State of Maine

Department of Transportation

Project Number STP – 1745(500)S

PIN 17455.00

Construction of a 110’ Passenger Ferry

Notice to Shipbuilders

Invitation for Sealed Bids

Bid Form

Vessel Construction Agreement

General Index

		Page
Section 1	**Notice to Shipbuilders**	**4**
Section 2	**Invitation for Sealed Bids**	**6**
Section 3	**Bid Form**	**13**
Section 4	**Vessel Construction Agreement**	**18**
Section 5	**Appendices**	**54**

Section 1

Notice to Shipbuilders

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
NOTICE TO SHIPBUILDERS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper **"Bids for the Construction of a 110' Passenger Ferry"** will be received from contractors at the Reception Desk, MaineDOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on June 30, **2010.**

Description: **Project Number STP – 1745(500)S**

Location: **Casco Bay Island Transit District (CBITD), Portland, Maine**

Outline of Work: **Construction of a 110' Passenger Ferry for the CBITD.**

For general information regarding Bidding and Contracting procedures, contact Scott Bickford at (207) 624-3410. Our webpage at http://www.state.me.us/mdot/project/design/homepg.htm contains a copy of the Plan Holders List, written portions of bid amendments (not drawings), and bid results. For Project-specific information fax all questions to **Paul Pottle,** Project Manager at (207) 624-3431. Questions received after 12:00 noon on June 28**, 2010** will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. Hearing impaired persons may call the Telecommunication Device for the Deaf at 888-516-9364.

Plans, specifications and bid forms may be seen at the MaineDOT Building in Augusta, Maine. Bidders who are interested in bidding and who send a Letter of Interest to the project manager before June 18, 2010 will be provided one free copy of the bid book and the plans & specifications on disc. Additional copies may be purchased from the Department at the following rates: $10.00 per each additional disc; $120.00 for full size plans; and $10.00 for each bid book, all non-refundable. Checks should be made payable to Treasurer, State of Maine and sent to Maine department of Transportation, Attn: Mailroom, 16 State House Station, Augusta, Maine 04333-0016 or by calling the mailroom at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Interested bidders must describe in their Letter of Interest their capability to build this replacement ferry vessel. Send Letters of Interest to:

Paul Pottle, Project Manager
Multimodal Program
Maine Department of Transportation
16 State House Station,
Augusta, ME 04333-0016

All Bids must be accompanied by a Bid Bond that complies with Maine DOT's Standard Specifications. Bids must be accompanied by a Bid Bond at 5% of the bid amount or the

amount specified in the Notice to Contractors. It can be in the form of an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order payable to Treasurer, State of Maine as a Bid guarantee.

Please note: the Department will now additionally accept a facsimile of the Bid Bond (for either electronic or paper bids); however, the original Bid Bond must then be received at the MDOT Contract Section within 72 hours after the bid opening. Firms should fax their Bid Bonds to the Contracts Section at 624-3431.

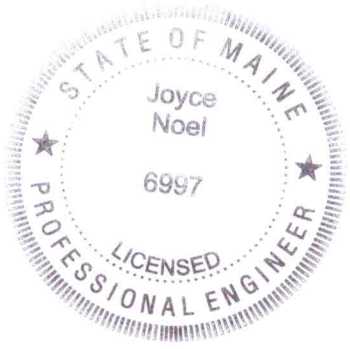
This Contract is subject to all applicable Federal Laws. This contract is subject to compliance with the Disadvantaged Business Enterprise program requirements as set forth by the Maine Department of Transportation.

The 110' Passenger Ferry shall be constructed to Seaworthy Systems, Incorporated Plans (Drawing Series No. 283-32-) and Specifications (Specification for the Construction of a 110' Passenger Ferry for the CBITD), dated May 11, 2010.

The right is hereby reserved to the MaineDOT to reject any or all bids.

Augusta, Maine
May 20, 2010

Kenneth Sweeney P.E.
CHIEF ENGINEER



Section 2

Invitation For Sealed Bids

INVITATION FOR SEALED BIDS

FOR THE CONSTRUCTION OF A 110' PASSENGER FERRY FOR THE CBITD

The Maine Department of Transportation ("Department"), with the approval of the Federal Highway Administration ("FHWA") invites sealed bids from United States citizens for furnishing all labor and materials and performing, in a shipyard located in the United States, all work required for the construction of a 110' passenger ferry in accordance with the plans and specifications entitled: "Specifications for the Construction of a 110' Passenger Ferry for the CBITD" ("Specifications"), dated May 11, 2010, and Drawing Series No. 283-32- ("Plans").

For convenience, the Department shall be called the "Owner", and the bidder for the construction of the vessel to whom an award is made shall be called the "Contractor".

INFORMATION AND INSTRUCTIONS TO BIDDERS

1. **Plans and Specifications:** One Copy of the Plans and Specifications will be provided to bidders who provide the Owner a Letter of Interest. Such Plans and Specifications are dated May 11, 2010, as revised, and designated:

Specifications: "Specifications for the Construction of a 110' Passenger Ferry for the CBITD", dated May 11, 2010.

Plans: Drawing Series No. 283-32-

It is understood that these Plans and Specifications are for use in preparing a bid in response to this Invitation and are not to be used for any other purpose. The Owner will furnish, in the form of addenda to this Invitation, copies of any changes to the Plans and Specifications made by the Owner subsequent to the date of this Invitation to each person who purchases copies of the Plans and Specifications. Bids shall be based upon the Vessel Construction Agreement described in paragraph 4 hereof and said Plans and Specifications, as so changed by addenda. All such changes shall be incorporated in the contract or the Plans and Specifications.

Copies of the Plans and Specifications will be provided to bidders who provide the Owner a Letter of Interest. Interested bidders must describe in their Letter of Interest their capability to build this replacement ferry vessel. Each bidder must identify its contact person, complete address, telephone number and fax number, in the event contact needs to be made.

2. **Form of Bidding – Bid Form:**

Bids shall be submitted in the form as set out in the bid form annexed hereto. Special care should be exercised in the preparation of the bid.
Two (2) signed originals shall be submitted. Erasures or changes in bids must be explained or noted over the signature of the bidder. Each bid must be complete and must be executed in the name of the bidder by its proper officers or other persons authorized to execute and deliver the bid. When requested by the Owner, satisfactory evidence of the authority of the officer signing on behalf of the bidder shall be furnished promptly. The Owner shall not, after the opening of bids, receive, either directly or indirectly, from bidders, or any persons acting for them, any communication, plan or explanation, either oral or in writing, tending to explain or modify their bid in any way whatever unless such communication, plan or explanation is called for by the Owner, which request the Owner shall have the right to make.

Each bid shall include the total price for completion and delivery of the vessel.

3. **Place and Time of Performance:** Each bid must give the location of the plant or shipyard in which the bidder proposes to perform the contract work. Delivery of the vessel must be on a date which does not exceed four hundred thirty (430) calendar days after receipt of the bidder from the Owner of a Notice-to-Proceed. The bid shall be based upon delivery of the vessel to the CBITD pier in Portland, Maine.

4. **Vessel Construction Agreement:** A Vessel Construction Agreement will be furnished to all prospective bidders who are provided with Plans and Specifications. In the event changes are made in said form of agreement, copies of such changes will be transmitted in addenda to this Invitation to prospective bidder to whom copies of the forms of agreement have been furnished. This agreement will be executed and will become the Vessel Construction Agreement. The Vessel Construction Agreement will be a Contract Document, which, together with the other Contract Documents (including addenda issued before bids are opened and signed modifications entered into after award of the Vessel Construction Agreement), will govern all work related to the construction of the vessel.

5. **Bidder' Technical Capability:** The bidder must demonstrate that they have the qualifications, experience and facilities to complete this vessel. The bidder must provide in sufficient detail information regarding the items listed below. This information shall be provided to the Owner by the apparent low bidder, at the request of the Department, prior to an award being made. The bidder will have Twenty (20) days in which to submit this information after the request has been made.

a. Bidder's ability to meet the Specifications, including but not limited to shipyard facilities, organization and key personnel.

b. Experience performing similar projects or projects of higher complexity.
c. Contact names and telephone numbers of at least 3 previous customers that have had similar work performed at the shipyard.
d. Bidder's understanding of the project (include a copy of the Preliminary Master Schedule).
e. Statement of the technical expertise, safety plan, years of service and other qualification that the bidder's yard brings to shipyard services.

6. **Basis for Award:** Award will be made to the lowest qualified bidder.

In the event the Owner, after the time fixed for the receipt of bids hereunder and prior to the award of a contract, shall so request in writing of any bidder, such bidder shall, within five (5) days after receipt of such request, furnish to the Owner two (2) copies of the following financial statements. Failure on the part of a Bidder to furnish the following financial information may result in its bid being rejected.

(1) A copy of audited financial statements for the completed accounting year immediately preceding the date of the bid. The financial statements shall, at a minimum, include a balance sheet and a profit and loss statement, and shall provide an unqualified audit opinion by a licensed independent public accountant in accordance with generally accepted auditing standards promulgated by the American Institute of Certified Public Accountants. Additionally, the bidder shall grant to the Owner the right to examine the books, records, and accounts of the bidder, and the audit working papers of the independent public accountant, if and to the extent deemed necessary by the Owner; and

(2) A brief statement, including references from bidder's bank(s) or financial institution(s), of the nature of any changes in the financial condition of the bidder and the results of his operations since the close of the period covered by the audited financial statements referred to in (1) above.

All Bids must be accompanied by a Bid Bond that complies with Maine DOT's Standard Specifications. Bids must be accompanied by a Bid Bond at 5% of the bid amount or the amount specified in the Notice to Contractors. It can be in the form of an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order payable to Treasurer, State of Maine as a Bid guarantee.

Please note: the Department will now additionally accept a facsimile of the Bid Bond (for either electronic or paper bids); however, the original Bid Bond must then be received at the MDOT Contract Section within 72 hours after the bid opening. Firms should fax their Bid Bonds to the Contracts Section at 624-3431.

The Owner may make disposition of an official bank check, a cashier's check, a certificate of deposit, or a United States postal money order as will accomplish the purpose for which submitted. An official bank check, a cashier's check, a certificate of deposit, or a United States postal money order for the amounts thereof will be returned as soon as practicable to the unsuccessful bidders after the time fixed for opening of bids, and to the successful bidder after execution of the contract and the furnishing of the surety bonds required thereunder.

7. **Withdrawal of Bids:** A bid may be withdrawn on written or e-mail request from the bidder to the Maine Department of Transportation, Contracts Section, 16 State House Station, Augusta, Maine 04333-0016, Attn Scott Bickford (scott.bickford@maine.gov) only prior to the time fixed for receipt of bids hereunder. Any mistake on the part of the bidder in preparing his bid confers no right for the withdrawal of such bid after the time fixed for the receipt of bids.

8. **Bids Received Prior to Time Fixed for Receipt of Bids:** Bids received prior to the time fixed for the receipt of bids will be securely kept and unopened, if properly identified. The Owner will open bids on June 30, 2010 at 11:00 AM prevailing time and no bid received thereafter will be considered. No responsibility shall be attached to any representative of the Owner for the premature opening of a bid.

9. **Identification of Bids:** Each bid shall be enclosed in a sealed envelope and marked, **"COST PROPOSAL - FIXED PRICE BID FOR THE CONSTRUCTION OF A 110' PASSENGER FERRY FOR THE CBITD.",** pursuant to:

   (1) Invitation for Bids
   (2) Vessel Construction Agreement
   (3) Plans and Specifications
   (4) Addendum No. to Invitation
   (List all addenda to the Invitation by number.)

10. **Time for Receipt and Opening:** Bids will be received until 11:00 o'clock AM (Prevailing time) on June 30, 2010.

11. **Acceptance and Rejection of Bids:** The Owner reserves the right to reject any and all bids, in whole or in part, to waive any informality and technicality in any bid and to accept any item or items in any bid.

As indicated in the Bid Form annexed hereto, each bidder is required to agree (1) that his bid will not be withdrawn before the expiration of sixty (60) days after the date fixed for the receipt of bids hereunder and (2) that in the event of the expiration of said sixty (60) day period without an award having been made to the bidder, their bid shall remain in full force and effect until an award is made to the

bidder or until a written notice of the bidder's withdrawal of his bid shall have been received by the Owner.

Bids shall be in strict conformance with the Plans and Specifications and the provisions of this Invitation for Sealed Bids and any modification that may subsequently be made by addenda thereto. Any departure from the Plans and Specifications and the terms of this Invitation, as modified, will result in a bid being held non-responsive and thereby rejected.

12. **Formal Contract and Bonds:** Within fifteen (15) calendar days after notice of intent to award, the Contractor will enter into a written contract in the form described in Paragraph 4 hereof for the awarded contract work and shall furnish the Owner with Performance and Payment bonds, each in the amount acceptable to the Owner and the Contractor, which bonds shall bind the Contractor as principal and the surety or sureties jointly and severally to the Owner. The surety or sureties and form of such bonds shall be satisfactory to the Owner, see Article 26.

13. **FHWA Required Provisions and Clauses:** The bidder shall review and certify that it will abide by the requirements of the FHWA Required Provisions and Required Clauses described in Appendices A and B respectively.

14. **Computation of Time:** All periods of time herein specified shall be computed by including Saturdays, Sundays and holidays, except that, if such period terminates on a Saturday, Sunday or holiday, it shall be deemed extended to the business day of the Contractor next succeeding.

15. **Inquiries:** All inquiries with respect to this Invitation and the bidding documents, including the Plans and Specifications, should be addressed in writing to:

Paul Pottle, Project Manager
Multimodal Program
Maine Department of Transportation
16 State House Station
Augusta, Maine 04333-0016

Inquiries may be faxed to 207-624-3431.

16. **Anti-Trust Hotline:** As part of its continuous surveillance of construction contracts, the U.S. Department of Transportation has established a telephone "Hot Line" to receive information from contractors, suppliers, or anyone with knowledge of anti-trust activities as it relates to bid rigging.

The "Hot Line" telephone number is 1-800-424-9071 and will be manned from 8:00 a.m. to 5:00 p.m. EST or Eastern Daylight Time – weekdays. The operation is under the direction of the U.S. Inspector General.
Information will be treated confidentially and anonymity will be respected.

17. **Disadvantaged Business Enterprise.** In compliance with its obligation to the FHWA, the State of Maine has an established Disadvantaged Business Enterprise (DBE) goal of 5.8 % of total project cost to be achieved through race/gender neutral means for this project.

Contractors are required to extend equal opportunity to certified DBEs in the selection and utilization of subcontractors and suppliers. All Bidders are required to submit, as part of their bid, quotes provided by DBEs. The DBE proposed utilization plan requirements are explained in Appendix D, SPECIAL PROVISION. Signature indicates statement of intended utilization is accurate and reflects the bidder's good faith efforts.

18. **Bidders' Conference:** A bidders' conference will be held from 10:00 AM to 12:00 Noon on June 9, 2010 at the Casco Bay Island Transit District Ferry Terminal conference room, 56 Commercial Street, Portland, Maine. It is anticipated that this conference will include a tour of the Aucocisco II for which the specifications enclosed were originally developed, followed by a question and answer period with representatives of the Transit District and Naval Architects. All clarifications and responses to questions asked by the attendees during the bidders' conference will be provided to all bid book holders via an addendum to be issued shortly after the conference. If questions were asked but not answered in writing through the addendum, then they will need to be asked again in order to receive a formal response. No verbal responses will be allowed to modify the contract documents.

Section 3

Bid Form

FIXED PRICE BID FOR THE CONSTRUCTION OF A 110' PASSENGER FERRY FOR CBITD

1. In compliance with the Invitation for Bids of the Maine Department of Transportation, dated May 17, 2010, Information and Instructions to Bidders, Contract Plans and Specifications for a 110' Passenger Ferry, designed by Seaworthy Systems, Inc., the Vessel Construction Agreement and the Addenda issued pursuant to the said invitation: (herein called the "bidding documents"), which by reference are expressly made a part thereof and incorporated herein, the undersigned,_____ _____hereby proposes to furnish all labor, service, and materials and perform all work required for the construction of a Passenger Ferry, as indicated below, in strict accordance with the terms and conditions of the bidding documents, and the provisions contained in the form of contract issued by the Owner, for the performance of all the work hereunder, and in any changes in such form of contract issued by the Owner, for the following amount, which amount shall be without adjustment for changes in labor, materials or tax costs:

For the construction of a vessel in ACCORDANCE WITH Contract Specifications (Specifications for the Construction of a 110' Passenger Ferry for CBITD", dated May 11, 2010 and Plans (Drawing Series No. 283-32-), with delivery of the vessel to the CBITD's pier at Portland, Maine for the contract base price of: _____ _____ _____Dollars ($_____).

2. The undersigned Bidder agrees to complete and deliver the vessel within Four Hundred Thirty (430) calendar days, including Saturdays, Sundays and Holidays, after date of receipt by the Contractor from the Owner of a Notice-to-Proceed.

3. This contract, which may be amended, modified, or supplemented in writing only, consist of the Contract documents as defined in the Plans, Standard Specifications, Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is understood that this Contract will be governed by the documents listed above.

4. The undersigned Bidder proposes to furnish to the Owner within fifteen (15) calendar days after notice of intent to award, a performance bond in the sum of 100% of the Bid amount pursuant to Article 26 of the Vessel Construction Agreement

5. The undersigned Bidder proposes to furnish to the Owner within fifteen (15) calendar days after notice of intent to award, a payment bond in the sum of 100% of the Bid amount pursuant to Article 26 of the Vessel Construction Agreement

6. The undersigned Bidder proposes that the aggregate amount payable under the performance and payment bonds required pursuant to this Article 26 shall not exceed 100% of the Bid amount, pursuant to Article 26 of the Vessel Construction Agreement.

7. The undersigned also agrees to perform the work at its plant or shipyard located at:

_____

_____

_____

8. By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

A. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.
B. The contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
C. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

9. The Undersigned Bidder agrees to do any extra work, not covered by the contract documents, which may be ordered by the Department's representative and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the Standard Specification, Revision of December 2002, and as addressed in the contract documents.

10. The Undersigned Bidder agrees that the bid guarantee at 5% of the bid amount as identified in the "Notice to Contractors" and accompanying this bid shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

11. The Bidder will be bound to the Disadvantage Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instruction to Bidders) and submit a completed Contractor's Disadvantage Business Enterprise Proposed Utilization Plan with their bid.

12. The undersigned further agrees:

(a) That it will not withdraw the foregoing bid prior to sixty (60) days after the date set for the receipt of the bids.
(b) That in the event said sixty (60) day period shall expire without an award having been made; the foregoing bid shall remain in full force and effect until an award is made to the undersigned or until written notice of the withdrawal of said bid shall have been received by the Owner.

13. The undersigned Bidder accepts and agrees to all the terms and conditions of the Invitation for Bids as fully as if they were separately repeated and agreed to in this bid.

14. The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

15. In accordance with the terms of the subject invitation, this bid proposal is submitted in an sealed envelope and marked, **"COST PROPOSAL - FIXED PRICE BID FOR THE CONSTRUCTION OF A 110' PASSENGER FERRY FOR CBITD."** There are filled and submitted herewith;

(a) Requisite bid guaranty.
(b) Acknowledgement of Bid Amendments.

CONTRACTOR (Bidder)

_____ _____
Date (Signature of Legally Authorized Representative of the Contractor)

_____
(Name and Title Printed)

WITNESS:

_____ _____
(Name) (Office) (Name) (Office)

_____ _____
(Date) (Date)

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The MaineDOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the plan holders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

_____

_____

Date Signature of authorized representative

_____

(Name and Title Printed)

Section 4

Vessel Construction Agreement

Vessel Construction Agreement

INDEX

ARTICLE		PAGE
Definitions		21
Article 1	General Statement of Work	22
Article 2	Plans and Specifications	23
Article 3	Federal Highway Administration Funding	23
Article 4	Owner's Representative	24
Article 5	Contract Price	24
Article 6	Computation of Time	24
Article 7	Construction Schedule	24
Article 8	Inspection of Work and Approval of Plans	25
Article 9	Oversight	25
Article 10	Changes in Contract Documents	26
Article 11	Extension of Time	26
Article 12	Tests and Trials	27
Article 13	Post Trial Inspection	27
Article 14	Delivery of Vessel	28
Article 15	Manuals and Other Documents	28
Article 16	Contract Completion Time	29
Article 17	Guaranty	29
Article 18	Final Acceptance	30
Article 19	Payment of Contract Price	30
Article 20	Value Engineering	31
Article 21	Liquidated Damages	32
Article 22	Default of Contractor	32
Article 23	Termination for Convenience of Owner	34
Article 24	Disputes Resolution	38
Article 25	Insurance	38
Article 26	Surety	40
Article27	Indemnification	41
Article 28	Title	42
Article 29	Rights to Designs and Drawings	43
Article 30	Liens	43
Article 31	Taxes	44
Article 32	Patent Infringement	45
Article 33	Labor Provisions	45
Article 34	Equal Opportunity Provisions	45
Article 35	Plant Protection	46
Article 36	Buy American Act	46
Article 37	Records	48
Article 38	Access to Reports and Records	48
Article 39	Applicability to Subcontractors	49
Article 40	Report of Subcontracting	49

Article 41 Compliance with Laws 49
Article 42 Officials Not to Benefit.....50
Article 43 Other Governmental Requirements.……..…….….. 50
Article 44 Mutual Waiver of Consequential Damages 52
Article 45 Entire Agreement…….…….....53

APPENDIX A FHWA PROVISIONS 55

APPENDIX B OTHER GOVERNMENTAL RULES 93

APPENDIX C OTHER GENERAL PROVISIONS 97

APPENDIX D SPECIAL PROVISIONS..…….100

APPENDIX E SPECIFICATIONS……131

VESSEL CONSTRUCTION AGREEMENT

THIS AGREEMENT is entered into this_____day of_____, 2010 by and between the State of Maine, acting through and by its Department of Transportation (Department),an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, ("Owner")

and

_____ , ("Contractor"), which has a shipyard at _____, United States of America.

WHEREAS, Owner has determined that a need exists to construct a new 110' passenger ferry vessel, ("Vessel");

WHEREAS, Owner has obtained competitive bids from domestic shipyards for the construction of the Vessel, Contractor has submitted a bid, and Owner desires to enter into an agreement with the Contractor for the construction of the Vessel; and

WHEREAS, Contractor represents that it has the facilities, manpower and expertise to construct the Vessel in accordance with the terms of this agreement and the Plans and Specifications

NOW THEREFORE, the parties hereby agree as follows:

DEFINITIONS

1. Agreement shall include the provisions contained in this document entitled "Vessel Construction Agreement", the Plans and Specifications enumerated in Article 2 therein.
2. Commissioner means the Commissioner of the Maine Department of Transportation.
3. Contract means all documents affecting the respective rights and responsibilities of the Owner and the Contractor. These documents include but are not limited to, the Vessel Construction Agreement (which includes the Specifications attached therein), the Notice to Shipbuilders, the Plans, the Bid Amendments, Contract Modifications, Permits, Bid Escrow Documentation (if any), the Contractor's bid documents and bid prices, and all documents incorporated by reference.
4. Contract Documents means all documents, whether physically attached or incorporated by reference, which make up the Contract.
5. Defect means any defect, deficiency, deterioration, weakness, breakdown or failure in any material, machinery equipment or workmanship of the Vessel.
6. Department means the Maine Department of Transportation.
7. Naval Architect means Seaworthy Systems, Inc. of Essex, Connecticut, USA.

