Q1 | 7.9% | $6 | $1 | $7 |
| *1.4%* | Planning During Construction | $30 | $4 | 13.6% | $34 | | $30 | $4 | $34 | 2022Q2 | 5.0% | $31 | $4 | $36 |
| | Adaptive Management & Monitoring | | | 13.6% | | | | | | | | | | |
| *1.0%* | Project Operations | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| **31** | CONSTRUCTION MANAGEMENT | | | | | | | | | | | | | |
| *6.0%* | Construction Management | $125 | $21 | 16.8% | $146 | | $125 | $21 | $146 | 2023Q1 | 7.9% | $135 | $23 | $158 |
| *2.0%* | Project Operation: | | | 16.8% | | | | | | | | | | |
| *2.5%* | Project Management | $52 | $9 | 16.8% | $61 | | $52 | $9 | $61 | 2023Q1 | 7.9% | $56 | $9 | $66 |
| | **CONTRACT COST TOTALS:** | $2,575 | $385 | | $2,960 | | $2,575 | $385 | **$2,960** | | | $2,730 | $408 | **$3,138** |

****** TOTAL PROJECT COST SUMMARY ******

PROJECT: **Blue Hill Section 107**
PROJECT NO: **328230**
LOCATION: **Blue Hill, Maine**

DISTRICT: **New England District**
PREPARED: **5/19/2021**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

| Civil Works Work Breakdown Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material at Upland Landfill** | | | | | | Program Year (Budget EC): 2021<br>Effective Price Level Date: 1-Oct- 20 | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | REMAINING COST ($K) | Spent Thru: 1-Oct-20 ($K) | TOTAL FIRST COST ($K) | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| 12 | NAVIGATION PORTS & HARBORS | $6,402 | $963 | 15% | $7,365 | | $6,402 | $963 | $7,365 | | $7,365 | 6.0% | $6,783 | $1,020 | $7,803 |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | | | - | | | - | | | | | | - | | | |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $6,402 | $963 | | $7,365 | | $6,402 | $963 | $7,365 | | $7,365 | 6.0% | $6,783 | $1,020 | $7,803 |
| 01 | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | | $9 | 6.0% | $10 | | $10 |
| 30 | PLANNING, ENGINEERING & DESIGN | $304 | $41 | 14% | $345 | | $304 | $41 | $345 | | $345 | 5.4% | $320 | $44 | $364 |
| 31 | CONSTRUCTION MANAGEMENT | $177 | $30 | 17% | $207 | | $177 | $30 | $207 | | $207 | 7.9% | $191 | $32 | $223 |
| | **PROJECT COST TOTALS:** | $6,892 | $1,034 | 15% | $7,926 | | $6,892 | $1,034 | $7,926 | | **$7,926** | 6.0% | $7,304 | $1,096 | $8,400 |



_____ CHIEF, COST ENGINEERING, Jeffrey Gaeta

_____ PROJECT MANAGER, Mark Habel

_____ CHIEF, REAL ESTATE, Timothy Shugert

_____ CHIEF, PLANNING, John Kennelly

_____ CHIEF, ENGINEERING, Dave Margolis

_____ CHIEF, OPERATIONS, Eric Pedersen

_____ CHIEF, CONSTRUCTION, Sean Dolan

_____ CHIEF, CONTRACTING, Sheila Winston-Vincuilla

_____ CHIEF, PM-PB, Janet Harrington

_____ CHIEF, DPM, Scott Acone

| | | |
|---|---|---|
| **ESTIMATED TOTAL PROJECT COST:** | | **$8,400** |
| ESTIMATED FEDERAL COST: | **90%** | $7,560 |
| ESTIMATED NON-FEDERAL COST: | **10%** | $840 |
| ADDITIONAL 10% NON-FEDERAL COST: | | $840 |
| **22 - FEASIBILITY STUDY (CAP studies):** | | **$352** |
| ESTIMATED FEDERAL COST: | 64% | $226 |
| ESTIMATED NON-FEDERAL COST: | 36% | $126 |
| **ESTIMATED FEDERAL COST OF PROJECT** | | **$7,786** |
| ESTIMATED NON-FEDERAL COST OF PROJECT | | $1,806 |

Filename: CAP BlueHillSection107_TPCS ver Mar 2019_rev 3_5-19-21 - Copy.xlsx
TPCS - Upland