8. Notice shall include all written notices, demands, instructions, claims, approvals and disapprovals required to obtain compliance with Agreement requirements. Any written notice by either party to this Agreement shall be sufficiently given if delivered to the other party to this Agreement in person or by certified mail to his last known address, or to his authorized agent, representative or officer in a like manner. The person to whom the notice is delivered shall sign the duplicate copy and return same to the other party immediately after receipt. Failure to sign any duplicate copy shall not invalidate the giving of any notice.
9. Owner's Representative means the person or entity designated to represent Owner during Vessel construction.
10. Project Manager means the Department's duly authorized representative for overall coordination of the Project.
11. Subcontractor includes only those people or entities that have a contractual relationship with the Contractor to perform work related to this Contract.

ARTICLE 1 – GENERAL STATEMENT OF WORK

A. Contractor shall furnish all plant facilities, labor, material and equipment, and shall perform all work necessary to construct, launch, outfit, test and deliver the Vessel, at Contractor's own risk and expense, in strict accordance and compliance with this Agreement except as otherwise provided. Contractor's performance shall include, but not be limited to, the development of additional plans, sketches and technical data ("Contractor-Provided Designs") which are necessary to construct the Vessel in a seaworthy manner but which are not specifically set forth in the Plans and Specifications. Contractor shall also be responsible for the receipt, storage and installation of outfitting and equipment required pursuant to this Agreement. Performance of all work set forth herein shall be for the consideration of the Contract Price. Owner shall be responsible for designs, Plans, Specifications and other information provided by Owner (Owner-Provided Plans). Contractor shall bear no responsibility or liability for defects or deficiencies in Owner-Provided Plans. The Contractor shall bear responsibility and liability for any defects or deficiencies in material, equipment, workmanship and Contractor-Provided Designs.

B. The Vessel shall be identified as Contractor's hull number _____ and shall be constructed at Contractor's plant or shipyard (hereafter "Shipyard"), located at _____, in the State of _____. The Vessel when completed, after passing all requisite tests and trials, shall be delivered to Owner at the CBITD Ferry Terminal in Portland, Maine pursuant to Article 14 (Delivery of Vessel) and Article 16 (Contract Delivery Date).

C. The work to be performed shall be commenced immediately, prosecuted with due diligence and completed, and the delivery of the Vessel, in all respects complying with the terms and conditions of this Agreement and

the Plans and Specifications, shall be made on or before the Contract Delivery Date, as may be extended in accordance with the terms hereof.

ARTICLE 2 - PLANS AND SPECIFICATIONS

A. The Plans and Specifications for the construction of the Vessel are those designated in the document entitled (Specifications) "Specifications for the Construction of a 110' Passenger Ferry For CBITD", dated May 11, 2010, and (Plans) Drawing Series No. 283-32-, Title Sheet and Referenced Drawings. A copy of the Specifications is attached hereto and incorporated as part of this Agreement (APPENDIX E).

B. If any discrepancy, difference or conflict is found to exist between the provisions of this Agreement and the Plans, then to the extent of such discrepancy, difference or conflict only, the provisions of this Agreement shall prevail; but in all other respects the Plans shall be in full force and effect.

C. If any discrepancy, difference, or conflict is found to exist between (1) the Plans and (2) the Specifications, then to the extent of such discrepancy, difference, or conflict only, the Specifications shall prevail but in all other respects the Plans shall be in full force and effect. Any work called for by the Specifications and not shown on the Plans and any work shown on the Plans but not called for in the Specifications shall be performed by the Contractor as part of the contract work.

ARTICLE 3 - FEDERAL HIGHWAY ADMINISTRATION (FHWA)

This Agreement shall be subject to the provisions of the Federal Highway Administration, federal Contract Provisions Supplemental as provided in Appendix . Contractor agrees to conform to and abide by all other terms and conditions set forth by the Federal Government. By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

A. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.

B. The contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

C. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

ARTICLE 4 – OWNER'S REPRESENTATIVE

Owner's Representative shall be vested with authority on behalf of Owner to give directions and to approve actions taken by Contractor in the performance of work under this Agreement. Owner shall designate the Owner's Representative in writing, and shall deliver said writing to Contractor prior to commencement of work.

ARTICLE 5 – CONTRACT PRICE

A. The total consideration for performance of this Agreement is: _____ _____ ($_____) (hereafter "Contract Price") plus or minus any adjustments thereto made pursuant to the terms and conditions of this Agreement.

B. This is a fixed price contract and is not subject to any fluctuation due to the exchange rates, increases in costs of labor, materials or equipment, etc. or any other reasons except any alteration agreed to in writing by the Owner and Contractor.

C. The Owner is a governmental agency and as such is exempt from State of Maine sales tax. Any other sales taxes due to any other state and any other taxes or fees due to any federal, state, or local government or governmental agency shall be the responsibility of the Contractor.

ARTICLE 6 – COMPUTATION OF TIME

All periods of time under this Agreement shall be computed by including Saturdays, Sundays and holidays, except in the event that any such period terminates on a Saturday, Sunday, legal holiday, or other day observed as a holiday under the Contractor's agreement with his production workers, such period shall be deemed extended to the next succeeding business day of the Contractor.

ARTICLE 7 - CONSTRUCTION SCHEDULE

A. All work on the Vessel must be pursued by the Contractor with reasonable urgency and all facets of the construction and fitting-out operation shall occur at the earliest dates at which it is reasonable to do so to meet the Contract Delivery Date.

B. The Contractor shall prepare a final Master Construction Schedule and bar chart and shall submit same to the Owner within three (3) weeks of the date of the execution of this Contract. This Schedule shall cover all trades and shall highlight main equipment deliveries and key events in the progress of the work.

ARTICLE 8 – INSPECTION OF WORK AND APPROVAL OF PLANS

A. All material, equipment and workmanship relative to the construction of the Vessel and Contractor's facilities shall be subject to inspection by Owner, the Owner's Representative or any governmental entity at any and all reasonable times during the performance of the work called for by this Agreement.

B. All working drawings, shop drawings, blueprints, samples, working plans, progress photographs, progress reports, production schedules and other documentation required to be submitted in the Plans and Specifications shall be submitted to Owner or the Owner's Representative by Contractor. The review of those documents will be in accordance with the Maine Department of Transportation's Standard Specifications, Revision of December 2002, Section 105.7 Working Drawings.

C. Owner or the Owner's Representative shall inspect all material, equipment and workmanship as set forth in the Plans and Specifications to determine whether same conform to the requirements of this Agreement and the Plans and Specifications. Owner or the Owner's Representative shall promptly reject all material, equipment and workmanship found not to be in conformance with the requirements of this Agreement or as otherwise set forth in the Plans and Specifications. All material, equipment and workmanship rejected by Owner or the Owner's Representative shall be corrected, repaired or replaced by Contractor at Contractor's expense to the satisfaction of Owner or the Owner's Representative.

ARTICLE 9 - OVERSIGHT

The accredited representatives of the Owner will oversee and may inspect, examine and test the work to be performed under this Contract. The Contractor shall provide access and customary telephone, fax, e-mail, administrative and other facilities during normal working hours, or at other times by arrangement, to the Naval Architect, the Owner's Representative, all other representatives of the Owner, regulatory authorities, surveyors, and to any other person for all necessary and reasonable purposes, to all premises where work under these presents is being carried out or components stored, including those of subcontractors. At all times and places where work is being carried out in accordance with this Contract, the Contractor shall have a responsible person to superintend the carrying out thereof (who may be an employee of the Contractor, or a supplier or subcontractor responsible to the Contractor), and any directions given in writing to such person shall be deemed to have been given to the Contractor, except that where variation to this Contract is involved, the procedure laid down elsewhere in this Contract shall be observed.

ARTICLE 10 – CHANGES IN CONTRACT DOCUMENTS

A. Contractor shall not depart or deviate from the requirements of the Plans and Specifications for the Vessel without prior written authorization of Owner or the Owner's Representative.

B. All changes to the Contract that affect compensation, time, or quality must be made by written Contract Modification. The Contract Modification will describe the underlying issue that resulted in the Contract Modification and will specify adjustments to compensation, time, or other Work requirements, as applicable. If adjustments to compensation or time are not shown on the face of the Contract Modification, then there are no such adjustments.

All Contract Modifications must be signed by the Contractor and the Owner, or the Owner's Representative. By signing a Contract Modification, the Contractor agrees to all the terms thereof and waives any and all claims for additional compensation, time, or other adjustments relating to the issue that is the subject of the Contract Modification.

ARTICLE 11 – EXTENSION OF TIME

A. In the case of any delay in the delivery of the Vessel caused by any event beyond the control of the Contractor, a written "Notice of Delay" shall be given promptly by Contractor to Owner or the Owner's Representative. Said notice shall include the specific cause for the delay, any verification of said cause and the anticipated effect thereof. Said events shall include, without limitation, non-delivery or late delivery of material (but only if Contractor has ordered such material at proper times and has used every reasonable effort to obtain delivery thereof at the time required as determined by Owner's Representative), Acts of God (other than ordinary[1] storms or inclement weather conditions), landslide, earthquake, collision, explosion, lightning, flood, epidemic, fire, strike, lockout or other industrial disturbance, riot, insurrection, war, sabotage, vandalism, blockade, embargo, or delay of subcontractor due to any of such causes (unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit Contractor to meet the required delivery schedule). Within ten (10) calendar days after such cause of delay has ceased to exist, or such longer period as Owner may permit, Contractor shall furnish to Owner a written statement of actual delay to Contractor resulting from such cause.

B. On the basis of written notices, statements and any other information furnished to Owner by Contractor in regard to any delay enumerated above, in combination with information obtained by Owner or the Owner's Representative through independent sources, Owner and Contractor shall enter into good faith

[1] Ordinary weather is defined as anything under gale force winds.

negotiations in an attempt to agree upon the number of calendar days, if any, the Contract Delivery Date of the Vessel shall be extended.

ARTICLE 12 – TESTS AND TRIALS

A. The Contractor shall as soon as possible after the execution of this Contract submit to the Owner a complete schedule of all tests and trials (the "Schedule of Tests and Trials") to be carried out on the Vessel before the Vessel is declared to be ready for acceptance by the Owner. The Owner and the Naval Architect shall have the right to reasonably alter, amend, extend or reduce the said Schedule of Tests and Trials to ensure compliance with this Contract and all applicable Governmental Rules, as of the effective date of this Agreement. Upon completion of all construction as set forth in this Agreement and the Plans and Specifications, the Contractor shall perform all tests and trials set forth in the Schedule of Tests and Trials, which shall include as a minimum all of the requirements set forth in Section 1.13 of the Plans and Specifications. All expenses of such tests and trials shall be borne by the Contractor except to the extent that Owner or the Naval Architect alter, amend or extend the Schedule of Tests and Trials beyond what is reasonably required for compliance with the Contract and applicable Governmental Rules or if the applicable Governmental Rules change subsequent to the effective date of this contract.

B. If, during said tests and trials, the Vessel fails to meet any requirement of the Plans and Specifications or this Agreement, Contractor shall, after taking appropriate corrective action, subject the Vessel to further tests and trials sufficient to demonstrate compliance with this Agreement and the Plans and Specifications. The cost of all such additional tests and trials shall be borne by Contractor.

ARTICLE 13 – POST-TRIAL INSPECTION

After all tests and trials required by this Agreement and the Plans and Specifications have been completed, the Vessel shall be returned to the Shipyard, and in any case where the performance of said Vessel fails to meet any requirement contained in this Agreement and the Plans and Specifications, the Vessel and its equipment shall be opened up for post-trial inspection and examination as required by Owner or the Owner's Representative. All costs of the post-trial inspection shall be borne by Contractor, except to the extent that the Vessel's failure to meet the requirement of this Agreement is due to a defect in the Owner provided design or any owner provided items. Any defect in the material, equipment and workmanship provided by the Contractor; or defects resulting from Contractor-Provided Designs shall be remedied by Contractor at its expense, after which the machinery shall be closed and connected ready for service.

ARTICLE 14 – DELIVERY OF VESSEL

A. When the Vessel has passed all tests and trials required by this Agreement and the Plans and Specifications is complete, or substantially complete as defined below, and after the Owner's Representative and the Naval Architect have jointly issued a certificate (Certificate of Completion of Tests and Trials) of such satisfactory completion it shall be delivered by Contractor and accepted by Owner at the CBITD Ferry Terminal in Portland, Maine, free and clear of all liens except those in favor of a claimant arising out of the acts or omissions of Owner, with not less than five (5) days prior written notice to Owner of such delivery. "Substantially Complete" shall mean complete except for minor items not affecting safety, commercial utility or efficient operation of the Vessel. The parties may agree to stipulate damages in lieu of the Contractor completing such minor items and the Contract Price shall be adjusted accordingly by amendment to this Agreement.

B. Owner shall furnish to Contractor at the time of delivery a Delivery Certificate accepting the Vessel.

C. Such acceptance does not relieve the Contractor of any of its remaining responsibilities under these presents, but acknowledges that the construction, fitting-out, trials and delivery phases of the Contract have been satisfactorily concluded in all material respects.

D. Furthermore, the Contractor will, before delivery is taken, undertake to give adequate familiarization courses in Portland, Maine to the Owner's employees on the arrangements and working of the Vessel, her machinery and equipment.

ARTICLE 15 – MANUALS AND DOCUMENTS

A. The Contractor shall ensure that the Owner is supplied with copies of all relevant instruction manuals and other documents required by the Contract Documents. The Contractor shall obtain at its expense and pass over to the Owner when delivery is taken of the Vessel, or on earlier request, the ship's papers, which shall include, as a minimum:

i. All documents and information of any description required by the Owner to enable the Owner to obtain a Certificate of Registry;
ii. All documents listed in Section 1.5 (Regulatory Body Requirements) and Section 1.15 (Documentation) of the Specifications.
iii. All As-Built Drawings.

B. All Certificates and documents usually framed and mounted shall be so framed and mounted. Where any certificate, manual or document hereinbefore referred to is written in any language other than English, the Contractor shall provide at its expense a copy thereof translated into English by a person suitably qualified to carry out such translation.

ARTICLE 16 – CONTRACT COMPLETION TIME

The Contractor shall have Four Hundred and Thirty (430) Calendar Days from the issuance of the Notice to Proceed, to complete the work on the vessel and deliver it to the Department in Portland, Maine. Such time frame shall be subject to adjustment pursuant to the terms and conditions of this Agreement.

There are no incentive payments for early completion. However, the Owner would accept earlier delivery.

ARTICLE 17 – GUARANTY

A. Contractor guarantees to repair or replace to the reasonable satisfaction of Owner any defect in materials, equipment or workmanship provided by Contractor or any defect resulting from Contractor–provided Designs, which is discovered within twelve (12) months after such Vessel is delivered to Owner, provided that Owner shall within thirty (30) calendar days after discovery of such defect, provide written notice of claim for said defect to Contractor. The Contract requirement of 12 months governs. Owner's failure to timely provide written notice of any defect to Contractor shall constitute a waiver of any and all claims arising out of such defect. With respect to Contractor's guaranty as set forth in this Article, the term "defect" shall not include defects resulting from design of the Vessel provided by the Owner in the Plans and Specifications or the following which may result from use of the Vessel during said guaranty period: (1) ordinary wear and tear; (2) misuse; (3) improper stowage or loading; and (4) negligence of Owner, its agents or employees or the operator or crew of the Vessel.

B. The liability of the Contractor to the Owner hereunder on account of defects shall include the actual repair or replacement thereof. Any work required to be performed pursuant to the provisions of this Section shall be carried out, if practicable, at the shipyard of the Contractor or by the Contractor's own personnel at the Vessel's home port, or at a shipyard of the Contractor's choosing. If this causes undue delays or is not practical in Owner's sole discretion, then the Owner may have such work performed at any shipyard and in that event the Contractor shall be liable to the Owner for the documented expenses thereof at the commercial rate prevailing in such port area, including the cost of dockage of the Vessel, if necessary, with regard to the repair or correction of any defective workmanship or defective material, guaranteed hereunder. Contractor shall guarantee such repair or replacement for an additional period of ninety (90) days from the completion of such repair or replacement, unless such repair and replacement shall occur more than ninety (90) days prior to the expiration of the twelve (12) month guarantee period, in which case such repair or replacement shall be guaranteed until the end of said twelve (12) month period

C. Prior to the expiration of the guaranty period, a final guaranty survey of the Vessel shall be conducted by Owner or the Owner's Representative. At such survey, Owner or the Owner's Representative shall inspect the Vessel for any defects. Such survey shall be held at such port as Owner shall designate. All material, equipment and workmanship guaranteed hereunder, which are found to be defective as a result of said inspection shall be corrected, repaired or replaced by Contractor at its expense to the reasonable satisfaction of Owner or the Owner's Representative. All corrections, repairs or replacements to be made pursuant to said final guaranty survey shall be performed as set forth in Section B of this Article. Owner shall give seven (7) calendar days prior written notice to Contractor of the time and place of the final guaranty survey, and shall give Contractor an opportunity to have a representative present during the survey.

D. Any guaranties from subcontractors to Contractor in excess of the guaranty provisions of this Article shall be assigned by Contractor to Owner at the end of the guaranty period.

E. The remedies contained in this Article 17 shall be Owner's sole and exclusive remedies for defects after delivery, whether under tort, contract, warranty or otherwise and no other guaranties or warranties, whether expressed or implied by law or otherwise are or will be deemed to have been made by contractor. All implied warranties, including warranties of merchantability or fitness for ordinary or intended use are specifically excluded. This guaranty is given in lieu of all other guaranties or warranties or actions in tort (including negligence or strict liability) or contract against contractor. In no event shall contractor's aggregate liability (whether in warranty, tort or contract) exceed the contract price. In no event shall contractor be liable to owner for any incidental, punitive or consequential damages, including but not limited to, loss of use or loss of profits. Notwithstanding any provision contained herein, the Contractor shall remain liable for Liquidated Damages.

ARTICLE 18 – FINAL ACCEPTANCE

The Vessel shall be finally accepted (Final Acceptance) by Owner after the final guaranty survey if the Vessel is found by Owner or its Representative to have been constructed in conformity with this Agreement, the Plans and Specifications and any amendments thereto.

ARTICLE 19 – PAYMENT OF CONTRACT PRICE

Payment on this project will be made following the payment provisions outlined in Section 108 – Payment found in the Maine Department of Transportation, Standard Specifications, Revision of December, 2002 as amended. The bidder will need to provide a schedule of values to the Department prior to an award being made. This schedule will be reviewed and approved by the Department at the time of the award and will form the basis from which to make progress payments on the project. The schedule of Values should have sufficient detail to cover all major components or areas of construction for

the vessel as well as provide an amount for mobilization, bonds and insurance. All areas listed should be measurable and may require receipt of invoices at time of payment for materials and equipment. It is proposed to make payments on a monthly basis, unless the amount of work warrants a quicker schedule and it is agreed to by the Department. Payments will not be done more frequently then twice a month.

The making of partial payments shall in no way prevent Owner or the Owner's Representative from asserting any right or remedy accruing to them under this Agreement because of the failure of Contractor to perform the work or deliver the completed Vessel in accordance with the terms of this Agreement.

When the Contractor considers that an installment payment is about to fall due, he will give the Owner fourteen (14) days notice thereof. The Contractor will then prepare an invoice, addressed to the Owner and Owner's Representative who will, on being satisfied that the relevant work has been completed, certify the same for payment and promptly advise the Owner accordingly. The Owner will settle process the invoice for payment.

All payments made by the Owner to the Contractor are so made strictly on the condition that all sums due by the Contractor to its suppliers and subcontractors are promptly and fully paid. Owner reserves the right to request executed waivers of liens and other claims of any or all such suppliers and subcontractors as a condition of making any of the required payments.

ARTICLE 20 – VALUE ENGINEERING

A. Contractor may submit to Owner written proposals for modifying the Plans and Specifications for the purpose of reducing the total cost of construction of the Vessel. The proposals shall be identified as Value Engineering Proposals, hereafter "V.E. Proposals". Such V.E. Proposals shall contain the following information.

1. A description of the proposed change, with specific reference to the pertinent existing requirements in the Plans and Specifications;
2. A detailed estimate of the cost of performing the work under the existing requirements and under the proposed change;
3. The date by which Owner must approve or disapprove the proposed change.

B. Owner shall be the sole judge of both the technical acceptability of each V.E. Proposal and the estimated net savings to be derived therefrom. Owner may reject each V.E. Proposal in writing within the time specified by Contractor in said Proposal. If Owner does not approve any V.E. Proposal within the time so specified, said V.E. Proposal shall be deemed to be rejected. Any determination made by Owner pursuant to this Article shall not be subject to the provisions of Article 24 (Dispute Resolution).

C. In the event Owner accepts any V.E. Proposal, such acceptance shall be evidenced by a written Change Order which states that said Order is made pursuant to this Article. Said Change Order shall provide for a reduction in the Contract Price to the extent of fifty percent (50%) of the net cost decrease and any change upon the Contract Delivery Date. Such an Order shall constitute an amendment to this Agreement.

D. Until a Change Order incorporating any V.E. Proposal has been executed, Contractor shall continue to perform the work in accordance with the existing requirements of this Agreement and the Plans and Specifications.

E. The delivery date shall not be extended by Owner's acceptance of Contractor's V.E. Proposal unless such extension is specifically provided for in the Change Order. Owner reserves the right to adopt any V.E. Proposal under this Agreement for general use on other contracts administered by Owner.

ARTICLE 21 – LIQUIDATED DAMAGES

In the event Contractor fails to deliver the Vessel on or before the Contract Completion Time or any extension thereof, Contractor shall pay to Owner as liquidated damages, and not as a penalty, the following amounts for each calendar day or part thereof elapsing from said Contract Completion Time (In Accordance with Article 16) to the date upon which the Vessel is actually delivered:

A. Five Hundred Dollars ($500.00) for each calendar day for the first 100 days,

B. One Thousand Dollars ($1,000.00) for each calendar day for the next 100 days,

C. One Thousand Five Hundred Dollars ($1,500.00) thereafter.

These liquidated damages which the parties each believe to be reasonable, are not set as a penalty for the Contractor's breach, should one occur, nor are they intended to be a windfall to the Owner. The amount fixed herein between the parties is a reasonable forecast of the amount necessary to justly compensate the Owner for the loss occasioned by the Contractor's breach of delivery.

In the event that liquidated damages exceed 10% of the contract price, the parties agree that this provision may be revised.

ARTICLE 22 – DEFAULT OF CONTRACTOR

A. The following circumstances shall constitute default of Contractor under this Agreement:

1. The failure of Contractor to make delivery of the Vessel and its materials, fittings, equipment and supplies, and failure to perform the services

required under this Agreement within the time specified herein or any extension thereof;

2. The failure of Contractor to perform any of the other provisions of this Agreement or failure to make progress such that performance in accordance with its terms is endangered. Such failure may include, but is not limited to, failure to make timely payment for all labor, materials, services and other charges which are to be paid by Contractor;
3. The dissolution of Contactor or the adjudication of Contractor as a bankrupt; the making of a general assignment by Contractor for the benefit of creditors; the appointment of a receiver of any kind whatsoever, temporary or permanent, for the property of Contractor; or the filing of a petition for reorganization with reference to Contractor, whether by Contractor, its creditors, stockholders or any other person whatsoever; or

B. Where the failure of Contractor to comply with the provisions of this Agreement arises out of Acts of God or other events beyond the control of Contractor as contained in Article 22, Section A above, such failure shall not be considered default under this Article.

C. In the event of default by Contractor as defined in Section A of this Article, Owner may terminate this Agreement in whole or in part. Upon such termination, Owner shall give written Notice of Default to Contractor. Owner shall give Contractor fifteen (15) calendar days from the receipt of such Notice the opportunity to cure only such failure as set forth in Section A (2) of this Article in a manner satisfactory to Owner.

D. In the event that Owner terminates this Agreement in whole or in part as provided in Section C of this Article, Owner may procure the Vessel, supplies or services similar to those terminated. Contractor shall be liable to Owner for any reasonable and documented costs for such similar Vessel, supplies or services which are in excess of the Contract Price or that portion of the Contract Price attributable to the part of the contract work performed by one other than Contractor. Contractor shall continue to perform the contract work to the extent said work is not terminated pursuant to this Article.

E. If this Agreement is terminated by Owner under this Article, Owner may require Contractor to transfer title (insofar as not previously transferred) and deliver to Owner, in the manner and to the extent directed by Owner, the completed Vessel or the Vessel as partially completed and all supplies, materials, spare parts, tools, dies, jigs, fixtures, plans, drawings, information and contract rights as Contractor has constructed, produced or acquired for the portion of this Agreement subject to termination. Owner shall require Contractor to protect and preserve property in possession of Contractor in which Owner has an interest. Owner shall pay to Contractor an amount commensurate with Contract Price, less the contract value of the terminated work, less all previous payments made under Article 19

(Payment of Contract Price), and an amount to be agreed upon by Contractor and Owner for the protection and preservation of property.

F. In the event Owner terminates this Agreement under this Article and elects to have the contract work completed by another, Contractor shall, at Owner's direction, assign such subcontracts and orders for materials, equipment, services and supplies to be used in the performance of said contract work to Owner.

G. In the event that Owner terminates this Agreement under this Article and elects not to have the contract work completed, Owner may, within one hundred twenty (120) calendar days from the date of termination, sell the partially completed Vessel, work-in-process, materials, machinery, fittings, equipment and supplies to which Owner has title, together with all plans, specifications, calculations and other records required for the contract work. Such sale shall be made free from any equity of redemption and may occur without any appraisal or valuation at the option of Owner. The purchaser at such sale shall be given reasonable time, not to exceed forty-five (45) days, within which to remove the Vessel and other property purchased from the plant of Contractor. Owner may become a purchaser at such sale. The proceeds of the sale shall be applied in the following order of priority: first, to satisfy all costs and expenses, including reasonable attorneys fees incurred by Owner or its assigns in making such sale; second, to reimburse Owner for payments already made by Owner to Contractor; and third, to pay damages, demands or deficiencies arising by reason of the default of Contractor. The remaining proceeds, if any, shall be paid over to Contractor. In the event that the proceeds of such sale are not sufficient to pay the above priority items, the Contractor or its surety or sureties shall pay Owner all such deficiencies.

H. The rights conferred upon Owner under the terms of this Article shall be in addition to any rights which Owner would have at law or equity upon default of Contractor. The failure of Owner to exercise any rights contained in this Article shall not constitute a waiver of Owner's right to subsequently terminate this Agreement as set forth in Article 23 (Termination for Convenience of Owner).

ARTICLE 23 – TERMINATION FOR CONVENIENCE OF OWNER

Notwithstanding Article 22 (Default of Contractor) of this Agreement:

A. Performance of work under this Agreement may be terminated by Owner in whole or in part whenever Owner determines for any reason that termination is in the best interest of the State of Maine. Such determination shall not be subject to Article 24 (Dispute Resolution). Any such termination shall occur by Owner's delivery to Contractor of a Notice of Termination specifying the extent to which performance of work under this Agreement is terminated and the date on which termination becomes effective. Upon receipt of a Notice of Termination and except as otherwise directed by Owner, Contractor shall:

1. Stop work to the extent specified in the Notice of Termination;
2. Place no further orders or subcontracts for materials, equipment, services or facilities except as may be necessary for completion of such portion of the work which is not terminated;
3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;
4. Assign to Owner all rights, title and interest of Contractor under any orders or subcontracts so terminated, in the manner, at the times and to the extent directed by Owner;
5. Settle all outstanding liabilities and claims arising out of such termination of said orders and subcontracts to the extent that Owner may require and with the approval or ratification of Owner, which shall be final;
6. Transfer title (to the extent that title has not already been transferred to or vested in Owner) and deliver to Owner, in the manner, at the times and to the extent directed by Owner the following:

    a. the fabricated or unfabricated parts, work-in-process, completed work, supplies and other material produced as a part of or acquired in connection with the performance of the work terminated by the Notice of Termination; and
    b. the completed or partially completed plans, drawings, information and other property which, if this Agreement had been completed, would have been required to be furnished to Owner.

7. Use its best efforts to sell, in the manner, at the times, to the extent and at the price or prices directed or authorized by Owner, any property of the types referred to in Section A(6) of this Article; provided, however, that Contractor:

    a. shall not be required to extend credit to any purchaser; and
    b. may purchase any such property under the conditions prescribed by and at the price or prices approved by Owner.

8. Take such action as may be necessary, or as Owner may direct, for the protection and preservation of the property related to this Agreement which is in the possession of Contractor and which Owner has acquired or may acquire an interest.

Within sixty (60) calendar days of receipt of the Notice of Termination, Contractor shall submit to Owner a list, certified as to quantity and quality, of any or all items not previously disposed of, exclusive of items the disposition of which has been directed or authorized by Owner, and may request that Owner remove or enter into a storage agreement for such items. Within forty-five (45) calendar days of receipt of such list, Owner shall remove or enter into a storage agreement for said items. The list submitted shall be subject to verification by Owner upon

removal of the items. If the items are stored, such verification shall occur within thirty (30) calendar days from the date of the storage agreement. Any necessary adjustments to correct the list as submitted shall be made prior to final settlement.

B. After receipt of a Notice of Termination, Contractor shall submit to Owner in writing its final claim for any and all amounts that the contractor asserts are due under the Contract, in the form and with the certification if any is prescribed by Owner. Such claim shall be submitted promptly, but in no event later than one (1) year from the effective date of termination, unless extended in writing by Owner within such one (1) year period or any authorized extension thereof. However, Owner may determine that facts justify receipt of such final claim at any time after such one (1) year period or any extension thereof. Upon failure of Contractor to submit its final claim within the time allowed, Owner may determine, on the basis of information available to it, the amount that is due and shall thereupon pay to Contractor said amount.

C. Contractor and Owner may agree upon any or all amounts to be paid to Contractor by reason of the total or partial termination of work pursuant to this Article, which may include a reasonable allowance for profit on work done. Such agreement shall be memorialized in a written amendment to this Agreement. The parties may stipulate that this Agreement constitutes a full and final settlement of all amounts owed under this Agreement.

D. In the event of the failure of Contractor and Owner to agree as provided in Section C of this Article on the amount to be paid Contractor, Owner shall determine the amount, if any, due Contractor based upon the following:

1. For completed contract work accepted by Owner (or sold or acquired as provided in Section A (7) of this Article) and not paid for, a sum equivalent to the aggregate price for such contract work computed in accordance with this Agreement;
2. The total of:

    a. The costs incurred in the performance of the contract work terminated, including initial costs and preparatory expenses allocable thereto, but exclusive of any costs attributable to contract work paid or to be paid for under Section D (1) of this Article; and
    b. The cost of settling and paying claims arising out of the termination of work under subcontracts or orders, as provided in Section A (5) of this Article, which are properly chargeable to the terminated portion of this Agreement, but exclusive of amounts paid or payable on account of contract work or materials delivered or services furnished by subcontractors or vendors prior to the effective date of the Notice of Termination, which amount shall be

included in the costs payable under Section 2 (a) of this Article; and

c. The reasonable costs of settlement, including accounting, legal, clerical and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of this Agreement and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation and other costs incurred in connection with the protection or disposition of property allocable to this Agreement.

3. The total sum to be paid Contractor under Sections D(1) and D(2) of this Article shall not exceed the total Contract Price as reduced by the amount of payments otherwise made and as further reduced by the Contract Price of work not terminated. Except for normal spoilage, and except to the extent that Owner shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to Contractor as provided in Sections D(1) and D(2)(a) of this Article, the fair value, as determined by Owner, in connection with materials, equipment, fittings and supplies which are destroyed, lost, stolen or damaged so as to become undeliverable to Owner or to a buyer pursuant to Section A(7) of this Article.

F. In arriving at the amount due Contractor under this Article, there shall be deducted:

1. All advances or other payments on account made to Contractor,
2. Any liquidated or finally determined claim which Owner may have against Contractor in connection with this Agreement, and
3. The agreed price for or the proceeds from sale of any materials, equipment, supplies or other items acquired by Contractor or sold pursuant to the provisions of this Article and not otherwise recovered by or credited to Owner.

G. If the contract work is partially terminated, Contractor may file with Owner a request in writing for an equitable adjustment of the Contract Price relating to the non-terminated portion of this Agreement prior to the settlement of the terminated work.

H. Owner may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs set forth in Sections 2(a) and 2(b) of this Article whenever, in the opinion of Owner, Contractor is entitled to such payments. If the total of such payments is in excess of the amount finally agreed or determined to be due under this Article, such excess shall be payable by Contractor to Owner upon demand.

I. Contractor shall preserve and make available to Owner all books, records, documents and other evidence bearing on the costs and expenses of Contractor under this Agreement and relating to the work terminated hereunder pursuant to Article 40 (Compliance with Laws)

ARTICLE 24 – DISPUTE RESOLUTION

Unless expressly stated otherwise in this Agreement, any action, omission, direction, decision, interpretation or determination of Owner, its Representative, or Contractor may be the subject of a dispute. Any dispute arising under this Agreement must be raised in a timely manner. The parties shall negotiate in good faith to resolve any disputes arising in connection with this agreement. The Contractor must first informally negotiate with the Project Manager to resolve the dispute within 15 days of the date when the dispute becomes apparent to the Contractor. In the event that the parties are unable to amicably resolve the dispute through informal negotiations, the dispute shall be submitted to an arbitrator (hereafter "Arbitrator") from the American Arbitration Association, and who has been approved by Owner and Contractor. All rules of the American Arbitration Association shall apply. Arbitrator shall reduce his decision in writing and shall mail or otherwise furnish a copy thereof to Owner, the Owner's Representative, and Contractor.

Regardless of the status or disposition of any dispute, the Contractor and the Owner must perform their contractual responsibilities promptly and diligently. Unless expressly directed otherwise by the Owner, the Contractor shall proceed without delay to perform the work or to conform to the decision or order of the Owner.

ARTICLE 25 – INSURANCE

A. Insurance and Loss.

1. The Contractor shall at its own cost fully insure and keep insured in the joint names of the Owner and the Contractor the Vessel and the machinery, materials and things used or intended for use in the construction and outfit thereof equivalent to the value of these or a sum of not less than the total of installments paid by the Owner plus ten per cent (whichever is greater). Further, the Contractor shall at its own cost fully insure and keep insured in the joint names of the Owner and the Contractor all modifications, spare parts, and additional equipment provided by the Owner as may be agreed upon from time to time during the construction of the Vessel.

2. All Insurance Policies shall be placed with an insurance company or companies licensed or approved by the State of Maine, Department of Business Regulation, Bureau of Insurance, to do business in the State of Maine. Contractor shall provide Owner with Certificates of Insurance accompanied by the copies of the related policies. Said insurance policies shall protect the Vessel against losses resulting from fire, launching and all other risks, accidents and damages (excluding War Risks) during and after

the construction of the Vessel, whilst she remains in the harbor or the port of construction, when she is engaged on, or in connection with, any trials or delivery made under this Contract and until the time the Vessel is delivered to the Owner. The Contractor shall from time to time renew the said insurance policies prior to their expiration and shall pay and continue to pay all premiums that become payable in respect of such insurance. Within seven days from the date when such renewed insurance becomes effective, or the premium paid, the Contractor shall deliver to the Owner certificates that prove the policy or policies of insurance have been purchased. If, however, the Contractor defaults on such insurance, fails to keep up the said insurance or fails to obtain any such renewal of insurance as aforesaid, then the Owner shall be at liberty to procure insurance and thereupon the Contractor shall repay to the Owner the amount of the premiums paid, or the Owner shall be at liberty, at its option, to deduct the amount thereof from any sums payable to the Contractor under this Contract. Nothing herein contained nor anything done or omitted to be done by the Owner in pursuance thereof shall diminish or affect the Contractor's obligation to keep the Vessel, machinery, material and things insured to the full amount of their value in accordance herewith until the vessel is accepted, nor shall it diminish or affect the liability of the Contractor in respect thereof. All such policies shall name the Owner as additional insured and shall be non-cancelable except on ten (10) days prior written notice to the Owner.

3. If any event shall happen giving rise to a claim under any insurance policy to be effected under this Section, or if the Vessel shall become a total or constructive total loss before Acceptance by the Owner, the Owner (without prejudice to its rights to have this Contract performed within such extended time and at such price as may be mutually agreed) shall receive the moneys which shall become payable under whichever of the policies the claim shall arise and retain the same, paying the Contractor the difference between the aggregate of such sums as they may have previously paid the Contractor under this Contract and such total amount as the Naval Architect may certify would have been payable to the Contractor if this Contract had been terminated at the time of the event giving rise to the claim. The Owner may, at its discretion, instruct the Contractor to arrange War Risk insurance, and the Contractor is then obliged to do so without delay, but all costs involved are at Owner's expense.

B. Termination.

In the event the Contractor defaults on such insurance, fails to maintain the insurance or fails to obtain any renewal of insurance as aforesaid, the Owner may terminate this contract for construction of any further portion of the Vessel and the Owner shall not be obligated to pay any damages or additional money to the Contractor pursuant to this Contract.

ARTICLE 26 – SURETY

A **Performance and Payment Bonds**

Contractor agrees to furnish Owner, within 15 days of the execution of this Agreement, the following bonds upon which Contractor and its surety or sureties are jointly and severally bound to Owner. The identities of the sureties must be satisfactory to Owner. Sureties offered for bonds must appear on the list contained in the Beneficiary of Treasury Circular 570, "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies. The form and sufficiency of the surety or sureties shall be satisfactory to Owner and the final execution of the contract shall be contingent on an agreement as to the amounts for both the performance and payment bonds as set forth below:

1. A Performance Bond in the sum of 100**%** of the Bid amount conditioned upon the well and true performance and fulfillment of all undertakings, covenants, terms, conditions and provisions of this Agreement during its original term and any extensions, amendments or modifications thereof that may be granted by Owner or the Owner's Representative, with or without notice to the surety and during the life of any guaranty required under this Agreement.
2. A Payment Bond in the sum of **100%** of the Bid amount conditioned upon Contractor making prompt payment to all persons supplying Contractor or its subcontractors of any tier with labor, materials, equipment and supplies in the performance of the work provided for in this Agreement during its original term and any extensions, amendments or modifications thereof that may be granted by Owner or the Owner's Representative, with or without notice to the surety.
3. All Bids must be accompanied by a Bid Bond that complies with Maine DOT's Standard Specifications. Bids must be accompanied by a Bid Bond at 5% of the bid amount or the amount specified in the Notice to Contractors. It can be in the form of an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order payable to Treasurer, State of Maine as a Bid guarantee.

   Please note: the Department will now additionally accept a facsimile of the Bid Bond (for either electronic or paper bids); however, the original Bid Bond must then be received at the MDOT Contract Section within 72 hours after the bid opening. Firms should fax their Bid Bonds to the Contracts Section at 624-3431.

If any surety upon any bond furnished under this Article becomes unacceptable to Owner or if any surety fails to furnish information as to its financial condition from time to time as required by Owner, Contractor shall promptly furnish such additional security as may be required by Owner to protect the interests of Owner and of persons supplying

Contractor or its subcontractors of any tier with labor, materials, equipment or supplies in the performance of the work covered by this Agreement.

B Letter Of Credit

In the absence of a payment and performance bond, Owner may consider as an alternative the issuance to Owner a standby letter of credit (L/C) in a form acceptable to Owner issued by a federally insured financial institution rated investment grade or higher by a recognized commercial rating service. The L/C shall be irrevocable, require presentation of no document other than a written certificate of Owner, a sight draft and the original L/C to the issuing financial institution, and shall expire only as provided below.

If the Contractor does not furnish an acceptable replacement L/C, or other acceptable substitute, at least 30 days before the L/C's scheduled expiration, the Owner may immediately draw on the L/C.

The L/C shall remain in effect until the later of 60 days following final payment or the expiration of any warranty period. The L/C shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the L/C is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Owner provides the financial institution with a written statement waiving the right to payment.

ARTICLE 27 – INDEMNIFICATION

Contractor shall indemnify, defend and hold harmless Owner, its employees and agents, the Owner's Representative and the Vessel against any and all claims, actions, causes of action, demands, losses, penalties and damages of any nature whatsoever, arising from any direct or indirect act, omission, neglect, or default of Contractor, its agents and employees, subcontractors or their agents and employees, including any and all actions for contribution and/or indemnity, any and all claims arising from injury to or death of employees, workmen, trespassers, licensees and all other persons, whether in, on or about the contract work, and any and all claims arising from damage to or loss of property of third parties due to, including reasonable attorneys fees. It is agreed that the workmen and employees engaged in the construction of the Vessel shall at all times be employees of Contractor or its subcontractors and shall not be the employees of Owner or the Owner's Representative. This agreement of Contractor to indemnify, defend and hold harmless shall not apply to any injury to, or death of, any person, or to any damage to or loss of property of third parties occurring after delivery of the Vessel to the Owner; except, that said indemnification shall be applicable to such injury, death or damages occurring during the period or periods the Vessel is in Contractor's Shipyard or under Contractor's contract work supervision for the performance of work or repairs required by Articles 13 (Post Trial Inspection)and 17 (Guaranty). Any death after delivery of the Vessel caused by an injury occurring before such delivery due to any direct or indirect

act, omission, neglect or default of Contractor, its employees, its subcontractors or their employees shall not be excluded from the indemnity provisions provided for under this Article solely for the reason that such death occurred after delivery of the Vessel. This indemnification does not extend to a claim that results solely and directly from (a) the Owner's negligence or unlawful act, or (b) action by the Contractor taken in reasonable reliance upon an instruction or direction given by an authorized person acting on behalf of the Owner in accordance with the contract.

ARTICLE 28 – TITLE

Title to the Vessel under construction and title to materials, machinery, equipment, fittings and supplies delivered, bought or ordered for use in the construction of said Vessel shall vest in Owner to the extent of any payments made thereon, at the point when such materials, equipment, fittings and supplies are delivered to Contractor's plant or other place of storage located elsewhere and approved by Owner. Accumulated payments by Owner to Contractor under Article 19 (Payment of Contract Price) shall be deemed sufficient to cover the value of all material, machinery, equipment, fittings and supplies located at the Contractor's plant or in storage elsewhere, provided, however, that the risk of loss or damage to such materials, machinery, equipment, fittings and supplies and the Vessel itself shall remain with Contractor, and Owner shall not be deemed to have waived the right to require Contractor to repair or replace defects at Contractor's expense and to deliver the Vessel with all contract work completed as required by this Agreement. Contractor shall have equity in such materials, machinery, equipment, fittings and supplies and completed contract work to the extent not paid for by Owner. Owner may, by written direction, require that title vest in Owner upon delivery of such materials, machinery, equipment, fittings and supplies to the carrier for transportation to Contractor's plant or other place of storage. Title to all scrap material and to all material which is surplus to the requirements of this Agreement shall vest in Contractor.

Notwithstanding the provisions of this Article, Contractor shall be subject to the risk of loss of the Vessel and all materials, machinery, equipment, fittings and supplies until the Vessel is delivered to Owner in accordance with Articles 14 (Delivery of Vessel) and 16 (Contract Completion Time).

Contractor shall procure a release(s) from any party holding a UCC security interest or other liens covering the Vessel, all materials, supplies and parts which are used or intended to be used for the construction of the Vessel and any insurance proceeds (the "Owner's Property").

Without impairing or releasing the title vested in Owner, in order to fully ensure that title to the Owner's Property for which Owner has paid rests with Owner, this Agreement shall also be constitute the grant by Contractor of a UCC security interest to Owner covering the Owner's Property.

Contractor hereby irrevocably authorizes Owner from time to time to file in any Uniform Commercial Code jurisdiction any initial financing statements and amendments

or addendums thereto that: (a) indicate the Owner's Property is the property of Owner; and (b) contain any other information required by Part 5 of Article 9 of the applicable Uniform Commercial Code for the sufficiency or filing office acceptance, including (i) whether Contractor is an organization, the type of organization and any organization identification number issued to the Contractor. Contractor agrees to furnish any such information to Owner promptly upon request.

Contractor covenants with Owner that without providing at least 30 days prior written notice to Owner, (a) Contractor will not change its name, its place of organization or incorporation or, its mailing address or organizational identification number if it has one, (b) if Contractor does not have an organizational identification number and later obtains one, Contractor shall forthwith notify Owner of such organizational identification number, and (c) Contractor will not change its type of organization, jurisdiction of organization, or other legal structure without Owner's prior written consent.

Contractor will promptly execute any financing statements or other instruments deemed necessary by Owner to prevent any filed financing statement from becoming misleading or losing its perfected status. The information contained in this Section is provided in order that this Agreement shall comply with the requirements of the Uniform Commercial Code, as enacted in the in which the Vessel is being constructed, for instruments to be filed as financing statements.

The remedies for any violation of the covenants, terms and conditions of the security agreement herein contained shall be (i) as prescribed herein, or (ii) as prescribed by general law, or (iii) as prescribed by the specific statutory consequences now or hereafter enacted and specified in said Uniform Commercial Code, all at Owner's sole election. Contractor and Owner agree that the filing of such financing statement(s) shall never be construed as in any wise derogating from or impairing the Owner's title to the Owner's Property.