****** TOTAL PROJECT COST SUMMARY ******

****** CONTRACT COST SUMMARY ******

PROJECT: Blue Hill Section 107
LOCATION: Blue Hill, Maine
This Estimate reflects the scope and schedule in report; Blue Hill Harbor, Section 107 Navigation Improvement Study

DISTRICT: New England District
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta

PREPARED: 5/19/2021

| WBS Structure | | ESTIMATED COST | | | | PROJECT FIRST COST (Constant Dollar Basis) | | | | TOTAL PROJECT COST (FULLY FUNDED) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dispose Dredged Material at Upland Landfill** | | Estimate Prepared: 3-Nov-20<br>Estimate Price Level: 1-Oct-20 | | | | Program Year (Budget EC): 2021<br>Effective Price Level Date: 1 -Oct-20 | | | | | | | | |
| | | | | RISK BASED | | | | | | | | | | |
| WBS NUMBER | Civil Works Feature & Sub-Feature Description | COST ($K) | CNTG ($K) | CNTG (%) | TOTAL ($K) | ESC (%) | COST ($K) | CNTG ($K) | TOTAL ($K) | Mid-Point Date | ESC (%) | COST ($K) | CNTG ($K) | FULL ($K) |
| *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* | *I* | *J* | *P* | *L* | *M* | *N* | *O* |
| | **PHASE 1 or CONTRACT 1** | | | | | | | | | | | | | |
| **12** | NAVIGATION PORTS & HARBORS | $6,402 | $963 | 15.0% | $7,365 | | $6,402 | $963 | $7,365 | 2023Q1 | 6.0% | $6,783 | $1,020 | $7,803 |
| | **CONSTRUCTION ESTIMATE TOTALS:** | $6,402 | $963 | 15.0% | $7,365 | | $6,402 | $963 | $7,365 | | | $6,783 | $1,020 | $7,803 |
| **01** | LANDS AND DAMAGES | $9 | | | $9 | | $9 | | $9 | 2023Q1 | 6.0% | $10 | | $10 |
| **30** | PLANNING, ENGINEERING & DESIGN | | | | | | | | | | | | | |
| *0.6%* | Project Management | $40 | $5 | 13.6% | $45 | | $40 | $5 | $45 | 2022Q2 | 5.0% | $42 | $6 | $48 |
| *0.3%* | Planning & Environmental Compliance | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2022Q2 | 5.0% | $21 | $3 | $24 |
| *2.2%* | Engineering & Design | $143 | $19 | 13.6% | $162 | | $143 | $19 | $162 | 2022Q2 | 5.0% | $150 | $20 | $171 |
| *0.4%* | Reviews, ATRs, IEPRs, VE | $25 | $3 | 13.6% | $28 | | $25 | $3 | $28 | 2022Q2 | 5.0% | $26 | $4 | $30 |
| | Life Cycle Updates (cost, schedule, risks) | | | 13.6% | | | | | | | | | | |
| *0.3%* | Contracting & Reprographics | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| *0.1%* | Engineering During Construction | $6 | $1 | 13.6% | $7 | | $6 | $1 | $7 | 2023Q1 | 7.9% | $6 | $1 | $7 |
| *0.5%* | Planning During Construction | $30 | $4 | 13.6% | $34 | | $30 | $4 | $34 | 2022Q2 | 5.0% | $31 | $4 | $36 |
| | Adaptive Management & Monitoring | | | 13.6% | | | | | | | | | | |
| *0.3%* | Project Operations | $20 | $3 | 13.6% | $23 | | $20 | $3 | $23 | 2023Q1 | 7.9% | $22 | $3 | $25 |
| **31** | CONSTRUCTION MANAGEMENT | | | | | | | | | | | | | |
| *6.0%* | Construction Management | $125 | $21 | 16.8% | $146 | | $125 | $21 | $146 | 2023Q1 | 7.9% | $135 | $23 | $158 |
| *2.0%* | Project Operation: | | | 16.8% | | | | | | | | | | |
| *2.5%* | Project Management | $52 | $9 | 16.8% | $61 | | $52 | $9 | $61 | 2023Q1 | 7.9% | $56 | $9 | $66 |
| | **CONTRACT COST TOTALS:** | $6,892 | $1,034 | | $7,926 | | $6,892 | $1,034 | **$7,926** | | | $7,304 | $1,096 | **$8,400** |