ARTICLE 29 – RIGHTS TO THE DESIGN AND DRAWINGS

No part of the plans or drawings or other relevant information is to be made available by the Contractor to any other party, except as required to fulfill the contract obligations, without the prior written approval of Owner and Naval Architect. The Contractor shall not use, or allow the use of, all or any portion of the design of the vessel, or of all or any portion of the Specifications, Plans, or Drawings (including but not limited to the Bid Documents and the As-Built Drawings), without the prior written approval of both the Owner and Naval Architect, which approval can be withheld for any or no reason.

ARTICLE 30 – LIENS

A. At the time Contractor requests any payment under this Agreement, Contractor must give written guaranty to Owner that the Vessel, its materials, equipment,

fittings and supplies and every part thereof is free and clear of any and all liens or rights in rem of any kind, except such liens in rem arising of Owner's other contractors, suppliers and materialmen, or arising as a result of Owner's default in payment to Contractor. Contractor shall furnish evidence satisfactory to Owner that the Vessel, materials, equipment, fittings and supplies are free and clear of such liens or rights in rem.

B. If such a lien or right in rem as Contractor is required to guaranty against hereunder is filed or asserted against or attached upon the Vessel, any materials, equipment, fittings or supplies, Contractor shall promptly notify Owner of such lien or right in rem and shall no later than fifteen (15) calendar days thereafter secure the discharge or release of such lien or right in rem. If such release or discharge is not available under the law, Contractor shall immediately take such steps as in the opinion of Owner shall prevent such lien or right in rem from delaying the contract work, and shall indemnify and hold harmless Owner from all costs, charges and damages by reason of such lien or right in rem.

C. Owner, at its option, may satisfy the claim upon which such lien or right in rem as Contractor is required to guaranty against hereunder is based in order to secure its discharge or release. In such event, Owner shall deduct such sum from any payments due or to become due Contractor. In the event that the cost of satisfying such lien or right in rem is in excess of the amount which is due or to become due Contractor, Contractor shall pay the amount of such excess to Owner upon demand.

D. Owner may also, at its option, without securing the discharge or release of such lien or right in rem as provided in paragraph C above, withhold any payments due or to become due Contractor in an amount which is determined by Owner to be required to secure the release or discharge of such lien or right in rem, which amount shall include the estimated amount of all expenses reasonably expected to be incurred by Owner in connection therewith; provided, however, that Contractor has not released or discharged such lien or right in rem.

ARTICLE 31 – TAXES

Contractor shall pay all United States, State, County, City, sales, use, excise or other taxes, assessments and duties lawfully assessed or levied prior to or concurrently with delivery of the Vessel against the Vessel and materials, equipment, fittings and supplies either to be used or actually used in the performance of this Agreement. All questions on the State of Maine taxes may be addressed to:

State of Maine
Department of Administrative & Financial Services
Maine Revenue Services
24 State House Station
Augusta, Maine 04333-0024 Telephone: 207-287-2076

ARTICLE 32 – PATENT INFRINGEMENT

Contractor shall be responsible for any and all claims against Owner or Vessel for infringement of patents or patent rights in the construction or use of the Vessel arising out of Contractor's workmanship, materials, equipment and Contractor-Provided Designs. Contractor shall defend, hold harmless and indemnify Owner, the Owner's Representative and the Vessel against all such patent claims and all costs, expenses, charges and damages which Owner, the Owner's Representative or the Vessel may be obligated to pay by reason of such patent claims, including all expenses of litigation and reasonable attorney's fees. Owner shall notify Contractor promptly of any patent claim or any suit brought in connection therewith, and shall give Contractor an opportunity to defend against such suit. Owner shall make no payment on account of any patent claim or suit in connection therewith, unless either with the consent of Contractor or pursuant to the decree of a proper court or tribunal. Contractor shall not be responsible for any patent claim or claim for indemnity arising in connection therewith, which arises out of or in connection with the design of the Vessel or any Owner-Provided Plans

The Contractor shall pay all royalties on patented articles, import duty, and other taxes.

ARTICLE 33 – LABOR PROVISIONS

This Agreement is controlled by the labor provisions set forth in Appendix A, FHWA Required Provisions. In order to apply Davis-bacon wage rates, location specific prevailing wage determinations must be incorporated into the bid package. Since the department does not know the location where the work will take place, it is not practical to incorporate the prevailing wage determination in the contract. This is consistent with the US DOL Wage and Hour Office policy in their Field Operations Handbook *15d08 - Shipbuilding, Alteration, Repair, and Maintenance*. This contract will require that at least the minimum federal or state wage rate (whichever is greater) be paid as a minimum to all employees associated with the work of the contractor or any of its subcontractors.

In order for the Department to report the number of hours worked associated with this project, the Department will require Electronic Payroll Submission. The prime contractor and all subcontractors and lower-tier subcontractors will submit their certified payrolls electronically on this contract utilizing the Elation System web based reporting. There is no charge to the contracting community for the use of this service. The submission of paper payrolls will not be allowed or accepted. Additional information can be found at http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php under the first "Notice".

ARTICLE 34 – EQUAL OPPORTUNITY PROVISIONS

Contractor shall comply with the equal opportunity provisions set forth in Appendix A, FHWA Required Provisions; Appendix B, Other Governmental Rules; Appendix D, Special Provisions.

ARTICLE 35 – PLANT PROTECTION

Contractor shall provide safeguards for its plant and the work in process under this Agreement, including devices, equipment and personnel as would constitute reasonable protection against all hazards, including unauthorized entry, malicious mischief, theft, vandalism and fire.

ARTICLE 36 – BUY AMERICA ACT

Contractor shall comply with the Buy America provisions set forth in Appendix A, FHWA Required Provisions. Due to the nature of the work (ferryboat construction), FHWA has a nationwide waiver that governs this type of work and the following is added to the language found in Appendix A.

February 9, 1994 Federal Register Notice
Notice of nationwide waiver of Buy America for ferryboat equipment and machinery

DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
AGENCY: Federal Highway Administration [FHWA], DOT.

ACTION: Notice of nationwide waiver of Buy America for of Buy America for ferryboat equipment and machinery.

SUMMARY: The FHWA is hereby granting a nationwide waiver of the Buy America requirements for certain steel items used in the construction of ferryboats. This action permits the use of specifically identified steel equipment and machinery manufactured outside of the United States in Federal-aid highway construction projects for ferryboats.

EFFECTIVE DATE: February 9, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. David R. Geiger, Office of Engineering (202) 366-0355 or Mr. Wilbert Baccus, Office of the Chief Counsel (202) 366-0780, Federal Highway Administration, 1200 New Jersey Avenue SE, Washington, DC 20590. Office hours are from 7:45 a.m. to 4:15 p.m., e.t., Monday through Friday, except legal Federal holidays.

SUPPLEMENTARY INFORMATION: In accordance with 23 CFR 635.410(c)(6), the FHWA hereby provides notice that it is granting a nationwide waiver of the requirements of 23 CFR 635.410, Buy America requirements, for certain ferryboat equipment and machinery items. Section 635.410 provides, with exceptions, that no Federal-aid highway construction project using steel or iron materials is to be authorized to proceed unless all manufacturing processes including the application of coatings for such materials occur in the United States. Because the construction of ferryboats is increasingly difficult within the requirements of Buy America, a nationwide waiver of these requirements is being granted for certain ferryboat equipment and machinery items. The items included in the waiver are marine diesel engines, electrical switchboards and switchgear, electric motors, pumps, ventilation fans, boilers, electrical controls, and electronic equipment. Items not included in the waiver are products which are readily available in the United States such as steel and stainless steel plate and shapes, sheet steel and stainless steel, steel and stainless steel pipe and tubing, and galvanized steel products. Items not specifically included in the waiver remain subject to the Buy America requirements.

The basis for the nationwide waiver is that certain equipment and machinery are not manufactured in the United States, using exclusively United States steel and iron, in sufficient and reasonably available quantities to avoid an enormous administrative burden on the State, contractor, and suppliers. Therefore, imposing Buy America requirements in this limited instance is not in the public interest.

On June 16, 1993 the FHWA published a notice (58 FR 33295) and requested comments on the proposed nationwide waiver and the availability of a domestic supply of the items included in the waiver. Two comments were received to FHWA Docket No. 93-22. Both commentors were supportive of the waiver. They both requested that the waiver be expanded to include more items. Their comments were basically the same; the two sought to include items such as bearings, fasteners, valves, and outfitting in the waiver. The FHWA does not agree that these items should be specifically included in the waiver. Bearings, fasteners, and valves are available in sufficient quantity and satisfactory quality from domestic manufacturers. Bearings, fasteners, and valves furnished as individual items are therefore not waived. However, bearings, fasteners, and valves included as a component of waived equipment and machinery are considered an integral part of the waived equipment and machinery and are included in the waiver. Outfitting is not included in the waiver. The FHWA believes that including outfitting in the waiver would allow the waiver to be applied to items which are domestically available in sufficient quantity and satisfactory quality.

The FHWA's Buy America requirements contained in 23 CFR 635.410 are based on section 165 of the Surface Transportation Assistance Act of 1982 (Pub. L. 97-424, Section 165, 96 Stat. 2097, 2136), as amended by Public Law 98-229, Section 10, 98 Stat. 55, 57, and Public Law 102-240, Sections 1041, 1048, 105 Stat. 1914, 1993, 1999.

Authority: 23 U.S.C. 315; 49 CFR 1.48; 23 CFR 635.410

Issued on: January 28, 1994. Rodney E. Slater, Federal Highway Administrator. [FR Doc. 94-2906 Filed 2-8-94; 8:45 am] BILLING CODE 4910-22-P

ARTICLE 37 – RECORDS

A. Contractor shall maintain all reports, records and information required under this Agreement. The records, reports and information shall be maintained until the expiration of six (6) years following either the date of final payment or effective date of termination.

B. Records shall include but not limited to records showing the cost of performance of this Agreement and of any termination of work thereunder. Such records shall include all books, records, documents, ledgers and all other writings related to the contract work set forth in this Agreement and all costs and expenses associated thereto, and may, to the extent approved by Owner, consist of photographs, microfilm, microfiche or other authentic reproduction.

C. Contractor shall make such records available for inspection by and without charge to Owner or the Owner's Representative at all reasonable times at the office of Contractor. Contractor's method of accounting shall be subject to the approval of Owner or the Owner's Representative, but no material change shall be made therein if said method conforms to good accounting practice.

ARTICLE 38 – ACCESS TO REPORTS AND RECORDS

A. Contractor agrees that the Owner, shall, for the purpose of audit and examination, be permitted to inspect all work, materials, payrolls, reports, records, information and other data with regard to the project. The Contractor shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Owner, the Owner's Representative, the Comptroller General of the United States, the Treasurer of the State of Maine, all state and federal agencies involved in this project, or any of their duly authorized representatives, to be pertinent to ascertain compliance with the requirements of this Agreement. The Contractor shall provide all information, records and reports required in this Agreement without charge to the Owner.

B. Contractor agrees to maintain all required records until the expiration of six (6) years following either the date of final payment or effective date of termination, and all other pending matters are closed.

ARTICLE 39 – APPLICABILITY TO SUBCONTRACTORS

Contractor shall provide copies of this Agreement, the approved Plans and Specifications, and any other relevant documentation to each subcontractor performing any work, or providing any materials, equipment, fittings or supplies in the construction of the Vessel prior to the execution of any subcontract hereunder. Contractor may alternatively provide each subcontractor the opportunity to review any of the above documents prior to said execution. Contractor shall hold each subcontractor responsible for any relevant provisions contained in any of the documents set forth herein.

ARTICLE 40 – REPORT OF SUBCONTRACTING

Upon delivery of the Vessel to Owner, Contractor shall submit to Owner or the Owner's Representative, in writing, an accounting of the total dollar amount of all subcontracts and purchase orders placed by it under this Agreement with organizations not affiliated with it. Said writing shall include an itemized list of each subcontractor who performed work on or provided services, materials, equipment, fittings and supplies for the Vessel prior to delivery to Owner and the final cost to Contractor of the services, materials, equipment, fittings and supplies provided by each subcontractor.

ARTICLE 41 – COMPLIANCE WITH LAWS

A. Contractor shall comply with all laws, rules, regulations and requirements of the United States affecting the construction and testing of the Vessel, as set forth in this Agreement, the Plans and Specifications, FHWA Grants or otherwise. Contractor shall also comply with all laws, rules, regulations and requirements of any state in which the Vessel is constructed, tested or repaired, with all laws, rules, regulations and requirements of local authorities, with all applicable laws of the State of Maine and rules and regulations of the State of Maine, Department of Transportation. Contractor shall procure, at its own expense, any permits required under federal, state or local law as may be necessary in connection with any contract work set forth in this Agreement.

B. Applicability to Subcontractors. Vendor shall ensure and shall cause the foregoing provisions to be inserted in any subcontract for any work covered by this Agreement so that such provisions shall be binding upon each subcontractor and each of its subcontractors' subcontractors, etc.

ARTICLE 42 – OFFICIALS NOT TO BENEFIT

No member of, nor delegate to, the legislatures of the United States or the State of Maine, nor any Maine Department of Transportation employee shall be permitted to any share in any part or benefit of this Agreement that may arise therefrom, but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit. No member of, nor delegate to, the legislatures of the United States or the State of Maine, nor any Maine Department of Transportation employee shall be employed by Contractor, either with or without compensation, as an attorney, agent, officer or director.

ARTICLE 43 – OTHER GOVERNMENTAL REQUIREMENTS

A. The Vessel, with its inventory, equipment and machinery, shall be built strictly in accordance with all applicable statutes, rules, and regulations (and directives issued pursuant thereto) of the United States Government and all agencies of the United States, including but not limited to the United States Department of Transportation ("DOT"), the Federal Highway Administration ("FHWA"), the United States Coast Guard, and all successor agencies, and in accordance with the requirements of applicable Federal Acquisition Regulations, set forth or referenced in this agreement, including the Appendices (collectively the "Governmental Rules").

B. Without limiting the previous subparagraph, attached as Appendix B is (i) a listing of certain Governmental Rules with which Contractor (and all of its sub-contractors, independent contractors, suppliers, and vendors) must comply, together with (ii) a brief summary of each such Governmental Rule. Contractor agrees that such summaries are for reference only and that Contractor will be responsible for informing itself fully about each such Governmental Rule. Contractor agrees (for itself and for all of its sub-contractors, independent contractors, suppliers, and vendors) that it (and each of them) will strictly comply with each such Governmental Rule.

i. For the purpose of meeting the Disadvantaged Business Enterprise ("DBE") requirements of 49 CFR Part 23, Owner has established a goal of **5.8 %** utilization (of total contract amount) of Disadvantaged Business

Enterprises ("DBE"). Contractor is required to demonstrate good faith effort to achieve the goal (APPENDIX D).

ii. Notwithstanding the requirements of APPENDIX A, Owner has been granted an exemption/suspension of the provisions of the Davis-Bacon Act relating to minimum wages to be paid to the classifications of work required for construction of the Vessel. The contractor must pay at the very least the Federal and State minimum wage rates, submit weekly certified payroll statements, and comply with all other Department of Labor laws.

C. In the event of the Contractor's noncompliance with the provisions of this Contract relating to Governmental Rules, the Owner shall impose such Contract sanctions as it or the relevant governmental agency may determine to be appropriate, including, but not limited to:

i. Withholding of payments to the Contractor under the Contract until the Contractor complies; and/or
ii. Cancellation, termination, or suspension of the Contract, in whole or in part.

D. The Contractor shall include the provisions of this Section in every subcontract, including procurements of materials and leases of equipment, unless excepted by the Governmental Rules. The Contractor shall take such action with respect to any subcontract or procurement as the Owner or any governmental agency may direct as a means of enforcing such provisions including sanctions; provided, however, that, in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the Owner to enter into such litigation to protect the interests of the Owner, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

E. Contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 USC Section 6321 et seq.).

F. Contractor agrees to comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC 1857(h)), Section 508 of

the Clean Water Act (33 USC 1368), Executive Order 11378, and Environmental Protection Agency regulations (40 CFR, Parts 89, 92) which prohibit the use under non-exempt federal contracts, grants or loans, of facilities included on the EPA List for Violating Facilities. Contractor shall report violations to the US EPA Assistant Administrator for Enforcement (ENO329). Contractor shall include this provision in all subcontracts in excess of $100,000.

G. The Contractor shall erect at the site of construction, and maintain during construction, signs satisfactory to the relevant governmental agencies identifying the Project and indicating that the Government is participating in the development of the Project.

H. The Contractor and all sub-contractors, independent contractors, suppliers, and vendors shall, on Owner's request, submit evidence to the Owner that the governing air pollution criteria will be met. This evidence and related documents will be retained by the Contractor for on-site examination by relevant governmental agencies.

I. Contractor recognizes and acknowledges that Owner is financing the construction of the Vessel in large part through a grant from an agency of the federal government and that therefore the Owner and the terms of this Contract are subject to all applicable regulations and requirements of that agency. Contractor agrees to be bound by all such regulations and requirements applicable to contractors and to fully cooperate with and assist Owner in fulfilling its obligations under such regulations and requirements.

ARTICLE 44 – MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES

In no event shall Contractor or Owner be liable to the other party, whether arising in tort, contract or otherwise, for incidental, punitive or consequential damages, including without limitation loss of profit, loss of use or loss of hire. Further, in no event shall Contractor be entitled to recover more than the Contract Amount. No payments due the Contractor will be adjusted for inflation and no interest shall be due and payable on any payment due the Contractor, including payments that relate to issues, disputes or claims.

ARTICLE 45 – ENTIRE AGREEMENT

This Agreement contains the entire agreement between Owner and Contractor relating to the subject matter contained herein and supersedes all prior discussions and agreements between Owner and Contractor. Neither Owner nor Contractor shall be bound by any definition, condition, warranty or representation other than as expressly stated in this Agreement and/or attached Appendices 1 through 6.

CONTRACTOR (Bidder)

Date	(Signature of Legally Authorized Representative of the Contractor)
Witness	(Name and Title Printed)

MAINE DEPARTMENT OF TRANSPORTATION

Date	By: David A. Cole, Commissioner
Witness	

Section 5

Appendices

APPENDIX A

FHWA REQUIRED PROVISIONS

APPENDIX A TO DIVISION 100
SECTION 1 - BIDDING PROVISIONS

A. Federally Required Certifications By signing and delivering a Bid, the Bidder certifies as provided in all certifications set forth in this Appendix A - Federal Contract Provisions Supplement including:

- Certification Regarding No Kickbacks to Procure Contract as provided on this page 1 below.
- Certification Regarding Non-collusion as provided on page 2 below.
- Certification Regarding Non-segregated Facilities as provided by FHWA Form 1273, section III set forth on page 19 below.
- "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion" as provided by FHWA Form 1273, section XI set forth on page 27 below.
- "Certification Regarding Use of Contract Funds for Lobbying" as provided by FHWA Form 1273, section XII set forth on page 30 below.

Unless otherwise provided below, the term "Bidder", for the purposes of these certifications, includes the Bidder, its principals, and the person(s) signing the Bid. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above.

CERTIFICATION REGARDING NO KICKBACKS TO PROCURE CONTRACT

Except expressly stated by the Bidder on sheets submitted with the Bid (if any), the Bidder hereby certifies, to the best of its knowledge and belief, that it has not:

(A) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other then a bona fide employee working solely for me) to solicit or secure this contract;

(B) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or;

C) paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for me) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract;

By signing and submitting a Bid, the Bidder acknowledges that this certification is to be furnished to the Maine Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation in connection with this contract in anticipation of federal aid highway funds and is subject to applicable state and federal laws, both criminal and civil.

CERTIFICATION REGARDING NONCOLLUSION Under penalty of perjury as provided by federal law (28 U.S.C. §1746), the Bidder hereby certifies, to the best of its knowledge and belief, that:

the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with the Contract.

For a related provision, see Section 102.7.2 (C) of the Standard Specifications - "Effects of Signing and Delivery of Bids" - "Certifications", Section 3 of this Appendix A entitled "Other Federal Requirements" including section XI - "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" and section XII. - "Certification Regarding Use of Contract Funds for Lobbying."

****

B. Bid Rigging Hotline To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

****

SECTION 2 - FEDERAL EEO AND CIVIL RIGHTS REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 2 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Nondiscrimination & Civil Rights - Title VI The Contractor and its subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Contractor and subcontractors shall comply with Title VI of the Civil Rights Act of 1964, as amended, and with all State of Maine and other Federal Civil Rights laws.

For related provisions, see Subsection B - "Nondiscrimination and Affirmative Action - Executive Order 11246" of this Section 2 and Section 3 - Other Federal Requirements of this "Federal Contract Provisions Supplement" including section II - "Nondiscrimination" of the "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273.

B. Nondiscrimination and Affirmative Action - Executive Order 11246 Pursuant to Executive Order 11246, which was issued by President Johnson in 1965 and amended in 1967 and 1978, this Contract provides as follows.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its efforts to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain a working environment free of harassment, intimidations, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all forepersons, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and to maintain a record of the organization's responses.
3. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
4. Provide immediate written notification to the Department's Office of Human Resources – Equal Employment Opportunity when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Design-Builder's efforts to meet its obligations.
5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under B above.
6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligation; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by

posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Forepersons, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractor's and Subcontractors with whom the Contractor does or anticipates doing business.

9. Direct its recruitment efforts, both orally and written to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later that one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screenings, procedures, and test to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth, both on the site and in other areas of a Contractor's workforce.

11. Validate all tests and other selection requirements.

12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractor's and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

C. Goals for Employment of Women and Minorities Per Executive Order 11246, craft tradesperson goals are 6.9% women and .5% minorities employed. However, goals may be adjusted upward at the mutual agreement of the Contractor and the Department. Calculation of these percentages shall not include On-the-Job Training Program trainees, and shall not include clerical or field clerk position employees.

For a more complete presentation of requirements for such Goals, see the federally required document "Goals for Employment of Females and Minorities" set forth in the next 6 pages below.

****

Start of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

§60-4.2 Solicitations

(d) The following notice shall be included in, and shall be part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part (see 41 CFR 60-4.2(a)):

Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)

1. The Offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for female participation in each trade 6.9%

Goals for minority participation for each trade

Maine

001 Bangor, ME 0.8%

Non-SMSA Counties (Aroostook, Hancock, Penobscot, Piscataquis, Waldo, Washington)

002 Portland-Lewiston, ME
SMSA Counties: 4243 Lewiston-Auburn, ME 0.5%
(Androscoggin)

6403 Portland, ME 0.6%
(Cumberland, Sagadahoc)

Non-SMSA Counties: 0.5%
(Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be in violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated started and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
c. "Employer identification number" means the Federal Social Security number" means the Federal Social Security number" means the Federal Social Security number used o the Employer's Quarterly Federal Tax Return, U.S. Treasury Department form 941;
d. "Minority" includes:
(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of the North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the contractor, is participating (pursuant to 41 CFR 60-.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors for Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a. through p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in contractors performing construction work in geographical areas where

they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specific.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant, thereto.
6. In order for the non working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as expensive as the following:
   a. Ensure and maintain a working environment free of harassment, intimidation, coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, when possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
   b. Establish and maintain a current list of minority and female recruitment sources provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment sources or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment, efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing prior to the date for the acceptance of applications for apprenticeship or the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitation to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 a through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7 a through p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program and reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions take on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both make and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, specific minority group of women is underutilized.)