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TPCS - Upland

**Abbreviated Risk Analysis**

Project (less than $40M): **Blue Hill Harbor Section 107 Navigation Improvement Study** **Alternative: Tentatively Selected Plan**

Project Development Stage/Alternative: **Feasibility (Recommended Plan)**

Risk Category: **Low Risk: Typical Construction, Simple** **Meeting Date: 11/3/2020**

Total Estimated Construction Contract Cost = **$ 2,084,576**

| | CWWBS | Feature of Work | Estimated Cost | | % Contingency | $ Contingency | Total |
|---|---|---|---|---|---|---|---|
| | 01 LANDS AND DAMAGES | Real Estate | **$ 9,000** | | **0%** | $ - | $ 9,000 |
| 1 | **12 02 HARBORS** | **Mobilization & Demobilization** | **$ 362,733** | | 14% | $ 50,039 | $ 412,772 |
| 2 | **12 02 HARBORS** | **Dredge Channel & Dispose in EPDS** | **$ 1,097,721** | | 17% | $ 183,082 | $ 1,280,803 |
| 3 | **12 02 HARBORS** | **Dredge Contam Matl & Place in CAD Cell** | **$ 520,276** | | 15% | $ 80,346 | $ 600,622 |
| 4 | | | | | 0% | $ - | $ - |
| 5 | | | | | 0% | $ - | $ - |
| 6 | | | | | 0% | $ - | $ - |
| 7 | | | | | 0% | $ - | $ - |
| 8 | | | | | 0% | $ - | $ - |
| 9 | | | | | 0% | $ - | $ - |
| 10 | | | | | 0% | $ - | $ - |
| 11 | | | | | 0% | $ - | $ - |
| 12 | All Other | **Remaining Construction Items** | **$ 103,846** | *5.2%* | 0% | $ - | $ 103,846 |
| 13 | 30 PLANNING, ENGINEERING, AND DESIGN | **Planning, Engineering, & Design** | **$ 304,000** | | 14% | $ 41,412 | $ 345,412 |
| 14 | 31 CONSTRUCTION MANAGEMENT | **Construction Management** | **$ 177,000** | | 17% | $ 29,793 | $ 206,793 |
| XX | FIXED DOLLAR RISK ADD (EQUALLY DISPERSED TO ALL, MUST INCLUDE JUSTIFICATION SEE BELOW) | | | | | **$ -** | |

| **Totals** | | | | | |
|---|---|---|---|---|---|
| Real Estate | $ 9,000 | 0% | $ - | $ | 9,000.00 |
| Total Construction Estimate | $ 2,084,576 | 15.04% | $ 313,467 | $ | 2,398,043 |
| Total Planning, Engineering & Design | $ 304,000 | 13.62% | $ 41,412 | $ | 345,412 |
| Total Construction Management | $ 177,000 | 16.83% | $ 29,793 | $ | 206,793 |
| Total Excluding Real Estate | **$ 2,565,576** | **14.99%** | **$ 384,672** | **$** | **2,950,248** |

| **Confidence Level Range Estimate ($000's)** | **Base** | **50%** | **80%** |
|---|---|---|---|
| | $2,566k | $2,796k | $2,950k |

* 50% based on base is at 5% CL.

| **Fixed Dollar Risk Add:** (Allows for additional risk to be added to the risk analsyis. Must include justification. Does not allocate to Real Estate. | |
|---|---|

**Blue Hill Harbor Section 107 Navigation Improvement Study**

Feasibility (Recommended Plan)

Abbreviated Risk Analysis

**Meeting Date:** 3-Nov-20

**Risk Level**

| | Negligible | Marginal | Moderate | Significant | Critical |
|---|---|---|---|---|---|
| Very Likely | 2 | 3 | 4 | 5 | 5 |
| Likely | 1 | 2 | 3 | 4 | 5 |
| Possible | 0 | 1 | 2 | 3 | 4 |
| Unlikely | 0 | 0 | 1 | 2 | 3 |

# Risk Register

| Risk Element | Feature of Work | Concerns | PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact) | Impact | Likelihood | Risk Level |
|---|---|---|---|---|---|---|
| **Project Management & Scope Growth** | | | | **Maximum Project Growth** | | **40%** |
| PS-1 | Mobilization & Demobilization | n/a | | Negligible | Unlikely | 0 |
| PS-2 | Dredge Channel & Dispose in EPDS | There is a concern that the customer, Town of Blue Hill, may request a design change to the size of the turning basin. | To date, there have been no requests to alter the existing design or to add new design components. As such, the PDT is confident that there is negligible risk associated with this concern. | Negligible | Unlikely | 0 |
| PS-3 | Dredge Contam Matl & Place in CAD Cell | There is a concern that the customer, Town of Blue Hill, may request a design change to the size of the turning basin. | To date, there have been no requests to alter the existing design or to add new design components. As such, the PDT is confident that there is negligible risk associated with this concern. | Negligible | Unlikely | 0 |
| PS-13 | Planning, Engineering, & Design | There is a concern that the customer, Town of Blue Hill, may request a design change to the size of the turning basin. | To date, there have been no requests to alter the existing design or to add new design components. As such, the PDT is confident that there is negligible risk associated with this concern. | Negligible | Unlikely | 0 |
| PS-14 | Construction Management | n/a | | Negligible | Unlikely | 0 |
| **Acquisition Strategy** | | | | **Maximum Project Growth** | | **30%** |
| AS-1 | Mobilization & Demobilization | It's possible that this project will be awarded using the 8(a) or small business set aside. Setting the project aside will limit the number of contractors available to dredge (dredging is already a fairly limited market on the East Coast; dredging in Maine is an even smaller pool of contractors. A small contractor may have difficulty securing the proper equipment necessary to complete the job, thereby impeding their ability to mobilize to the site. | Professional experience indicates that, even if we were to set this project aside, USACE would likely include a DRC in the contract which requires the KTR to demonstrate they have the correct equipment and have performed similar work in the past. This DRC has been successful in the past for weeding out unqualified KTRs. | Moderate | Unlikely | 1 |
| AS-2 | Dredge Channel & Dispose in EPDS | It's possible that this project will be awarded using the 8(a) or small business set aside. Setting the project aside will limit the number of contractors available to dredge (dredging is already a fairly limited market on the East Coast; dredging in Maine is an even smaller pool of contractors. A small contractor may have difficulty securing the proper equipment necessary to complete the dredging of non-contaminated material and disposing in the Eastern Passage Disposal Site. | Professional experience indicates that, even if we were to set this project aside, USACE would likely include a DRC in the contract which requires the KTR to demonstrate they have the correct equipment and have performed similar work in the past. This DRC has been successful in the past for weeding out unqualified KTRs. | Marginal | Unlikely | 0 |
| AS-3 | Dredge Contam Matl & Place in CAD Cell | It's possible that this project will be awarded using the 8(a) or small business set aside. Setting the project aside will limit the number of contractors available to dredge (dredging is already a fairly limited market on the East Coast; dredging in Maine is an even smaller pool of contractors. A small contractor may not have experience constructing CAD cells. | CAD construction is a fairly straight-forward task (essentially, it's just a large hole in the ground). As such, the PDT is not concerned with a lack of experience on the part of the winning KTR. Professional experience indicates that if the KTR can dredge a channel, they can build a CAD cell. | Marginal | Unlikely | 0 |
| AS-13 | Planning, Engineering, & Design | n/a | | Negligible | Unlikely | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| AS-14 | Construction Management | It's possible that this project will be awarded using the 8(a) or small business set aside. Setting the project aside will limit the number of contractors available to dredge (dredging is already a fairly limited market on the East Coast; dredging in Maine is an even smaller pool of contractors. A small contractor may not be familiar with USACE pre-construction submittal requirements, leading to complications in effective construction management. | Professional/historical experience indicates that many of NAE's dredging projects in Maine have been awarded to competent small businesses. It's a fair assumption that these same businesses would win the contract for this work and thus, NAE would have a KTR onsite who is familiar with USACE processes. | Moderate | Unlikely | 1 |