10. The Contractor shall not use the goals and timetables or affirmative action even through the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementation regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.6.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location sat which the work was performed. Records be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

End of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES

Federally Required Contract Document

****

D. Disadvantaged Business Enterprise (DBE) Requirements The Department has established an annual Disadvantaged Business Enterprise aspirational goal to be achieved through race neutral means. This goal will adjusted periodically and will be provided by Supplemental Provision. Unless otherwise specifically provided in the Contract, there are no

specific percentage requirements for use of DBEs for individual construction contracts. The Contractor shall comply with all provisions of this section regarding DBE participation and the Department's latest version of the Disadvantaged Business Enterprise Program Manual, said Manual being incorporated herein by reference. In the case of conflict between this Contract and said Manual, this Contract shall control. The Department reserves the right to adjust DBE goals on a project-by-project basis by addendum.

Policy. It is the Department's policy that DBEs as defined in 23 CFR Part 26 and referenced in the Transportation Equity Act for 21st Century of 1998, as amended from the Surface Transportation Uniform Relocation Assistance Act of 1987, and the Intermeddle Surface Transportation Efficiency Act of 1991. The intent hereto remains to provide the maximum opportunity for DBEs to participate in the performance of contracts financed in whole or in part with federal funds.

The Department and its Contractors shall not discriminate on the basis of race, color, national origin, ancestry, sex, age, or disability in the award and performance of DOT assisted contracts.

Disadvantaged Business Enterprises are those so certified by the Maine Department of Transportation Office of Human Resources prior to bid opening date.

The Department has determined that elements of a good faith effort to meet the contract goal include but are not limited to the following:

1. Whether the Contractor advertised in general circulation, trade association, and minority/women's-focus media concerning the subcontracting opportunities;

2. Whether the Contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract is being solicited;

3. Whether the Contractor followed up on initial solicitations of interest by contacting DBEs to determine with certainty whether the DBEs were interested;

4. Whether the Contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals;

5. Whether the Contractor provided interested DBEs with adequate information about the plans, specification and requirements of the contract;

6. Whether the Contractor negotiated in good faith with interested DBEs, not rejecting the DBE as unqualified without sound reasons based on a thorough investigation of their capabilities;

7. Whether the Contractor made efforts to assist interested DBEs with other appropriate technical/financial assistance required by the Department or Contractor;

8. Whether the Contractor effectively used the services of available minority/women's community organizations, minority/women's business assistance offices; and other organizations that provide assistance in the recruitment and placement of DBEs.

Substitutions of DBEs. The following may be acceptable reasons for Office of Human Resources approval of such a change order:

- The DBE defaults, voluntarily removes itself or is over-extended;
- The Department deletes portions of the work to by performed by the DBE.

It is not intended that the ability to negotiate a more advantageous contract with another certified DBE be considered a valid basis for such a change in DBE utilization once the DBE Bid Submission review has been passed. Any requests to alter the DBE commitment must be in writing and included with the change order.

Failure to carry out terms of this Standard Specification shall be treated as a violation of this contract and will result in contract sanctions which may include withholding of partial payments totaling the creditable dollars amount which would have been paid for said DBE participation, termination of this contract or other measures which may affect the ability of the Contractor to obtain Department contracts.

Copies of the Maine Department of Transportation's DBE Program may be obtained from:

Maine Department of Transportation
Office of Human Resources
#16 State House Station
Augusta, Maine 04333-0016
Tel. (207) 624-3050

Quarterly Reporting Requirement. The Contractor must submit quarterly reports of actual dollars paid to Disadvantaged Business Enterprises (DBE's) on this Project to the MDOT Office of Human Resources by the end of the first week of January, April, July and October for the period covering the preceding three months considered Federal Fiscal Year quarters. The reports will be submitted directly to the Office of Human Resources on the form provided in the latest version of the DBE Program Manual. Failure to submit the report by the deadline may result in a withholding of approval of partial payment estimates by the Department.

SECTION 3 - OTHER FEDERAL REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 3 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Buy America

If the cost of products purchased for permanent use in this project which are manufactured of steel, iron or the application of any coating to products of these materials exceeds 0.1 percent

of the contract amount, or $2,500.00, whichever is greater, the products shall have been manufactured and the coating applied in the United States. The coating materials are not subject to this clause, only the application of the coating. In computing that amount, only the cost of the product and coating application cost will be included.
Ore, for the manufacture of steel or iron, may be from outside the United States; however, all other manufacturing processes of steel or iron must be in the United States to qualify as having been manufactured in the United States.
United States includes the 50 United States and any place subject to the jurisdiction thereof.
Products of steel include, but are not limited to, such products as structural steel, piles, guardrail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaries and signals.
Products of iron include, but are not limited to, such products as cast iron grates.
Application of coatings include, but are not limited to, such applications as epoxy, galvanized and paint.

To assure compliance with this section, the Contractor shall submit a certification letter on its letterhead to the Department stating the following:

> "This is to certify that products made of steel, iron or the application of any coating to products of these materials whose costs are in excess of $2,500.00 or 0.1 percent of the original contract amount, whichever is greater, were manufactured and the coating, if one was required, was applied in the United States."

B. Materials

a. Convict Produced Materials References: 23 U.S.C. 114(b)(2), 23 CFR 635.417

Applicability: FHWA's prohibition against the use of convict material only applies to Federal-aid highways. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if: 1) such materials have been produced by convicts who are on parole, supervised release, or probation from a prison; or
2) such material has been produced in a qualified prison facility, e.g., prison industry, with the amount produced during any 12-month period, for use in Federal-aid projects, not exceeding the amount produced, for such use, during the 12-month period ending July 1, 1987.

Materials obtained from prison facilities (e.g., prison industries) are subject to the same requirements for Federal-aid participation that are imposed upon materials acquired from other sources. Materials manufactured or produced by convict labor will be given no preferential treatment.

The preferred method of obtaining materials for a project is through normal contracting procedures which require the contractor to furnish all materials to be incorporated in the work.

The contractor selects the source, public or private, from which the materials are to be obtained (23 CFR 635.407). Prison industries are prohibited from bidding on projects directly (23 CFR 635.112e), but may act as material supplier to construction contractors.

Prison materials may also be approved as State-furnished material. However, since public agencies may not bid in competition with private firms, direct acquisition of materials from a prison industry for use as State-furnished material is subject to a public interest finding with the Division Administrator's concurrence (23 CFR 635.407d). Selection of materials produced by convict labor as State-furnished materials for mandatory use should be cleared prior to the submittal of the Plans Specifications & Estimates (PS&E).

b. Patented/Proprietary Products References: 23 U.S.C. 112, 23 CFR 635.411

FHWA will not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

- the item is purchased or obtained through competitive bidding with equally suitable unpatented items,
- the STA certifies either that the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists, or
- the item is used for research or for a special type of construction on relatively short sections of road for experimental purposes. States should follow FHWA's procedures for "Construction Projects Incorporating Experimental Features" (expermnt.htm) for the submittal of work plans and evaluations.

The primary purpose of the policy is to have competition in selection of materials and allow for development of new materials and products. The policy further permits materials and products that are judged equal may be bid under generic specifications. If only patented or proprietary products are acceptable, they shall be bid as alternatives with all, or at least a reasonable number of, acceptable materials or products listed; and the Division Administrator may approve a single source if it can be found that its utilization is in the public interest.

Trade names are generally the key to identifying patented or proprietary materials. Trade name examples include 3M, Corten, etc. Generally, products identified by their brand or trade name are not to be specified without an "or equal" phrase, and, if trade names are used, all, or at least a reasonable number of acceptable "equal" materials or products should be listed. The licensing of several suppliers to produce a product does not change the fact that it is a single product and should not be specified to the exclusion of other equally suitable products.

c. State Preference References: 23 U.S.C. 112, 23 CFR 635.409

Materials produced within Maine shall not be favored to the exclusion of comparable materials produced outside of Maine. State preference clauses give particular advantage to the

designated source and thus restrict competition. Therefore, State preference provisions shall not be used on any Federal-aid construction projects.

This policy also applies to State preference actions against materials of foreign origin, except as otherwise permitted by Federal law. Thus, States cannot give preference to in-State material sources over foreign material sources. Under the Buy America provisions, the States are permitted to expand the Buy America restrictions provided that the STA is legally authorized under State law to impose more stringent requirements.

d. State Owned/Furnished/Designated Materials References: 23 U.S.C. 112, 23 CFR 635.407

Current FHWA policy requires that the contractor must furnish all materials to be incorporated in the work, and the contractor shall be permitted to select the sources from which the materials are to be obtained. Exceptions to this requirement may be made when there is a definite finding, by MDOT and concurred in by Federal Highway Administration's (FHWA) Division Administrator, that it is in the public interest to require the contractor to use materials furnished by the MDOT or from sources designated by MDOT. The exception policy can best be understood by separating State-furnished materials into the categories of manufactured materials and local natural materials.

Manufactured Materials When the use of State-furnished manufactured materials is approved based on a public interest finding, such use must be made mandatory. The optional use of State-furnished manufactured materials is in violation of our policy prohibiting public agencies from competing with private firms. Manufactured materials to be furnished by MDOT must be acquired through competitive bidding, unless there is a public interest finding for another method, and concurred in by FHWA's Division Administrator.

Local Natural Materials When MDOT owns or controls a local natural materials source such as a borrow pit or a stockpile of salvaged pavement material, etc., the materials may be designated for either optional or mandatory use; however, mandatory use will require a public interest finding (PIF) and FHWA's Division Administrator's concurrence.

In order to permit prospective bidders to properly prepare their bids, the location, cost, and any conditions to be met for obtaining materials that are made available to the contractor shall be stated in the bidding documents.

Mandatory Disposal Sites Normally, the disposal site for surplus excavated materials is to be of the contractor's choosing; although, an optional site(s) may be shown in the contract provisions. A mandatory site shall be specified when there is a finding by MDOT, with the concurrence of the Division Administrator, that such placement is the most economical or that the environment would be substantially enhanced without excessive cost. Discussion of the mandatory use of a disposal site in the environmental document may serve as the basis for the public interest finding.

Summarizing FHWA policy for the mandatory use of borrow or disposal sites:

• mandatory use of either requires a public interest finding and FHWA's Division Administrator's concurrence,
• mandatory use of either may be based on environmental consideration where the environment will be substantially enhanced without excessive additional cost, and
• where the use is based on environmental considerations, the discussion in the environmental document may be used as the basis for the public interest finding.

Factors to justify a public interest finding should include such items as cost effectiveness, system integrity, and local shortages of material.

C. Standard FHWA Contract Provisions - FHWA 1273

Unless expressly otherwise provided in the Bid Documents, the following "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273, are hereby incorporated into the Bid Documents and Contract.

****

Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS(As revised through March 10, 1994)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:
   Section I, paragraph 2;
   Section IV, paragraphs 1, 2, 3, 4, and 7;
   Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes

clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:
   a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
   b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

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

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

   a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

   b. The contractor will accept as his operating policy the following statement:
      "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. EEO Officer. The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy. All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
   a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
   b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
   c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.
   d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
   e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment. When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
   a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.
   b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions. Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
   a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
   b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
   c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
   d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion.
   a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
   b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.
   c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions. If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:
   a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
   b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
   c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.
   d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment. The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.
   a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

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

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

9. Records and Reports. The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:
   (1) The number of minority and non-minority group members and women employed in each work classification on the project;
   (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;
   (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
   (4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the MDOT and the Federal Highway Administration.

The Contractor will submit to the MDOT a report for the month of July, indicating the total hours worked by minority, women and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR-1391. If on-the-job training is being required by "Training Special Provision," the Contractor will be required to furnish Form FHWA-1409. The report is required for week ending July 15 and can be obtained from MDOT, is due by week ending August 20th. This report is to be furnished directly to MDOT - Office of Civil Rights.

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

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

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

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

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

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or

mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

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

2. Classification:

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

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

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise

the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

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

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

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

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship

agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and

Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers. Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding. The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of

the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

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

8. Violation. Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages. The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

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

1. Compliance with Copeland Regulations (29 CFR 3). The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from

the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

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

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

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

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

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

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

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

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

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

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).
   a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
   b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of

the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:
"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or
Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented; Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

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

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.
3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

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

1. Instructions for Certification - Primary Covered Transactions:
(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant

shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

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

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

****

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--
Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

****

2. Instructions for Certification - Lower Tier Covered Transactions: (Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other

remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

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

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

****

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--
Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

****

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

End of FHWA 1273

Appendix B

Other Governmental Rules

OTHER GOVERNMENTAL RULES

1. Equal Employment Opportunity. During the performance of this Agreement, Vendor agrees as follows:

   a. Contractor shall not discriminate against any employee or applicant for employment relating to this Agreement because of race, color, religious creed, sex, national origin, ancestry, age, physical or mental disability, unless related to a bona fide occupational qualification. Contractor shall take affirmative action to ensure that applicants are employed and employees are treated during employment, without regard to their race, color, religion, sex, age, national origin, or physical or mental disability. Failure by Contractor to carry out these requirements is a material breach of this Agreement which may result in the termination of this Agreement or such other remedy as the Owner deems appropriate.

      Such action shall include but not be limited to the following: employment, upgrading, demotions, or transfers; recruitment or recruitment advertising; layoffs or terminations; rates of pay or other forms of compensation; and selection for training including apprenticeship. Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of this nondiscrimination clause.

   b. Contractor shall, in all solicitations or advertising for employees placed by or on behalf of Vendor relating to this Agreement, state that all qualified applicants shall receive consideration for employment without regard to race, color, religious creed, sex, national origin, ancestry, age, physical or mental disability.

   c. Contractor shall send to each labor union or representative of the workers with which it has a collective bargaining agreement, or other agreement or understanding, whereby it is furnished with labor for the performance of this Agreement a notice to be provided by the contracting agency, advising the said labor union or workers' representative of Contractor's commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

   d. Contractor shall inform Owner's Equal Employment Opportunity Coordinator of any discrimination complaints brought to an external regulatory body (Maine Human Rights Commission, EEOC, Office of Civil Rights, etc.) against their agency by any individual as well as any lawsuit regarding alleged discriminatory practice.

   e. Contractor shall comply with all aspects of the Americans with Disabilities Act (ADA) in employment and in the provision of services under this Agreement to include accessibility and reasonable accommodations for employees and clients.

f. Contractor shall ensure that each of its subcontractors, with a contract in excess of $50,000, shall also pursue in good faith affirmative action programs.

g. Vendor shall ensure and shall cause the foregoing provisions to be inserted in any subcontract for any work covered by this Agreement so that such provisions shall be binding upon each subcontractor and each of its subcontractors' subcontractors, etc., provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

2 Employment and Personnel. Vendor shall not engage any person in the employ of Owner in a position that would constitute a violation of 5 MRSA § 18 or 17 MRSA § 3104 or other similar statutes. Vendor shall not engage on a full-time, part-time or other basis during the period of this Agreement any other personnel who are or have been at any time during the period of this Agreement in the employ of Owner, except regularly retired employees, without the written consent of the Owner. Further, Vendor shall not engage on this project on a full-time, part-time or other basis during the period of this Agreement any retired employee of the Owner who has not been retired for at least one year, without the written consent of the Owner. Vendor shall cause the foregoing provisions to be inserted in any subcontract for any work covered by this Agreement so that such provisions shall be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

3. Owner's Employees Not to Benefit. No individual employed by the Owner at the time this Agreement is executed or any time thereafter shall be admitted to any share or part of this Agreement or to any benefit that might arise therefrom directly or indirectly that would constitute a violation of 5 MRSA § 18 or 17 MRSA § 3104 or other similar statutes. No other individual employed by the Owner at the time this Agreement is executed or any time thereafter shall be admitted to any share or part of this Agreement or to any benefit that might arise therefrom directly or indirectly due to his employment by or financial interest in Vendor or any affiliate of Vendor, without the written consent of the Owner. Vendor shall cause the foregoing provisions to be inserted in any subcontract for any work covered by this Agreement so that such provisions shall be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

4. Prompt Payment. Vendor agrees to pay each subcontractor under this Agreement for satisfactory performance of its contract no later than 30 days from the receipt of each payment Vendor receives from Owner. Vendor agrees further to not withhold retainage payments to each subcontractor for work that is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of Owner. This clause applies to both DBE and non-DBE subcontractors. Any person who fails to comply with this provision will have its payments and/or retainage withheld until such payments are made.

5. Applicability to Subcontractors. Vendor shall ensure and shall cause the foregoing provisions to be inserted in any subcontract for any work covered by this Agreement so

that such provisions shall be binding upon each subcontractor and each of its subcontractors' subcontractors, etc.

6. Contract Assurance. The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

APPENDIX C

OTHER GENERAL PROVISIONS

APPENDIX C

OTHER GENERAL PROVISIONS

The Contractor shall, without prejudice to the foregoing generality:

1. Take delivery of, or supply, except where specifically stated in the Plans and Specification as being supplied by the Owner, all components, services and materials required, and that within the price hereinafter specified;

2. Construct, build, fit out and commission the complete Vessel;

3. Conduct all trials leading up to acceptance by the Owner;

4. Accept and observe all obligations and requirements of all Contract Documents;

5. Undertake repair or restitution of defects arising during the Guarantee Period; and

6. Deliver the Vessel in a good condition using suitably qualified and experienced personnel.

During the construction of the Vessel so far as reasonable to facilitate the achievement of good shipbuilding practice, Contractor shall follow the following general provisions:

1. All paintwork systems must be applied in equitable ambient conditions;

2. The Vessel must not be launched afloat until it is proper and properly expedient to do so;

3. The Vessel is to be carefully set up fair on the Building Berth, and maintained fair and true at all times;

4. Fairness of lines throughout is an essential condition of this Contract, and shall be determined in accordance with definition contained in the Plans and Specification.

5. Throughout the period of construction and until acceptance, the Vessel is to be kept as clean as reasonably possible of wood shavings, swarf, dust, and other deleterious matter, and all traces of surplus paint, resin, glue and sundry materials are to be removed frequently. All surfaces and edges likely to sustain damage are to be protected during construction. Protective coatings are to be touched up promptly where damaged or worked on;

6. The Contractor shall be in charge of, and totally responsible for, the care and protection of the Vessel and of all things connected therewith until Delivery;

7. Throughout the currency of this Contract, the Contractor must ensure that efficient and safe arrangements are made on and around the Vessel for adequate stairways, staging, deck hand railing, supporting frameworks, the guarding of open areas, ventilation, power supplies, lighting and fire fighting protection and all other items necessary for the safe and proper completion of the Vessel's construction; and

8. Throughout the currency of this Contract, the Contractor must observe all the requirements of current health and safety at work regulations, and the like.

APPENDIX D

SPECIAL PROVISIONS

NOTICE

Disadvantaged Business Enterprise Proposed Utilization

The Apparent Low Bidder must submit the Disadvantaged Business Enterprise Proposed Utilization form with their bid.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form contains additional information that is required by USDOT.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form must be used.

A copy of the new Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan and instructions for completing it are attached.

Note: Questions about DBE firms, or to obtain a printed copy of the DBE Directory, contact The Office of Civil Rights at (207) 624-3066.

MDOTs DBE Directory of Certified firms can also be obtained at
www.maine.gov/mdot/disadvantaged-business-enterprises/dbe-home.php

INSTRUCTIONS FOR PREPARING THE CONTRACTOR'S DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION PLAN

The Contractor Shall:
1. Submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with your bid on the Bid day.
2. Extend equal opportunity to MDOT certified DBE firms (as listed in MDOT's DBE Directory of Certified Businesses) in the selection and utilization of Subcontractors and Suppliers.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FORM:
Insert Contractor name, the name of the person(s) preparing the form, and that person(s) telephone and fax number.

Provide total Bid price, Federal Project Identification Number, and location of the Project work.

In the columns, name each DBE firm to be used, provide the Unit or Item cost of the Work/Product to be provided by the DBE firm, give a brief description of the Work, and the dollar value of the Work.

If no DBE firm is to be utilized, the Contractor must document the reason(s) why no DBE firms are being used. Specific supporting evidence of good faith efforts taken by Contractors to solicit DBE Bidders must be attached. This evidence, as a minimum, includes phone logs, e-mail and/or mail DBE solicitation records, and the documented results of these solicitations.

NOTICE
Maine Department of Transportation
Disadvantaged Business Enterprise Program

Notice is hereby given that in accordance with US DOT regulation 49 CFR Part 26, the Maine Department of Transportation has established a DBE Program for disadvantaged business participation in the federal-aid construction program; MaineDOT contracts covered by the program include consulting, construction, supplies, manufacturing, and service contracts.

For FFY 2010 (October 1, 2009 through September 30, 2010), MaineDOT has established a DBE participation goal of 5.8% to be achieved through race/gender neutral means.

Interested parties may view MaineDOT's DBE goal setting methodology for the next 45 days during normal business hours (8-4, M-F) at the Maine Department of Transportation, Civil Rights Office, 16 State House Station, Augusta ME 04333- 0016. Appointments may be scheduled by telephone at (207) 624-3066. The goal setting methodology is also available for viewing on the MaineDOT website: http://www.maine.gov/mdot/disadvantaged-business-enterprises/dbe-home.php.

Public comment will be accepted for 45 days following the last date of publication. The public comment period will be complete on September 16th, 2009. The goal will be submitted for approval to the FHWA on August 1st, 2009. Updated goal will be submitted to FHWA, if necessary, based on public comment.

Comments on the goal will be accepted, in writing, for 45 days from the date of this notice. Written comments should be addressed to Jackie LaPerriere, Maine Department of Transportation, Civil Rights Office, 16 State House Station, Augusta, Maine 04333-0016 or by e-mail at: jackie.laperriere@maine.gov.

Several interested stakeholders will be notified directly by e-mail of the goal publication, including Maine Small Business Administration, Associated General Contractors, and ACEC, and Maine DBEs.