| **Construction Elements** | | | | **Maximum Project Growth** | | **15%** |
| CE-1 | Mobilization & Demobilization | n/a | | Negligible | Unlikely | 0 |
| CE-2 | Dredge Channel & Dispose in EPDS | The KTR may encounter ledge/bedrock during dredging operations. Such an encounter would either require the KTR to conduct underwater blasting operations (along with rock removal) or USACE to alter the layout of the channel/anchorage. Both alternatives would represent a delay to the contract and a significant construction contract modification for differing site conditions. | The PDT performed a thorough set of geotechnical investigations in the areas where the channel is to be built, which indicate that the material is primarily sand. In the unlikely case that ledge is encountered, it's possible that the channel or anchorage could be relocated to circumvent blasting. | Significant | Unlikely | 2 |
| CE-3 | Dredge Contam Matl & Place in CAD Cell | The KTR may encounter ledge/bedrock during dredging operations. Such an encounter would either require the KTR to conduct underwater blasting operations (along with rock removal) or USACE to alter the layout of the channel/anchorage. Both alternatives would represent a delay to the contract and a significant construction contract modification for differing site conditions. | The PDT performed a thorough set of geotechnical investigations in the area where the CAD cell is to be built, which indicate the material is primarily sand. If ledge was encountered, the CAD cell could easily be resized to accommodate the required dredge volume. | Moderate | Unlikely | 1 |
| CE-13 | Planning, Engineering, & Design | The KTR may encounter ledge/bedrock during dredging operations. Such an encounter would either require the KTR to conduct underwater blasting operations (along with rock removal) or USACE to alter the layout of the channel/anchorage. Both alternatives would represent a delay to the contract and a significant construction contract modification for differing site conditions. | The PDT performed a thorough geotechnical investigation in the project areas, which indicate that the material is primarily sand. In the unlikely case that ledge is encountered, the design team is confident that a change could be completed quickly, such as CAD resizing or channel/anchorage relocation. | Moderate | Unlikely | 1 |
| CE-14 | Construction Management | The KTR may encounter ledge/bedrock during dredging operations. Such an encounter would either require the KTR to conduct underwater blasting operations (along with rock removal) or USACE to alter the layout of the channel/anchorage. Both alternatives would represent a delay to the contract and a significant construction contract modification for differing site conditions. | The PDT performed a thorough geotechnical investigation in the project areas, which indicate that the material is primarily sand. If ledge was encountered, a construction contract mod would need to be processed; however, the team is confident that the geotech investigation has reduced this risk sufficiently. | Significant | Unlikely | 2 |
| **Specialty Construction or Fabrication** | | | | **Maximum Project Growth** | | **50%** |
| SC-1 | Mobilization & Demobilization | n/a | | Negligible | Unlikely | 0 |
| SC-2 | Dredge Channel & Dispose in EPDS | The PDT does not have concerns regarding any "special" aspects of this feature of work. | Dredging is a rather straight-forward task and NAE has had great historical success designing, awarding, and managing these types of contracts. | Negligible | Unlikely | 0 |
| SC-3 | Dredge Contam Matl & Place in CAD Cell | The KTR may not have an environment bucket on hand with which to dredge contaminated materials in the top 2-ft of the project. | The PDT intends to the use a DRC to screen out unqualified bidders. As part of the DRC, bidders will be required to submit an equipment list to demonstrate their qualifications. | Negligible | Unlikely | 0 |
| SC-13 | Planning, Engineering, & Design | The PDT does not have concerns regarding any "special" aspects of this feature of work. | Dredging is a rather straight-forward task and NAE has had great historical success designing, awarding, and managing these types of contracts. | Negligible | Unlikely | 0 |
| SC-14 | Construction Management | The PDT does not have concerns regarding any "special" aspects of this feature of work. | Dredging is a rather straight-forward task and NAE has had great historical success designing, awarding, and managing these types of contracts. | Negligible | Unlikely | 0 |
| **Technical Design & Quantities** | | | | **Maximum Project Growth** | | **20%** |
| T-1 | Mobilization & Demobilization | n/a | | Negligible | Unlikely | 0 |