Maine Department of Transportation
Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises

Listing can be found at:
www.maine.gov/mdot/disadvantagedbusiness-enterprises/dbe-home.php

For additional information and guidance contact: Civil Rights Office at (207) 624-3066

Vendor Registration
Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered.
Vendors/Contractors will find information and register through the following link:
http://www.maine.gov/purchases/vendorinfo/vss.htm

SUPPLEMENTAL SPECIFICATION

(Corrections, Additions, & Revisions to Standard Specifications - Revision of December 2002)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Closeout Documentation Replace the sentence "A letter stating the amount….. DBE goals." with "DBE Goal Attainment Verification Form"

Add "Environmental Information Hazardous waste assessments, dredge material test results, boring logs, geophysical studies, and other records and reports of the environmental conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation."

Add "Fabrication Engineer The Department's representative responsible for Quality Assurance of pre-fabricated products that are produced off-site."

Geotechnical Information Replace with the following: "Boring logs, soil reports, geotechnical design reports, ground penetrating radar evaluations, seismic refraction studies, and other records of subsurface conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation."

SECTION 102
DELIVERY OF BIDS

102.7.1 Location and Time Add the following sentence "As a minimum, the Bidder will submit a Bid Package consisting of the Notice to Contractors, the completed Acknowledgement of Bid Amendments form, the completed Schedule of Items, 2 copies of the completed Agreement, Offer, & Award form, a Bid Bond or Bid Guarantee, and any other Certifications or Bid Requirements listed in the Bid Book."

102.11.1 Non-curable Bid Defects Replace E. with "E. The unit price and bid amount is not provided or a lump sum price is not provided or is illegible as determined by the Department."

SECTION 103
AWARD AND CONTRACTING

103.3.1 Notice and Information Gathering Change the first paragraph to read as follows: "After Bid Opening and as a condition for Award of a Contract, the Department may require an Apparent Successful Bidder to demonstrate to the Department's satisfaction that the Bidder is responsible and qualified to perform the Work."

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.3.14 Interpretation and Interpolation In the first sentence, change "…and Geotechnical Information." to "…Environmental Information, and Geotechnical Information."

Delete the entire Section 104.5.9 and replace with the following:

"104.5.9 Landscape Subcontractors The Contractor shall retain only Landscape Subcontractors that are certified by the Department's Environmental Office Landscape Unit."

SECTION 105
GENERAL SCOPE OF WORK

Delete the entire Section 105.6 and replace with the following:

105.6.1 Department Provided Services The Department will provide the Contractor with the description and coordinates of vertical and horizontal control points, set by the Department, within the Project Limits, for full construction Projects and other Projects where survey control is necessary. For Projects of 1,500 feet in length, or less: The Department will provide three points. For Projects between 1,500 and 5,000 feet in length: The Department will provide one set of two points at each end of the Project. For Projects in excess of 5,000 feet in length, the Department will provide one set of two points at each end of the Project, plus one additional set of two points for each mile of Project length. For non-full construction Projects and other Projects where survey control is not necessary, the Department will not set any control points and, therefore, will not provide description and coordinates of any control points. Upon request of the Contractor, the Department will provide the Department's survey data management software and Survey Manual to the Contractor, or its survey Subcontractor, for the exclusive use on the Department's Projects.

105.6.2 Contractor Provided Services Utilizing the survey information and points provided by the Department, described in Subsection 105.6.1, Department Provided Services, the Contractor shall provide all additional survey layout necessary to complete the Work. This may include, but not be limited to, reestablishing all points provided by the Department, establishing additional control points, running axis lines, providing layout and maintenance of all other lines, grades, or points, and survey quality control to ensure conformance with the Contract. The Contractor is also responsible for providing construction centerline, or close reference points, for all Utility Facilities relocations and adjustments as necessary to complete the Work. When the Work is to connect with existing Structures, the Contractor shall verify all dimensions before proceeding with the Work. The Contractor shall employ or retain competent engineering and/or surveying personnel to fulfill these responsibilities.

The Contractor must notify the Department of any errors or inconsistencies regarding the data and layout provided by the Department as provided by Section 104.3.3 - Duty to Notify Department If Ambiguities Discovered.

105.6.2.1 Survey Quality Control The Contractor is responsible for all construction survey quality control. Construction survey quality control is generally defined as, first, performing initial field survey layout of the Work and, second, performing an independent check of the initial layout using independent survey data to assure the accuracy of the initial layout; additional iterations of checks may be required if significant discrepancies are discovered in this process. Construction survey layout quality control also requires written documentation of the layout process such that the process can be followed and repeated, if necessary, by an independent survey crew.

105.6.3 Survey Quality Assurance It is the Department's prerogative to perform construction survey quality assurance. Construction survey quality assurance may, or may not, be performed by the Department. Construction survey quality assurance is generally defined as an independent check of the construction survey quality control. The construction survey quality assurance process may involve physically checking the Contractor's construction survey layout using independent survey data, or may simply involve reviewing the construction survey quality control written documentation. If the Department elects to physically check the Contractor's survey layout, the Contractor's designated surveyor may be required to be present. The Department will provide a minimum notice of 48 hours to the Contractor, whenever possible, if the Contractor's designated surveyor's presence is required. Any errors discovered through the quality assurance process shall be corrected by the Contractor, at no additional cost to the Department.

105.6.4 Boundary Markers The Contractor shall preserve and protect from damage all monuments or other points that mark the boundaries of the Right-of-Way or abutting parcels that are outside the area that must be disturbed to perform the Work. The Contractor indemnifies and holds harmless the Department from all claims to reestablish the former location of all such monuments or points including claims arising from 14 MRSA § 7554-A. For a related provision, see Section 104.3.11 - Responsibility for Property of Others.

SECTION 106
QUALITY

106.4.3 Testing Change the first sentence in paragraph three from "…maintain records of all inspections and tests." to "…maintain original documentation of all inspections, tests, and calculations used to generate reports."

106.6 Acceptance Add the following to paragraph 1 of A: "This includes Sections 401 - Hot Mix Asphalt, 402 - Pavement Smoothness, and 502 - Structural Concrete - Method A - Air Content."

Add the following to the beginning of paragraph 3 of A: "For pay factors based on Quality Level Analysis, and"

106.7.1 Standard Deviation Method Add the following to F: "Note: In cases where the mean of the values is equal to either the USL or the LSL, then the PWL will be 50 regardless of the computed value of s."

Add the following to H: "Method C Hot Mix Asphalt: PF = [55 + (Quality Level *0.5)] * 0.01"

SECTION 107
TIME

107.3.1 General Add the following: "If a Holiday occurs on a Sunday, the following Monday shall be considered a Holiday. Sunday or Holiday work must be approved by the Department, except that the Contractor may work on Martin Luther King Day, President's Day, Patriot's Day, the Friday after Thanksgiving, and Columbus Day without the Department's approval."

107.7.2 Schedule of Liquidated Damages Replace the table of Liquidated Damages as follows:

From More Than	Up to and Including	Amount of Liquidated Damages per Calendar Day
$0	$100,000	$100
$100,000	$300,000	$200
$300,000	$500,000	$400
$500,000	$1,000,000	$575
$1,000,000	$2,000,000	$750
$2,000,000	$4,000,000	$900
$4,000,000 and more		$1,875

SECTION 108
PAYMENT

Remove Section 108.4 and replace with the following:

"108.4 Payment for Materials Obtained and Stored Acting upon a request from the Contractor and accompanied by bills or receipted bills, the Department will pay for all or part of the value of acceptable, non-perishable Materials that are to be incorporated in the Work, including Materials that are to be incorporated into the Work, not delivered on the Work site, and stored at places acceptable to the Department. Examples of such Materials include steel piles, stone masonry, curbing, timber and lumber, metal Culverts, stone and sand, gravel, and other Materials. The Department will not make payment on living or perishable Materials until acceptably planted in their final locations.

If payment for Materials is made to the Contractor based on bills, only, then the Contractor must provide receipted bills to the Department for these Materials within 14 days of the date the Contractor receives payment for the Materials. Failure of the Contractor to provide receipted bills for these Materials within 14 days of the dated the Contractor receives payment will result in the paid amount being withheld from the subsequent progress payment, or payments, until such time the receipted bills are received by the Department.

Materials paid for by the Department are the property of the Department, but the risk of loss shall remain with the Contractor. Payment for Materials does not constitute Acceptance of the Material. If Materials for which the Department has paid are later found to be unacceptable, then the Department may withhold amounts reflecting such unacceptable Materials from payments otherwise due the Contractor.

In the event of Default, the Department may use or cause to be used all paid-for Materials in any manner that is in the best interest of the Department."

SECTION 109
CHANGES

109.1.1 Changes Permitted Add the following to the end of the paragraph: "There will be no adjustment to Contract Time due to an increase or decrease in quantities, compared to those estimated, except as addressed through Contract Modification(s)."
109.1.2 Substantial Changes to Major Items Add the following to the end of the paragraph: "Contract Time adjustments may be made for substantial changes to Major Items when the change affects the Critical Path, as determined by the Department"
109.4.4 Investigation / Adjustment Third sentence, delete the words "subsections (A) - (E)"
109.5.1 Definitions - Types of Delays
B. Compensable Delay Replace (1) with the following; "a weather related Uncontrollable Event of such an unusually severe nature that a Federal Emergency Disaster is declared. The Contractor will only be entitled to an Equitable Adjustment if the Project falls within the geographic boundaries prescribed under the disaster declaration."
109.7.2 Basis of Payment Replace with the following: "Equitable Adjustments will be established by mutual Agreement for compensable items listed in Section 109.7.3- Compensable Items, based upon Unit or Lump Sum Prices. If Agreement cannot be reached, the Contractor shall accept payment on a Force Account basis as provided in Section 109.7.5 - Force Account Work, as full and complete compensation for all Work relating to the Equitable Adjustment."
109.7.3 Compensable Items Replace with the following: "The Contractor is entitled to compensation for the following items, with respect to agreed upon Unit or Lump Sum Prices:
1. Labor expenses for non-salaried Workers and salaried foremen.
2. Costs for Materials.
3. A 15 % markup on the totals of Items 1 and 2 of this subsection 109.7.3 for home office overhead and profit of the Contractor, its Subcontractors and suppliers, and any lower tier Subcontractors or suppliers, with no mark-ups on mark-ups.
4. Cost for Equipment, based on Blue Book Rates or leased rates, as set forth in Section 109.7.5(C), or the Contractor's Actual Costs if determined by the Department to be lower.
5. Time.
6. Subcontractor quoted Work, as set forth below in Section 109.7.5 (F)."
109.7.5 Force Account Work

C. Equipment
Paragraph 2, delete sentence 1 which starts; "Equipment leased…."
Paragraph 6, change sentence 2 from "The Contractor may furnish…" to read "If requested by the Department, the Contractor will produce cost data to assist the Department in the establishment of such rental rate, including all records that are relevant to the Actual Costs including rental Receipts, acquisition costs, financing documents, lease Agreements, and maintenance and operational cost records."
Add the following paragraph; "Equipment leased by the Contractor for Force Account Work and actually used on the Project will be paid for at the actual invoice amount plus 10% markup for administrative costs."
Add the following section;
"F. Subcontractor Work When accomplishing Force Account Work that utilizes Subcontractors, the Contractor will be allowed a maximum markup of 5% for profit and overhead on the Subcontractor's portion of the Force Account Work."

SECTION 110
INDEMNIFICATION, BONDING, AND INSURANCE

Delete the entire Section 110.2.3 and replace with the following:
110.2.3 Bonding for Landscape Establishment Period The Contractor shall provide a signed, valid, and enforceable Performance, Warranty, or Maintenance Bond complying with the Contract, to the Department at Final Acceptance.
The bond shall be in the full amount for all Pay Items for work pursuant to Sec 621, Landscape, payable to the "Treasurer - State of Maine," and on the Department's forms, on exact copies thereof, or on forms that do not contain any significant variations from the Department's forms as solely determined by the Department.
The Contractor shall pay all premiums and take all other actions necessary to keep said bond in effect for the duration of the Landscape Establishment Period described in Special Provision 621.0036 - Establishment Period. If the Surety becomes financially insolvent, ceases to be licensed or approved to do business in the State of Maine, or stops operating in the United States, the Contractor shall file new bonds complying with this Section within 10 Days of the date the Contractor is notified or becomes aware of such change.
All Bonds shall be procured from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies."
By issuing a bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time for performance, quality, warranties, and the Department's self

help remedy provided in Section 112.1 - Default to the same extent as if all terms of the Contract are contained in the bond(s).
Regarding claims related to any obligations covered by the bond, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS

202.02 Removing Buildings Make the following change to the last sentence in the final paragraph, change "…Code of Maine Regulations 401." to "…Department of Environmental Protection Maine Solid Waste Management Rules, 06-096 CMR Ch. 401, Landfill Siting, Design and Operation."

SECTION 203
EXCAVATION AND EMBANKMENT

203.01 Description Under b. Rock Excavation; add the following sentence: "The use of perchlorate is not allowed in blasting operations."
Delete the entire Section 203.041 and replace with the following:
"203.041 Salvage of Existing Hot Mix Asphalt Pavement All existing hot mix asphalt pavement designated to be removed under this contract must be salvaged for utilization. Existing hot mix asphalt pavement material shall not be deposited in any waste area or be placed below subgrade in any embankment.
Methods of utilization may be any of the following:
1. Used as a replacement for untreated aggregate surface course on entrances provided the material contains no particles greater than 50 mm [2 in] in any dimension. Payment will be made under Pay Item 411.09, Untreated Aggregate Surface Course or 411.10, Untreated Aggregate Surface Course, Truck Measure. Material shall be placed, shaped, compacted and stabilized as directed by the Resident.
2. Stockpiled at commercial or approved sites for commercial or MaineDOT use.
3. Other approved methods proposed by the Contractor, and approved by the Resident which will assure proper use of the existing hot mix asphalt pavement.
The cost of salvaging hot mix asphalt material will be included for payment under the applicable pay item, with no additional allowances made, which will be full compensation for removing, temporarily stockpiling, and rehandling, if necessary, and utilizing the material in entrances or other approved uses, or stockpiling at an approved site as described above. The

material will also be measured and paid for under the applicable Pay Item if it is reused for aggregate in entrances, or other approved uses."

SECTION 502
STRUCTURAL CONCRETE

502.05 Composition and Proportioning; TABLE #1; NOTE #2; third sentence; Change "…alcohol based saline sealer…" to "alcohol based silane sealer…". Add NOTE #6 to Class S Concrete.
502.0502 Quality Assurance Method A - Rejection by Resident Change the first sentence to read: "For an individual sublot with test results failing to meet the criteria in Table #1, or if the calculated pay factor for Air Content is less than 0.80……"
502.0503 Quality Assurance Method B - Rejection by Resident Change the first sentence to read: "For material represented by a verification test with test results failing to meet the criteria in Table #1, the Department will……"
502.0505 Resolution of Disputed Acceptance Test Results Combine the second and third sentence to read: "Circumstances may arise, however, where the Department may ……"
502.10 Forms and False work
D. Removal of Forms and False work 1., First paragraph; first, second, and third sentence; replace "forms" with "forms and false work"
502.11 Placing Concrete
G. Concrete Wearing Surface and Structural Slabs on Precast Superstructures Last paragraph; third sentence; replace "The temperature of the concrete shall not exceed 24° C [75° F} at the time of placement." with "The temperature of the concrete shall not exceed 24° C [75° F} at the time the concrete is placed in its final position."
502.15 Curing Concrete First paragraph; replace the first sentence with the following; "All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least 7 days after concrete placing, with the exception of vertical surfaces as provided for in Section 502.10 (D) - Removal of Forms and False work."
Second paragraph; delete the first two sentences.
Third paragraph; delete the entire paragraph which starts "When the ambient temperature…."
Fourth paragraph; delete "approved" to now read "…continuously wet for the entire curing period…"
Fifth paragraph; second sentence; change "…as soon as it is possible to do so without damaging the concrete surface." to "…as soon as possible."

Seventh paragraph; first sentence; change "…until the end of the curing period." to "…until the end of the curing period, except as provided for in Section 502.10(D) - Removal of Forms and False work."
502.19 Basis of Payment First paragraph, second sentence; add "pier nose armor" to the list of items included in the contract price for concrete.

SECTION 503
REINFORCING STEEL

503.06 Placing and Fastening Change the second paragraph, first sentence from: "All tack welding shall be done in accordance with Section 504, Structural Steel." to "All tack welding shall be done in accordance with AWS D1.4 Structural Welding Code - Reinforcing Steel."

SECTION 504
STRUCTURAL STEEL

504.09 Facilities for Inspection Add the follow as the last paragraph: "Failure to comply with the above requirements will be consider to be a denial to allow access to work by the Contractor. The Department will reject any work done when access for inspection is denied."
504.18 Plates for Fabricated Members Change the second paragraph, first sentence from: "…ASTM A 898/A 898 M…" to "…ASTM A 898/A 898 M or ASTM A 435/A 435 M as applicable and…"
504.31 Shop Assembly Add the following as the last sentence: "The minimum assembly length shall include bearing centerlines of at least two substructure units."
504.64 Non Destructive Testing-Ancillary Bridge Products and Support Structures Change the third paragraph, first sentence from "One hundred percent…" to "Twenty five percent…"

SECTION 535
PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

535.02 Materials Change "Steel Strand for Concrete Reinforcement" to "Steel Strand." Add the following to the beginning of the third paragraph; "Concrete shall be Class P conforming to the requirements in this section. 28 day compressive strength shall be as stated on the plans. Coarse aggregate…."
535.05 Inspection Facilities Add the follow as the last paragraph: "If the above requirements are not met, the Contractor shall be considered to be in violation of Standard Specification 104.2.5 – Right to Inspect Work. All work occurring during a violation of this specification will be rejected."
535.26 Lateral Post-Tensioning Replace the first paragraph; "A final tension…" with "Overstressing strands for setting losses cannot be accomplished for chuck to chuck lengths of 7.6 m [25 ft] and less. In such instances, refer to the Plans for all materials and methods.

Otherwise, post-tensioning shall be in accordance with PCI standards and shall provide the anchorage force noted in the Plans. The applied jacking force shall be no less than 100% of the design jacking force."

SECTION 603
PIPE CULVERTS AND STORM DRAINS

603.0311 Corrugated Polyethylene Pipe for Option III Replace the Minimum Mandrel Diameter Table with the following:

Nominal Size US Customary (in)	Minimum Mandrel Diameter (in)	Nominal Size Metric (mm)	Minimum Mandrel Diameter (mm)
12	11.23	300	280.73
15	14.04	375	350.91
18	16.84	450	421.09
24	22.46	600	561.45
30	28.07	750	701.81
36	33.69	900	842.18
42	39.30	1050	982.54
48	44.92	1200	1122.90

SECTION 604
MANHOLES, INLETS, AND CATCH BASINS

604.02 Materials Add the following:
"Tops and Traps 712.07
Corrugated Metal Units 712.08
Catch Basin and Manhole Steps 712.09"

SECTION 605
UNDERDRAINS

605.05 Underdrain Outlets Make the following change:
In the first paragraph, second sentence, delete the words "metal pipe".

SECTION 606
GUARDRAIL

606.02 Materials Delete the entire paragraph which reads "The sole patented supplier of multiple mailbox…." and replace with "Acceptable multiple mailbox assemblies shall be listed on the Department's Approved Products List and shall be NCHRP 350 tested and approved." Delete the entire paragraph which reads "Retroreflective beam guardrail delineators…." and replace with "Reflectorized sheeting for Guardrail Delineators shall meet the requirements of Section 719.01 - Reflective Sheeting. Delineators shall be fabricated from high-impact, ultraviolet and weather resistant thermoplastic.

606.09 Basis of Payment First paragraph; delete the second and third sentence in their entirety and replace with “Butterfly-type guardrail reflectorized delineators shall be mounted on all Wbeam
guardrail at an interval of every 10 posts [62.5 ft] on tangents sections and every 5 posts [31.25 ft] on curved sections as directed by the Resident. On divided highways, the delineators shall be yellow on the left hand side and silver/white on the right hand side. On two-way roadways, the delineators shall be silver/white on the right hand side. All delineators shall have retroreflective sheeting applied to only the traffic facing side. Reflectorized guardrail delineators will not be paid for directly, but will be considered incidental to the guardrail items.”

SECTION 609
CURB

609.04 Bituminous Curb f., Delete the requirement “Color Natural (White)”

SECTION 610
STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

Add the following paragraph to Section 610.02:
“Materials shall meet the requirements of the following Sections of Special Provision 703:
Stone Fill 703.25
Plain and Hand Laid Riprap 703.26
Stone Blanket 703.27
Heavy Riprap 703.28
Definitions 703.32”
Add the following paragraph to Section 610.032.a.
“Stone fill and stone blanket shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source.”
Add the following paragraph to Section 610.032.b:
“Riprap shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source.”
Add the following to Section 610.032: “Section 610.032.d. The grading of riprap, stone fill, stone blanket and stone ditch protection shall be determined by the Resident by visual inspection of the load before it is dumped into place, or, if ordered by the Resident, by dumping individual loads on a flat surface and sorting and measuring the individual rocks contained in the load. A separate, reference pile of stone with the required gradation will be placed by the Contractor at a convenient location where the Resident can see and judge by eye the suitability of the rock being placed during the duration of the project. The Resident reserves the right to reject stone at the job site or stockpile, and in place. Stone rejected at the job site or in place shall be removed from the site at no additional cost to the Department.”

SECTION 615
LOAM

615.02 Materials Make the following change:
Organic Content Percent by Volume
Humus “5% - 10%”, as determined by Ignition Test

SECTION 618
SEEDING

618.01 Description Change the first sentence to read as follows: “This work shall consist of furnishing and applying seed …..” Also remove “,and cellulose fiber mulch” from 618.01(a).
618.03 Rates of Application In 618.03(a), remove the last sentence and replace with the following: “These rates shall apply to Seeding Method 2, 3, and Crown Vetch.”
In 618.03(c) “1.8 kg [4 lb]/unit.” to “1.95 kg [4 lb]/unit.”
618.09 Construction Method In 618.09(a) 1, sentence two, replace “100 mm [4 in]” with “25 mm [1 in] (Method 1 areas) and 50 mm [2 in] (Method 2 areas)”
618.15 Temporary Seeding Change the Pay Unit from Unit to Kg [lb].

SECTION 620
GEOTEXTILES

620.03 Placement Section (c)
Title: Replace “Non-woven” in title with “Erosion Control”.
First Paragraph: Replace first word “Non-woven” with “Woven monofilament”.
Second Paragraph: Replace second word “Non-woven” with “Erosion Control”.
620.07 Shipment, Storage, Protection and Repair of Fabric Section (a)
Replace the second sentence with the following: “Damaged geotextiles, as identified by the Resident, shall be repaired immediately.”
620.09 Basis of Payment
Pay Item 620.58: Replace “Non-woven” with “Erosion Control”
Pay Item 620.59: Replace “Non-woven” with “Erosion Control”

SECTION 621
LANDSCAPING

621.0036 Establishment Period In paragraph 4 and 5, change “time of Final Acceptance” to “end of the period of establishment”. In Paragraph 7, change “Final Acceptance date” to ““end of the period of establishment” and change “date of Final Acceptance” to “end of the period of establishment”.

SECTION 626
HIGHWAY SIGNING

626.034 Concrete Foundations Add to the following to the end of the second paragraph: "Precast and cast-in-place foundations shall be warranteed against leaning and corrosion for two years after the project is completed. If the lean is greater than 2 degrees from normal or the foundation is spalling within the first two years, the Contractor shall replace the foundation at no extra cost."

SECTION 627
PAVEMENT MARKINGS

627.10 Basis of Payment Add to the following to the end of the third paragraph: "If allowed by Special Provision, the Contractor may utilize Temporary Bi-Directional Yellow and White(As required) Delineators as temporary pavement marking lines and paid for at the contract lump sum price. Such payment will include as many applications as required and removal."

SECTION 637
DUST CONTROL

637.06 Basis of Payment Add the following after the second sentence of the third paragraph: "Failure by the Contractor to follow Standard Specification or Special Provision - Section 637 and/or the Contractor's own Soil Erosion and Pollution Control Plan concerning Dust Control and/or the Contractor's own Traffic Control Plan concerning Dust Control and/or visible evidence of excessive dust problems, as determined by the Resident, will result in a reduction in payment, computed by reducing the Lump Sum Total by 5% per occurrence per day. The Department's Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item. Additional penalties may also be assessed in accordance with Special Provision 652 - Work Zone Traffic Control and Standard Specification 656 - Temporary Soil Erosion and Water Pollution Control."

SECTION 639
ENGINEERING FACILITIES

639.04 Field Offices Change the forth to last paragraph from: "The Contractor shall provide a fully functional desktop copier…" to "….desktop copier/scanner…"
Description Change "Floor Area" to "Floor Area (Outside Dimension)". Change Type B floor area from "15 (160)" to "20 (217)".
639.09 Telephone Paragraph 1 is amended as follows:
The contractor shall provide **two** telephone lines and two telephones,….
Add- In addition the contractor will supply one computer broadband connection, modem lease and router. The router shall have wireless access and be 802.11n or 802.11g capable and

wireless The type of connection supplied will be contingent upon the availability of services (i.e. DSL or Cable Broadband). It shall be the contractor's option to provide dynamic or static IP addresses through the service. **The selected service will have a minimum downstream connection of 1.5 Mbps and 384 Kbps upstream.** The contractor shall be responsible for the installation charges and all reinstallation charges following suspended periods. Monthly service and maintenance charges shall be billed by the Internet Service Provider (ISP) directly to the contractor.

SECTION 652
MAINTENANCE OF TRAFFIC

652.2.3 Flashing Arrow Board Delete the existing 5 paragraphs and replace with the following:
Flashing Arrow Panels (FAP) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels.
FAP units shall meet requirements of the current Manual on Uniform Traffic Control Devices (MUTCD) for Type "C" panels as described in Section 6F.56 - Temporary Traffic Control Devices. An FAP shall have matrix of a minimum of 15 low-glare, sealed beam, Par 46 elements capable of either flashing or sequential displays as well as the various operating modes as described in the MUTCD, Chapter 6-F. If an FAP consisting of a bulb matrix is used, each element should be recess-mounted or equipped with an upper hood of not less than 180 degrees. The color presented by the elements shall be yellow.
FAP elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. FAP shall be at least 2.4 M x 1.2 M [96" x 48"] and finished in nonreflective
black. The FAP shall be interpretable for a distance not less than 1.6 km [1 mile].
Operating modes shall include, flashing arrow, sequential arrow, sequential chevron, flashing double arrow, and flashing caution. In the three arrow signals, the second light from the arrow point shall not operate.
The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute. All on-board circuitry shall be solid state.
Primary power source shall be 12 volt solar with a battery back-up to provide continuous operation when failure of the primary power source occurs, up to 30 days with fully charged batteries. Batteries must be capable of being charged from an onboard 110 volt AC power source and the unit shall be equipped with a cable for this purpose.
Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.
The FAP shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 2.1 M [7 feet] from the roadway to the bottom of the panel.

The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.
A portable changeable message sign may be used to simulate an arrow panel display."
652.2.4 Other Devices Delete the last paragraph and add the following:
"652.2.5 Portable Changeable Message Sign Trailer mounted Portable Changeable Message Signs (PCMS) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels. The PCMS unit shall meet or exceed the current specifications of the Manual on Uniform Traffic Control Devices (MUTCD), 6F.55.
The front face of the sign should be covered with a low-glare protective material. The color of the LED elements shall be amber on a black background. The PCMS should be visible from a distance of 0.8 km [0.5 mile] day and night and have a minimum 15º viewing angle. Characters must be legible from a distance of at least 200 M [650 feet].
The message panel should have adjustable display rates (minimum of 3 seconds per phase), so that the entire message can be read at least twice at the posted speed, the off-peak 85thpercentile speed prior to work starting, or the anticipated operating speed. Each message shall consist of either one or two phases. A phase shall consist of up to eight characters per line. The unit must be capable of displaying at least three lines of text with eight characters per line. Each character shall be 457 mm [18"] high. Each character module shall use at least a five wide and seven high pixel matrix. The text of the messages shall not scroll or travel horizontally or vertically across the face of the sign.
Units shall automatically adjust their brightness under varying light conditions to maintain legibility.
The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable. Message must be changeable with either a notebook computer or an on-board keypad. The controller shall have the capability to store a minimum of 200 user-defined and 200 pre-programmed messages. Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.
PCMS units shall have the capability of being made programmable by means of wireless communications. PCMS units shall also be fully capable of having an on-board radar system installed if required for a particular application.
PCMS' primary power source shall be solar with a battery back-up to provide continuous operation when failure of the primary power source occurs. Batteries must be capable of being charged from a 110 volt AC power source. The unit must also be capable of being operated solely from a 110 volt AC power source and be equipped with a cable for this purpose.
The PCMS shall be mounted on a trailer in such a way that the bottom of the message sign panel shall be a minimum of 2.1 M [7 ft] above the roadway in urban areas and 1.5 M [5 ft]

above the roadway in rural areas when it is in the operating mode. PCMS trailers should be of a heavy duty type with a 51 mm [2"] ball hitch and a minimum of four leveling jacks (at each corner). The sign shall be capable of being rotated 360° relative to the trailer. The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers."

652.3.3 Submittal of Traffic Control Plan In item e. change "A list of all certified flaggers…" to "A list of all the Contractor's certified flaggers…"

Add the follow to the list of requirements: "k. The plan for unexpected nighttime work along with a list of emergency nighttime equipment available on-site."

In the last paragraph add the following as the second sentence: "The Department will review and provide comments to the Contractor within 14 days of receipt of the TCP." Add the following as the last sentence: "The creation and modification of the TCP will be considered incidental to the related 652 items."

652.3.5 Installation of Traffic Control Devices In the first paragraph, first sentence; change "Signs shall be erected…" to "Portable signs shall be erected.." In the third sentence; change "Signs must be erected so that the sign face…" to "Post-mounted signs must also be erected so that the sign face…"

652.4 Flaggers Replace the first paragraph with the following; "The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the Department and administered by a Department-approved Flagger-Certifier who is employing that flagger. All flaggers must carry an official certification card with them while flagging that has been issued by their employer. Flaggers shall wear safety apparel meeting ANSI 107-2004 Class 2 risk exposure that clearly identifies the wearer as a person, and is visible at a minimum distance of 300 m [1000 ft], and shall wear a hardhat with 360° retro-reflectivity. For nighttime conditions, Class 3 apparel, meeting ANSI 107-2004, shall be worn along with a hardhat with 360° retro-reflectivity. Retro-reflective or flashing SLOW/STOP paddles shall be used, and the flagger station shall be illuminated to assure visibility in accordance with 652.6.2."

Second paragraph, first sentence; change "…have sufficient distance to stop before entering the workspace." to "…have sufficient distance to stop at the intended stopping point." Third sentence; change "At a spot obstruction…" to "At a spot obstruction with adequate sight distance,…"

Fourth paragraph, delete and replace with "Flaggers shall be provided as a minimum, a 10 minute break, every 2 hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. Breaker flaggers will not be paid for separately, but shall be considered incidental to the appropriate pay item."

Add the following:

"652.5.1 Rumble Strip Crossing When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for 7 calendar days or less, the Contractor shall install

warning signs that read “RUMBLE STRIP CROSSING” with a supplemental Motorcycle Plaque, (W8-15P).
When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for more than 7 calendar days, the Contractor shall pave in the rumble strips in the area that traffic will cross, unless otherwise directed by the Resident. Rumble strips shall be replaced prior to the end of the project, when it is no longer necessary to cross them.”
652.6 Nightwork Delete this section entirely and replace with the following:
“652.6.1 Daylight Work Times Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset Table at: http://www.sunrisesunset.com/usa/Maine.asp . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.
652.6.2 Night Work When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment and at all work stations. The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.
The Contractor shall have available portable floodlights for special areas.
The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.
The Contractor shall submit a lighting plan at the Preconstruction Conference, showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.
Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles. Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.
The following minimum light levels are required for Night Work lighting;

Level I: (5 foot-candles)

All work operations by Contractor's personnel in areas of general construction operations, including layout and measurements ahead of the actual work, , cleaning and sweeping, , and seeding.

Areas where crew movement may take place.

Stockpile areas.

At the area of lane closure, continuously through the lane closure, including the setup and removal of the closures.

State Field Offices and facilities.

Level II: (10 foot-candles)

On and around (360 degrees) construction equipment in the work zone.

50 feet ahead of, 100 feet behind, and along the sides of paving or milling machines in the work zone.

Level III: (20 foot-candles)

Flagging Stations

Pavement or structural crack and pothole filling.

Pavement patching and repairs.

Installation of signal equipment, or other electrical or mechanical equipment.

Curb work, drainage, sidewalk work, excavation, landscaping, and any other work using ground labor, supervision, or inspection.

All workers shall wear safety apparel labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement. The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the project when such signs are deemed necessary by the Resident. The signs shall be a minimum of 30 inches by 60 inches, Black and Orange, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

All vehicles used on the project, including pickup trucks and personal vehicles, shall be equipped with amber flashing lights, visible from both front and rear, or by means of single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360º. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project.

The Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item.

Payment for lighting, vehicle mounted signs and other costs accrued because of night work will not be made directly but will be considered incidental to the related contract items."

652.8.2 Other Items Replace the last paragraph with the following: “There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.”

SECTION 653
POLYSTYRENE PLASTIC INSULATION

653.05 Placing Backfill In the second sentence; change “…shall be not less than 150 mm [6 in] loose measure.” to “…shall be not less than 250 mm [10 in] loose measure.” In the third sentence; change “…crawler type bulldozer of not more than 390 kg/m^2 [80 lb/ft^2] ground contact pressure…” to “…crawler type bulldozer of not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact pressure…”

653.06 Compaction In the last sentence; change “…not more than 390 kg/m^2 [80 lb/ft^2] ground contact…” to “…not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact…”

SECTION 656
TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

656.5.1 If Pay Item 656.75 Provided Replace the second paragraph with the following: “Failure by the Contractor to follow Standard Specification or Special Provision - Section 656 and/or the Contractor’s own Soil Erosion and Pollution Control Plan will result in a reduction in payment, computed by reducing the Lump Sum Total by 5% per occurrence per day. The Department’s Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item.”

SECTION 701
STRUCTURAL CONCRETE RELATED MATERIALS

701.10 Fly Ash - Chemical Requirements Change all references from “ASTM C311” to “ASTM C114”.

SECTION 703
AGGREGATES

703.05 Aggregate for Sand Leveling Change the percent passing the 9.5 mm [3/8 in] sieve from “85 – 10” to “85 – 100”

703.06 Aggregate for Base and Subbase Delete the first paragraph: “The material shall have…” and replace with “The material shall have a minimum degradation value of 15 as determined by Washington State DOT Test Method T113, Method of Test for Determination of Degradation Value (March 2002 version), except that the reported degradation value will be the result of testing a single specimen from that portion of a sample that passes the 12.5 mm [½ in] sieve and is retained on the 2.00 mm [No. 10] sieve, minus any reclaimed asphalt pavement used."

703.07 Aggregates for HMA Pavements Delete the forth paragraph: “The composite blend shall have…” and replace with “The composite blend, minus any reclaimed asphalt pavement used, shall have a Micro-Deval value of 18.0 or less as determined by AASHTO T 327. In the event the material exceeds the Micro Deval limit, a Washington Degradation test shall be performed. The material shall be acceptable if it has a value of 30 or more as determined by Washington State DOT Test Method T 113, Method of Test for Determination of Degradation Value (March 2002 version) except that the reported degradation value will be the result of testing a single composite specimen from that portion of the sample that passes the 12.5mm [1/2 inch] sieve and is retained on the 2.00mm [No 10] sieve, minus any reclaimed asphalt pavement used."

703.09 HMA Mixture Composition The coarse and fine aggregate shall meet the requirements of Section 703.07. The several aggregate fractions for mixtures shall be sized, graded, and combined in such proportions that the resulting composite blends will meet the grading requirements of the following table.

AGGREGATE GRADATION CONTROL POINTS

Nominal Maximum Aggregate Size---Control Points (Percent Passing)

SIEVE SIZE
TYPE 25 mm
TYPE 19 mm
TYPE 12.5 mm
TYPE 9.5 mm
TYPE 4.75 mm

PERCENT BY WEIGHT PASSING - COMBINED AGGREGATE
37.5 mm 100
25 mm 90-100 100
19 mm -90 90-100 100
12.5 mm -90 90-100 100 100
9.5 mm - -90 90-100 95-100
4.75 mm - - -90 80-100
2.36 mm 19-45 23-49 28-58 32-67 40 - 80
1.18 mm - - - - 600 μm - - - - 300 μm - - - - 75 μm 1-7 2-8 2-10 2-10 2-10

Gradation Classification---- The combined aggregate gradation shall be classified as coarsegraded when it passes below the Primary Control Sieve (PCS) control point as defined in the following table. All other gradations shall be classified as fine-graded.

GRADATION CLASSIFICATION

If a Grading “D” mixture is allowed per Special Provision Section 403, it shall meet the following gradation and the aggregate requirements of Section 703.07.

PCS Control Point for Mixture Nominal Maximum Aggregate Size (% passing)

Nominal Maximum Aggregate Size
TYPE 25 mm TYPE 19 mm TYPE 12.5 mm TYPE 9.5 mm
Primary Control Sieve 4.75 mm 4.75 mm 2.36 mm 2.36 mm
PCS Control Point (% passing) 40 47 39 47

Sieve Percentage by Weight
Designation Passing Square Mesh Sieves
½ inch 100
⅜ inch 93-100
No. 4 60-80
No. 8 46-65
No. 16 25-55
No. 30 16-40
No. 50 10-30
No. 100 6-22
No. 200 3.0-8.0

703.18 Common Borrow Replace the first paragraph with the following: "Common borrow shall consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat, and other unsuitable material including material currently or previously contaminated by chemical, radiological, or biological agents unless the material is from a DOT project and authorized by DEP for use."

703.22 Underdrain Backfill Material Change the first paragraph from "…for Underdrain Type B…" to "…for Underdrain Type B and C…"

Replace subsections 703.25 through 703.28 with the following:

"703.25 Stone Fill Stones for stone fill shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for stone fill shall be angular and rough. Rounded, subrounded, or long thin stones will not be allowed. Stone for stone fill may be obtained from quarries or by screening oversized rock from earth borrow pits. The maximum allowable length to thickness ratio will be 3:1. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (500 lbs) shall have a maximum dimension of approximately 36 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension of 12 inches (200 lbs).

703.26 Plain and Hand Laid Riprap Stone for riprap shall consist of hard, sound durable rock that will not disintegrate by exposure to water or weather. Stone for riprap shall be angular and rough. Rounded, subrounded or long thin stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (200 lbs) shall have an average dimension of approximately 12 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension greater than 9 inches (50 lbs).

703.27 Stone Blanket Stones for stone blanket shall consist of sound durable rock that will not disintegrate by exposure to water or weather. Stone for stone blanket shall be angular and rough. Rounded or subrounded stones will not be allowed. Stones may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (300 lbs) shall have minimum dimension of 14 inches, and the maximum stone size (3000 lbs) shall

have a maximum dimension of approximately 66 inches. Fifty percent of the stones by volume shall have average dimension greater than 24 inches (1000 lbs).
703.28 Heavy Riprap Stone for heavy riprap shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for heavy riprap shall be angular and rough. Rounded, subrounded, or thin, flat stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for heavy riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (500 lbs) shall have minimum dimension of 15 inches, and at least fifty percent of the stones by volume shall have an average dimension greater than 24 inches (1000 lbs)."
Add the following paragraph:
"703.32 Definitions (ASTM D 2488, Table 1).
Angular: Particles have sharp edges and relatively plane sides with unpolished surfaces
Subrounded: Particles have nearly plane sides but have well-rounded corners and edges
Rounded: Particles have smoothly curved sides and no edges"

SECTION 706
NON-METALLIC PIPE

706.06 Corrugated Polyethylene Pipe for Underdrain, Option I and Option III Culvert Pipe Change the first sentence from "…300 mm diameters to 900 mm" to "…300 mm diameters to 1200 mm" Delete, in it's entirety, the last sentence which begins "This pipe and resins…" and replace with the following; "The manufacturing plants of polyethylene pipe shall be certified by the Eastern States Consortium. Polyethylene pipe shall be accepted based on third party certification by the AASHTO's National Transportation Product Evaluation Program."

SECTION 709
REINFORCING STEEL AND WELDED STEEL WIRE FABIC

709.03 Steel Strand Change the second paragraph from "…shall be 12mm [½ inch] AASHTO M203M/M203 (ASTM A416/A416M)…" to "…shall be 15.24 mm [0.600 inch] diameter AASHTO M203 (ASTM A416)…"

SECTION 710
FENCE AND GUARDRAIL

710.03 Chain Link Fabric Add the following sentence: "Chain Link fabric for PVC coated shall conform to the requirements of AASHTO M181, Type IV-Class B."
710.04 Metal Beam Rail Replace with the following: "Galvanized steel rail elements shall conform to the requirements of AASHTO M 180, Class A, Type II.
When corrosion resistant steel is specified, rail shall conform to AASHTO M 180, Class A, Type IV. Beams of corrosion resistant steel shall not be painted or galvanized. They shall be so handled and stored that the traffic face of these beams, used in a continuous run of guardrail, shall not show a distinctive color differential.

When metal beam rail is to be installed on a curve having a radius of curvature of 150 ft. or less, the beam sections shall be fabricated on an arc to the required radius and permanently stamped or embossed with the designated radius.
The engineer may take one piece of guardrail, a backup plate, and end or buffer section from each 200 pieces in a lot, or from each lot if less than 200 pieces are included therein for determination of compliance with specification requirements. If one piece fails to conform to the requirements of this specification, two other pieces shall be tested. If either of these pieces fails to conform to the requirements of this specification, the lot of material represented by these samples shall be rejected. A lot shall be considered that quantity of material offered for inspection at one time that bears the same heat and coating identification."
710.07 Guardrail Posts Section b. change "…AASHTO M183/M183M…" to "…AASHTO M 270M/M 270 Grade 250 (36)…"

SECTION 712
MISCELLANEOUS HIGHWAY MATERIALS

712.04 Stone Curbing and Edging Delete the existing and replace with the following: "Stone for curbing and edging shall be approved granite from acceptable sources. The stone shall be hard and durable, predominantly gray in color, free from seams that would be likely to impair its structural integrity, and of a smooth splitting character. Natural grain size and color variations characteristic of the source deposit will be permitted. Such natural variations may include bands or clusters of mineral crystallization provided they do not impair the structural integrity of the curb stone. The Contractor shall submit for approval the name of the quarry that is the proposed source of the granite for curb materials along with full scale color photos of the granite. Such submission shall be made sufficiently in advance of ordering so that the Resident may have an opportunity to judge the stone, both as to quality and appearance. Samples of curbing shall be submitted for approval only when requested by the Resident. The dimensions, shape, and other details shall be as shown on the plans."
712.06 Precast Concrete Units In the first paragraph, change "…ASTM C478M…" to "…AASHTO M199…" Delete the second paragraph and replace with the following; "Approved structural fibers may be used as a replacement of 6 x 6 #10 gauge welded wire fabric when used at an approved dosage rate for the construction of manhole and catch basin units. The material used shall be one of the products listed on the Maine Department of Transportation's Approved Product List of Structural Fiber Reinforcement." Delete the fifth paragraph and replace with the following; "The concrete mix design shall be approved by the Department. Concrete shall contain 6% air content, plus or minus 1½% tolerance when tested according to AASHTO T152. All concrete shall develop a minimum compressive strength of 28 MPa [4000 psi] in 28 days when tested according to AASHTO T22. The absorption of a specimen, when tested according to AASHTO T280, Test Method "A", shall not exceed nine percent of the dry mass."
Add the following:
"712.07 Tops, and Traps These metal units shall conform to the plan dimensions and to the following specification requirements for the designated materials.

Gray iron or ductile iron castings shall conform to the requirements of AASHTO M306 unless otherwise designated."

712.08 Corrugated Metal Units The units shall conform to plan dimensions and the metal to AASHTO M36/M36M. Bituminous coating, when specified, shall conform to AASHTO M190 Type A.

712.09 Catch Basin and Manhole Steps Steps for catch basins and for manholes shall conform to ASTM C478M [ASTM C478], Section 13 for either of the following material:

(a) Aluminum steps-ASTM B221M, [ASTM B211] Alloy 6061-T6 or 6005-T5.

(b) Reinforced plastic steps Steel reinforcing bar with injection molded plastic coating copolymer polypropylene. Polypropylene shall conform to ASTM D 4101.

712.23 Flashing Lights Flashing Lights shall be power operated or battery operated as specified.

(a) Power operated flashing lights shall consist of housing, adapters, lamps, sockets, reflectors, lens, hoods and other necessary equipment designed to give clearly visible signal indications within an angle of at least 45 degrees and from 3 to 90 m [10 to 300 ft] under all light and atmospheric conditions.

Two circuit flasher controllers with a two-circuit filter capable of providing alternate flashing operations at the rate of not less than 50 nor more than 60 flashes per minute shall be provided.

The lamps shall be 650 lumens, 120 volt traffic signal lamps with sockets constructed to properly focus and hold the lamp firmly in position.

The housing shall have a rotatable sun visor not less than 175 mm [7 in] in length designed to shield the lens.

Reflectors shall be of such design that light from a properly focused lamp will reflect the light rays parallel. Reflectors shall have a maximum diameter at the point of contact with the lens of approximately 200 mm [8 in].

The lens shall consist of a round one-piece convex amber material which, when mounted, shall have a visible diameter of approximately 200 mm [8 in]. They shall distribute light and not diffuse it. The distribution of the light shall be asymmetrical in a downward direction. The light distribution of the lens shall not be uniform, but shall consist of a small high intensity portion with narrow distribution for long distance throw and a larger low intensity portion with wide distribution for short distance throw. Lenses shall be marked to indicate the top and bottom of the lens.