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| T-2 | Dredge Channel & Dispose in EPDS | The design is based on a 2012 dredge survey and there is a concern that a significant amount of deposition from the tributary rivers will increase the quantity of material to be dredged between the feasibility study and contract award. | USACE has already completed multiple surveys within the harbor, which demonstrate that the rate of deposition is very low to negligible. As such, the PDT has confidence that the quantities developed during this study will be representative of field conditions at time of award. | Marginal | Unlikely | 0 |
| T-3 | Dredge Contam Matl & Place in CAD Cell | The design is based on a 2012 dredge survey and there is a concern that a significant amount of deposition from the tributary rivers will increase the quantity of material to be dredged between the feasibility study and contract award. | USACE has already completed multiple surveys within the harbor, which demonstrate that the rate of deposition is very low to negligible. As such, the PDT has confidence that the quantities developed during this study will be representative of field conditions at time of award. Even if this were not the case, the USACE has authorization to dig a deeper CAD, if needed, to accomodate additional contaminated material. | Negligible | Unlikely | 0 |
| T-13 | Planning, Engineering, & Design | The design is based on a 2012 dredge survey and there is a concern that a significant amount of deposition from the tributary rivers will increase the quantity of material to be dredged between the feasibility study and contract award. | USACE has already completed multiple surveys within the harbor, which demonstrate that the rate of deposition is very low to negligible. As such, the PDT has confidence that the quantities developed during this study will be representative of field conditions at time of award. Even if this were not the case, the impact to the Design of the contract would be negligible. | Negligible | Unlikely | 0 |
| T-14 | Construction Management | n/a | | Negligible | Unlikely | 0 |
| **Cost Estimate Assumptions** | | | | **Maximum Project Growth** | | **25%** |
| EST-1 | Mobilization & Demobilization | The Mobilization & Demobilization distances used in the CEDEP file may not be sufficient to capture the winning contractor's costs for this feature of work. | The PDT is confident, based on similar dredging jobs in Maine, that a Maine-based contractor will win the work. The estimate has assumed a New York-based contractor, so it's unlikely that these costs are insufficient. | Marginal | Unlikely | 0 |
| EST-2 | Dredge Channel & Dispose in EPDS | The cost estimate might not carry an adequate set of assumptions in the CEDEP file to capture the project's constraints. | The assumptions contained within the CEDEP files have been reviewed by the PDT members; no significant disagreements or concern were raised by the PDT at that time. Further reviews to be conducted in-house will be completed by both the local district and the CX, reducing the risk that a major oversight on the part of the estimator won't be found prior to PED phase. | Moderate | Unlikely | 1 |
| EST-3 | Dredge Contam Matl & Place in CAD Cell | The cost estimate might not carry an adequate set of assumptions in the CEDEP file to capture the project's constraints. | The assumptions contained within the CEDEP files have been reviewed by the PDT members; no significant disagreements or concern were raised by the PDT at that time. Further reviews to be conducted in-house will be completed by both the local district and the CX, reducing the risk that a major oversight on the part of the estimator won't be found prior to PED phase. | Moderate | Unlikely | 1 |
| EST-13 | Planning, Engineering, & Design | The PED phase has been estimated at $182,000; there is a concern that this number is too low because it is not based on a detailed fee estimate created by individual team members. | The FS report is to be reviewed in-house by experienced section chiefs, so, while it is possible that the budget is too low, the impacts are mitigated by this layer of review. | Marginal | Possible | 1 |
| EST-14 | Construction Management | The Construction Management feature of work has been estimated at $110,000; there is a concern that this number is too low because it is not based on a detailed fee estimate created by individual team members. | The FS report is to be reviewed in-house by experienced section chiefs, so, while it is possible that the budget is too low, the impacts are mitigated by this layer of review. | Marginal | Possible | 1 |
| **External Project Risks** | | | | **Maximum Project Growth** | | **20%** |
| EX-1 | Mobilization & Demobilization | It's possible that the contractor will encounter significant weather-related delays that will impede his ability to mobilize to the site. The project is in Maine, meaning there is potential for ice dams in the channel which may obstruct contractor access. | The PDT finds there to be a credible risk of cost growth related to harsh winter conditions. However, the team intends to mitigate these risks by requiring bidders to demonstrate their ability to achieve a suitable dredging production rate via the DRC. | Marginal | Possible | 1 |

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| EX-2 | Dredge Channel & Dispose in EPDS | It's possible that the contractor will encounter significant weather-related delays that will impede his dredging productivity. The project is in Maine, meaning there is potential for ice dams in the channel which may obstruct contractor access. | The PDT finds there to be a credible risk of cost growth related to harsh winter conditions. However, the team intends to mitigate these risks by requiring bidders to demonstrate their ability to achieve a suitable dredging production rate via the DRC. | Marginal | Possible | 1 |
| EX-3 | Dredge Contam Matl & Place in CAD Cell | It's possible that the contractor will encounter significant weather-related delays that will impede his dredging productivity. The project is in Maine, meaning there is potential for ice dams in the channel which may obstruct contractor access. | The PDT finds there to be a credible risk of cost growth related to harsh winter conditions. However, the team intends to mitigate these risks by requiring bidders to demonstrate their ability to achieve a suitable dredging production rate via the DRC. | Marginal | Possible | 1 |
| EX-13 | Planning, Engineering, & Design | n/a | | Negligible | Unlikely | 0 |
| EX-14 | Construction Management | n/a | | Negligible | Unlikely | 0 |

This estimate captures costs for the preferred alternative for dredging Blue Hill Harbor down to 6-ft below existing depth. The top 2-ft of the harbor sediments are contaminated with petroleum-based products in the tidal reaches and are is to be disposed of in the CAD cell. Alternative assumes that all clean materials will be disposed of in the Eastern Passage Disposal Site (EPDS). CEDEP was used in conjunction with MII to develop this alternative. All work is assumed to be self-performed by the prime contractor.

Escalation for non-CEDEP items taken from Q1FY16 to Q1FY21 for "Navigation Ports & Harbors". No escalation applied to CEDEP items as they are priced using Q1FY21 pricing. Note that the escalation applied in MII is intended to bring all costs to Q1FY21; the remaining escalation is applied in the TPCS report. Contingency set at 0% because it will be applied in TPCS report.



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|---|---|
| Estimated by | J Masey |
| Designed by | L. Jacobs |
| Prepared by | Jeremiah Masey |
| Preparation Date | 5/19/2021 |
| Effective Date of Pricing | 10/1/2020 |
| Estimated Construction Time | 90 Days |

| Description | Quantity | UOM | DirectCost | SubCMU | PrimeCMU | Escalation | Contingency | ProjectCost |
|---|---|---|---|---|---|---|---|---|
| 1.1 Recommended Plan: 6-ft Channel & CAD Cell | 72,950 | CY | 1,579,382 | 0 | 505,194 | 0 | 0 | 2,084,576 |
| 1.1.1 General Requirements | 2 | MO | 78,679 | 0 | 25,167 | 0 | 0 | 103,846 |
| 1.1.2 Mobilization / Demobilization | 1 | EA | 274,825 | 0 | 87,908 | 0 | 0 | 362,733 |
| 1.1.3 Mechanical Dredging | 71,470 | CY | 1,225,878 | 0 | 392,119 | 0 | 0 | 1,617,997 |
| 1.1.3.1 Dredge Channel & Dispose in EPDS | 52,100 | CY | 617,385 | 0 | 197,482 | 0 | 0 | 814,867 |
| 1.1.3.2 Dredge CAD Cell | 19,500 | CY | 214,305 | 0 | 68,549 | 0 | 0 | 282,854 |
| 1.1.3.3 Fill CAD Cell w/ Contaminated Material | 10,600 | CY | 326,692 | 0 | 104,498 | 0 | 0 | 431,190 |
| 1.1.3.4 Cap CAD Cell | 8,800 | CY | 67,496 | 0 | 21,590 | 0 | 0 | 89,086 |
| 1.2 Alternative: 6-ft Channel & Upland Disposal | 71,470 | CY | 4,850,361 | 0 | 1,551,475 | 0 | 0 | 6,401,836 |
| 1.2.1 General Requirements | 4 | MO | 136,663 | 0 | 43,714 | 0 | 0 | 180,378 |
| 1.2.2 Marine Mob/Demob | 1 | EA | 274,825 | 0 | 87,908 | 0 | 0 | 362,733 |
| 1.2.3 Overland Mob/Demob | 1 | EA | 12,456 | 0 | 3,984 | 0 | 0 | 16,440 |
| 1.2.4 Dredging | 71,471 | CY | 1,214,791 | 0 | 388,573 | 0 | 0 | 1,603,363 |
| 1.2.5 Overland Work | 10,591 | CY | 3,211,626 | 0 | 1,027,296 | 0 | 0 | 4,238,923 |
| 1.2.5.1 Loading & Hauling to Offsite Treatment Plant | 1 | EA | 2,424,489 | 0 | 775,516 | 0 | 0 | 3,200,006 |
| 1.2.5.2 Mat'l Dewatering & Processing | 1 | EA | 787,137 | 0 | 251,780 | 0 | 0 | 1,038,917 |
| 1.2.5.2.1 Temp Power to Run Equipment | 1 | EA | 4,263 | 0 | 1,364 | 0 | 0 | 5,626 |