(b) Battery operated flashing lights shall be self- illuminated by an electric lamp behind the lens. These lights shall also be externally illuminated by reflex-reflective elements built into the lens to enable it to be seen by reflex-reflection of the light from the headlights of oncoming traffic. The batteries must be entirely enclosed in a case. A

locking device must secure the case. The light shall have a flash rate of not less than 50 nor more than 60 flashes per minute from minus 30 °C [minus 20 °F] to plus 65 °C [plus 150 °F]. The light shall have an on time of not less than 10 percent of the flash cycle. The light beam projected upon a surface perpendicular to the axis of the light beam shall produce a lighted rectangular projection whose minimum horizontal dimension shall be 5 degrees each side of the horizontal axis. The effective intensity shall not have an initial value greater than 15.0 candelas or drop below 4.0 candelas during the first 336 hours of continuous flashing. The illuminated lens shall appear to be uniformly bright over its entire illuminated surface when viewed from any point within an angle of 9 degrees each side of the vertical axis and 5 degrees each side of the horizontal axis. The lens shall not be less than 175 mm [7 in] in diameter including a reflex-reflector ring of 13 mm [½ in] minimum width around the periphery. The lens shall be yellow in color and have a minimum relative luminous transmittance of 0.440 with a luminance of 2854° Kelvin. The lens shall be one-piece construction. The lens material shall be plastic and meet the luminous transmission requirements of this specification. The case containing the batteries and circuitry shall be constructed of a material capable of withstanding abuse equal to or greater than 1.21 mm thick steel [No. 18 U.S. Standard Gage Steel]. The housing and the lens frame, if of metal shall be properly cleaned, degreased and pretreated to promote adhesion. It shall be given one or more coats of enamel which, when dry shall completely obscure the metal. The enamel coating shall be of such quality that when the coated case is struck a light blow with a sharp tool, the paint will not chip or crack and if scratched with a knife will not powder. The case shall be so constructed and closed as to exclude moisture that would affect the proper operation of light. The case shall have a weep hole to allow the escape of moisture from condensation. Photoelectric controls, if provided, shall keep the light operating whenever the ambient light falls below 215 lx [20 foot candles]. Each light shall be plainly marked as to the manufacturer's name and model number.

If required by the Resident, certification as to conformance to these specifications shall be furnished based on results of tests made by an independent testing laboratory. All lights are subject to random inspection and testing. All necessary random samples shall be provided to the Resident upon request without cost to the Department. All such samples shall be returned to the Contractor upon completion of the tests.

712.32 Copper Tubing Copper tubing and fittings shall conform to the requirements of ASTM B88M Type A [ASTM B88, Type K] or better.

712.33 Non-metallic Pipe, Flexible Non-metallic pipe and pipe fittings shall be acceptable flexible pipe manufactured from virgin polyethylene polymer suitable for transmitting liquids intended for human or animal consumption.

712.34 Non-metallic Pipe, Rigid Non-metallic pipe shall be Schedule 40 polyvinylchloride (PVC) that meets the requirement of ASTM D1785. Fittings shall be of the same material.

712.341 Metallic Pipe Metallic pipe shall be ANSI, Standard B36.10, Schedule 40 steel pipe conforming to the requirements of ASTM A53 Types E or S, Grade B. End plates shall be steel conforming to ASTM A36/A36M.

Both the sleeve and end plates shall be hot dip galvanized. Pipe sleeve splices shall be welded splices with full penetration weld before galvanizing.

712.35 Epoxy Resin Epoxy resin for grouting or sealing shall consist of a mineral filled thixotropic, flexible epoxy resin having a pot life of approximately one hour at 10°C [50°F]. The grout shall be an approved product suitable for cementing steel dowels into the preformed holes of curb inlets and adjacent curbing. The sealant shall be an approved product, light gray in color and suitable for coating the surface.

712.36 Bituminous Curb The asphalt cement for bituminous curb shall be of the grade required for the wearing course, or shall be Viscosity Grade AC-20 meeting the current requirements of Subsection 702.01 Asphalt Cement. The aggregate shall conform to the requirements of Subsection 703.07. The coarse aggregate portion retained on the 2.36 mm [No. 8] sieve may be either crushed rock or crushed gravel.

The mineral constituents of the bituminous mixture shall be sized and graded and combined in a composite blend that will produce a stable durable curbing with an acceptable texture. Bituminous material for curb shall meet the requirements of Section 403 - Hot Bituminous Pavement.

712.37 Precast Concrete Slab Portland cement concrete for precast slabs shall meet the requirements of Section 502 - Structural Concrete, Class A.

The slabs shall be precast to the dimension shown on the plans and cross section and in accordance with the Standard Detail plans for Concrete Sidewalk Slab. The surface shall be finished with a float finish in accordance with Subsection 502.14(c). Lift devices of sufficient strength to hold the slab while suspended from cables shall be cast into the top or back of the slab.

712.38 Stone Slab Stone slabs shall be of granite from an acceptable source, hard, durable, predominantly gray in color, free from seams which impair the structural integrity and be of smooth splitting character. Natural color variations characteristic of the deposit will be permitted. Exposed surfaces shall be free from drill holes or indications of drill holes. The granite slabs in any one section of backslope must be all the same finish.

The granite slabs shall be scabble dressed or sawed to an approximately true plane having no projections or depressions over 13 mm [½ in] under a 600 mm [2 ft] straightedge or over 25 mm [1 in] under a 1200 mm [4 ft] straightedge. The arris at the intersection of the top surface and exposed front face shall be pitched so that the arris line is uniform throughout the length of the installed slabs. The sides shall be square to the exposed face unless the slabs are to be set on a radius or other special condition which requires that the joints be cut to fit, but in any case shall be so finished that when the stones are placed side by side no space more than 20 mm [3/4 in] shall show in the joint for the full exposed height.

Liftpin holes in all sides will be allowed except on the exposed face.

SECTION 717
ROADSIDE IMPROVEMENT MATERIAL

717.03 C. Method #3 - Roadside Mixture #3 Change the seed proportions to the following:
Crown Vetch 25%
Perennial Lupine 25%
Red Clover 12.5%
Annual Rye 37.5%
717.05 Mulch Binder Change the third sentence to read as follows:
"Paper fiber mulch may be used as a binder at the rate of 2.3 kg/unit [5 lb/unit]."

SECTION 720
STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS

720.08 U-Channel Posts Change the first sentence from "…, U-Channel posts…" to "…, Rib Back U-Channel posts…"

SECTION 722
GEOTEXTILES

722.01 Stabilization/Reinforcement Geotextile Add the following to note #3; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."
722.02 Drainage Geotextile Add the following to note #3; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."
722.01 Erosion Control Geotextile Add the following note to Elongation in the Mechanical Property Table; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."

APPENDIX E

Specifications for the Construction of a 110’ Passenger Ferry for CBITD

May 11, 2010

Specifications for the
Construction of a 110' Passenger Ferry

Prepared For: Casco Bay Lines

56 Commercial Street

Portland, ME 07407

Prepared By: Rolls-Royce / Seaworthy Systems Inc.
P.O. Box 965
Essex, CT 06426

SSI Project No. 283-32

May 11 2010

TABLE OF CONTENTS

Section			Page
1.0	GENERAL REQUIREMENTS		1
	1.1	Background	1
	1.2	Intent	1
	1.3	Definitions	3
	1.4	General Description	6
	1.5	Regulatory Body Requirements	7
	1.6	Contract Guidance Plans	8
	1.7	Safety Requirements	10
	1.8	Care of Ferry During Construction	10
	1.9	Materials and Workmanship	11
	1.10	Inspection	13
	1.11	Launching and Drydocking	13
	1.12	Inclining Experiment	13
	1.13	Tests and Trials	13
	1.14	Delivery	16
	1.15	Documentation	16
	1.16	Weight Control	17
	1.17	Spares	17
2.0	STRUCTURE		17
	2.1	Materials	17
	2.2	Workmanship	17
	2.3	Welding	18
	2.4	Welding Schedule	19
	2.5	Hull Protection During Outfitting	19
	2.6	Weld Inspection	19
	2.7	Superstructure	19
	2.8	Chocks and Brackets	20
	2.9	Through Deck and Through Hull Penetrations	20
	2.10	Foundations	20
	2.11	Rudders	20
	2.12	Propellers	21
	2.13	Deck Guards and Safety Steps	21
3.0	DOORS, HATCHES, MANHOLES AND WINDOWS		21
	3.1	Doors	21
	3.2	Deck Hatches	23
	3.3	Manholes	23
	3.4	Plate Accesses	24
	3.5	Windows	24
	3.6	Window Wipers	24
4.0	STAIRS AND LADDERS		26
	4.1	Stairs	26
	4.2	Ladders	26

5.0 HULL FITTINGS 26
5.1 Rails 26

TABLE OF CONTENTS, cont'd

Section			Page
	5.2	Guards 27	
	5.3	Mooring Fittings	27
	5.4	Miscellaneous Fittings	28
	5.5	Ground Tackle	28
	5.6	Masts	28
	5.7	MOB Retrieval Arrangements	29
6.0	ACCOMMODATIONS		29
	6.1	Passenger Areas	29
	6.2	Rest Rooms	29
	6.3	Pilothouse	29
	6.4	Crew Locker Area	30
	6.5	Furniture	30
7.0	INSULATION, LININGS AND CEILINGS		31
	7.1	Insulation, General	31
	7.2	Structure Fire Protection Insulation	31
	7.3	Thermal Insulation	31
	7.4	Acoustic Insulation	32
	7.5	Linings and Ceilings	32
8.0	DECK COVERINGS		32
9.0	NAVIGATION EQUIPMENT		33
10.0	SAFETY EQUIPMENT		34
11.0	NAMEPLATES, NOTICES AND MARKINGS		34
	11.1	Ship's Name	34
	11.2	Builder's Nameplate	35
	11.3	Draft Marks	35
	11.4	Notice Boards and Frames	35
	11.5	Signage	35
12.0	MISCELLANEOUS OUTFIT		36
13.0	ELEVATOR		36
	13.1	General	36
	13.2	Elevator Performance	37
	13.3	Devices and Equipment	37
	13.4	Passenger Cab Enclosures	37
	13.5	Passenger Type Hoistway Entrances (U.L. "B" Labeled)	38
14.0	PAINT AND COATING SYSTEMS		39
	14.1	General	39
	14.2	Painting Schedule	40
	14.3	Cathodic Protection	42
	14.4	Paint Thickness Tests	42
15.0	MAIN AND AUXILIARY MACHINERY		42
	15.1	Main Engines and Transmissions	43
	15.2	Main Engine and Transmission Controls System	45
	15.3	Shafting Installation	46

15.3.1 Tailshaft, Stuffing Box, Drivesaver 47
15.3.2 Thrust Shaft and Bearings 47
15.3.3 Intermediate Shaft and Couplings 48
15.3.4 Shaft Brake Installation 49
15.4 Steering System 50

TABLE OF CONTENTS, cont'd

Section			Page
		15.4.1 Steering System	50
		15.4.2 Bow Thruster	51
	15.5	Fuel System	52
	15.6	Lubrication and Hydraulic Oil Systems	53
	15.7	Engine Cooling Systems	54
	15.8	Fresh Water System	55
	15.9	Salt Water Systems	57
	15.10	Sanitary System Water	57
	15.11	Firemain	58
	15.12	Bilge System	59
	15.13	Exhaust System	59
	15.14	Heating and Ventilation	61
		15.14.1Hydronic Heating	62
		15.14.2Engine Room Ventilation	63
		15.14.3ADA Head Exhaust Fans	64
		15.14.4Pilothouse Window Defogger	64
		15.14.5Pilothouse Exhaust Fans	65
	15.15	Compressed Air Systems	65
	15.16	Pumps	66
	15.17	Sewage System	66
	15.18	Fixed CO_2 Systems	67
16.0	PIPING		67
17.0	DIESEL GENERATOR UNITS		68
18.0	INSTRUMENTS AND CONTROL BOARDS		69
19.0	ELECTRICAL SYSTEM		70
	19.1	Switchboards	71
	19.2	Electrical Distribution	72
	19.3	Electric Motors and Controls	74
20.0	LIGHTING SYSTEMS		74
21.0	COMMUNICATIONS AND ELECTRONICS		76
	21.1	Public Address System	77
	21.2	Intercom System	77
	21.3	Sound Powered Phone System	78
	21.4	Fire Detection System	78
	21.5	Video Surveillance System	78
	21.6	Storage Batteries	79

ATTACHMENT A: Permissible Unfairness in Steel Welded Structure 81
ATTACHMENT B: Master Equipment List 82

LIST OF TABLES

Table 1.1: Ferry Characteristics 6

Table 2.1: Contract Plans 8
Table 2.2: Contract Guidance Plans 9
Table 3.1: Preliminary Door List 22
Table 3.2: Preliminary Window List 25
Table 14.1: Paint Schedule 41

1.0 GENERAL REQUIREMENTS

1.1 Background

The Casco Bay Island Transit District (CBITD) is a quasi-municipal, nonprofit corporation established to provide transportation service among and between the islands of Casco Bay and the mainland terminal in Portland, Maine.

CBITD is owned and operated by the residents of six Casco Bay islands and is governed by a board of twelve directors. Islands served by the Casco Bay Island Transit District are Peaks, Little Diamond, Great Diamond and Cliff, which are within the City of Portland, the towns of Long Island and Chebeague Island.

CBITD is the "lifeline" for the residents of the islands. Over 960,000 passengers and their freight and 25,000 vehicles are transported annually. CBITD also carries the U.S. mail and transports school children to and from Portland. Incidental tour, cruise and charter services are offered as well.

The most important aspect of CBITD's operation is that the District operates dependably 365 days per year, with a minimum of four weekday and three weekend trips to the Down Bay islands and fourteen trips per day to Peaks Island. As the lifeline for the islands, CBITD must ensure that the residents have safe, dependable and reliable transportation for themselves and their goods on a scheduled daily basis.

1.2 Intent

It is the intent of these specifications that the Contractor shall, in accordance with these specifications and accompanying contract and contract guidance plans, build and deliver to the Owner at their pier in Portland, Maine, an all welded steel passenger ferry complete in all respects, fully equipped and outfitted by the Contractor in accordance with good shipbuilding practice, complying with all applicable requirements of regulatory bodies listed in Section 1.5.

It is the intent of these specifications and drawings to provide the Owner with a design that meets their unique requirements, provide a design package for USCG approval, and enable a shipyard to develop a fixed firm construction price and schedule. These specifications, contract plans and contract guidance plans do not cover every detail of construction and equipment. Any material or parts, the omission of which would be detrimental to the seaworthiness or serviceability of the

ferry and the inclusion of which is generally accepted as good shipbuilding practice, shall be furnished by the Contractor to the satisfaction of the Owner at no additional cost to the Owner.

The Specifications describe the features and functions of the ferry, and together with other referenced documents, define the ferry with respect to required performance, equipment, outfitting, arrangements and structure. The contractor is responsible for carefully reviewing the specifications and drawings. Any item of work, material, outfit of piece of equipment shown on the contract drawings but omitted from these specifications, and vice versa, shall be furnished by the Contractor without increase in cost to the Owner, as though they had been mentioned in or required by both. In the event of a discrepancy between any of the following listed documents, it shall be brought to the attention of the Owner's representative. In general the order of precedence shall be:

1. The Contract
2. The Specifications
3. USCG Rules
4. ABS Requirements
5. Contract Drawings
6. Contract Guidance Drawings

The shipyard shall furnish all labor, material and equipment and perform all operations required to construct, test and deliver the ferry as specified herein.

All material and equipment utilized in the construction and outfitting of the ferry shall be new and suitable for the marine environment. Equipment and components shall be selected, installed and tested in accordance with manufacturer's recommended practices and installation requirements. Equipment and components shall not be used on the ferry that in any way would void the manufacturer's warranties. A "Buy America" procurement policy is required for the entire ferry except for electronics and a few selected items.

The number of different types, sizes and models of equipment and components used on the ferry shall be limited to the minimum practical. System components such as pumps, motors, fittings and valves shall be standardized throughout the ferry as much as possible to limit support and maintenance requirements.

1.3 Definitions

The term "**Architect**" means Rolls-Royce / Seaworthy Systems Inc., Essex, CT.

Wherever terms such as "**as approved**," "**to the approval**," "**for approval**," "**as directed**," or "**as required**" are used without further qualification, the decision of the Owner's Representative is required. Where an item is required to be submitted to the Owner for approval, work shall not proceed until notification of Owner's approval is received by the Contractor. In the event the item is not approved by the Owner, rationale shall be provided by the Contractor, and work shall not proceed until a satisfactory and mutually agreeable resolution has been resubmitted and approved. Owner approval of a Contractor's working drawing will not establish a change order. Approval of a drawing shall not authorize a deviation from the Specifications, Contract Plans or Contract Guidance Plans unless the deviation is conspicuously described to the Owner and the Owner approves the deviation in writing.

The term "**as shown on the drawings**", as used in these Specifications, means as depicted on the Contract and Contract Guidance Drawings listed in Tables 2.1 and 2.2.

The term "**Contract**" means the written agreement between the Owner and the Contractor covering the furnishing of material and the performance of work.

The term "**Contractor**" means the firm holding the prime contract with CBITD for the construction of the ferry.

The term "**Contract Documents**" means the Contract, Contract Plans, Contract Guidance plans.

The term "**Contract Plans**" means drawings and other technical data prepared by the Architect that cannot be changed without a change to the construction contract and that is approved by the Owner.

The term "**Contract Guidance Plans**" means drawings and other technical data prepared by the Architect that cannot be changed unless the change is approved by the Owner and that such a change will not affect the performance or USCG certification of the ferry.

The terms "**furnish, provide, install or fit**" mean that the Contractor shall furnish, install and connect in proper working order.

The term "**good shipbuilding practice**" means construction to soundly conceived, and engineered detailed plans, prepared by the Contractor, incorporating the specified components and utilizing recognized shipbuilding construction and testing methods to ensure that the completed ship conforms to specification requirements. Inspection by the Owner's representative is for the purpose of verifying the proper function of the Contractor's quality assurance measures and is not considered a substitute for in-process control of quality by the Contractor.

The acronym **"iaw"** means “in accordance with.”

The acronym **"iwo"** means “in way of.”

The term "**marine**" or "**marine quality**" means that an item shall be constructed of materials unaffected by moisture, sea spray, extremes of temperature or other hazards of the marine environment and is designed and constructed to perform its intended function, with ease and safety of operation and minimum maintenance, under the dynamic motions and cyclic loads imparted by marine operating conditions.

The term "**operationally tested"** means the system, equipment, or machinery shall be tested for proper operation, functioning of controls, safety devices and operating components as specified under all service conditions and compliance with Regulatory Bodies requirements.

The term "**Owner**" means Casco Bay Island Transit District (aka Casco Bay Lines).

The term "**Owner's Representative, Inspector**" means the company, person or persons authorized by the Owner to act on the Owner's behalf and make necessary inspections of the workmanship and materials provided by the Contractor. In no event, however, shall the Owner have an affirmative duty to discover and report any non-conformity, excuse any variation from the Contract Documents or proper marine construction techniques.

The term "**provide**" means the purchasing, temporary storage, installation, fitting, inspection, testing and the necessary work required for systems, subsystems, equipment, its support systems and structure to operate for their intended purpose.

The term "**Regulatory Body**" means a Federal or State regulatory agency or an organization that is authorized by the agency to perform delegated regulatory functions on its behalf.

The term "**Regulatory Body Requirements**" means those regulations and interpretations issued by cognizant Federal or State agencies.

The term "**watertight**" means capable of preventing the passage of water through the structure in any direction under a head of water, for which the surrounding structure is designed.

The term "**weathertight**" means capable of preventing the penetration of water, even boarding seas, into the ferry in any sea condition.

ABS means American Bureau of Shipping.

ADA means Draft Passenger Vessel Accessibility Guidelines

AGMA means American Gear Manufacturer's Association.

AISI means American Iron and Steel Institute.

AMCA means Air Movement and Control Council.

ANSI means American National Standards Institute.

ASHRAE means American Society of Heating, Refrigeration, and Air Conditioning Engineers.

ASME means American Society of Mechanical Engineers.

ASTM means American Society for Testing and Materials.

CFR means Code of Federal Regulations.

CRES means Corrosion Resisting Steel of suitable grade for marine use

EPA means Environmental Protection Agency.

FCC means Federal Communications Commission.

FDA means the Food and Drug Administration, U.S. Department of Health and Human Services.

IEEE means Institute of Electrical and Electronics Engineers.

IES means Illumination Engineering Society.

MCR means Maximum Continuous Rating.

NEC means National Electrical Code.

NEMA means National Electrical Manufacturer's Association.

NFPA means National Fire Protection Association.

NFP(A) means National Fluid Power Association.

NVIC means Navigation and Vessel Inspection Circular issued by the USCG.

OSHA means Occupational Safety and Health Administration.

72 COLREGS means International Regulations for Preventing Collision At Sea, 1972.

SNAME means Society of Naval Architects and Marine Engineers.

SSPC means Steel Structures Painting Council.

USCG means United States Coast Guard.

USPHS means the United States Public Health Service, U.S. Department of Health and Human Services.

USSG means United States Standard Gage.

1.4 General Description

The Contractor shall ensure that the ferry is designed and constructed in accordance with the required ferry characteristics shown in Table 1.1.

Table 1.1: Ferry Characteristics

Length, overall	110' – 4-5/8”
Beam (extreme)	31' – 11-1/2”
Beam at DWL	30' – 0-3/8”
Depth (molded amidships)	8' – 8-5/16”
Draft navigational in light condition	6' – 4"
Gross Tonnage (regulatory)	under 100
Passenger Capacity	399
Speed cruising	10 knots
Speed max	12.5 knots
Main propulsion machinery	450 SHP x 2
Auxiliary diesel	Northern Lights M65C2 65 kW x 2
Fuel oil capacity	4165 gallons
Fresh water capacity	1100 gallons

Sewage holding capacity	1100 gallons
Gray water holding capacity	1100 gallons
Lube oil capacity	55 gallons
Waste oil capacity	55 gallons
Hydraulic oil capacity	55 gallons
Estimated Steel Weight (Preliminary)	155.35 LT

The ferry is to be constructed of all welded steel. The hull shape shall be single chine with overhanging guards. The ferry is to be arranged below the main deck so that the hull is subdivided into watertight compartments, including forepeak, forward void, tank void, fuel tank void, engine room, shaft void and lazarette. The below main deck structure shall be transversely framed with deep floors on 48" centers with intercostal plate stiffeners. The three decks, main, 01 and 02 and superstructure side shell shall be longitudinally framed. There shall be seating for 265 passengers and standing room for 134 passengers.

The main deck is to be a combination passenger seating area with designated areas for passenger freight stowage, bike stowage and boarding gates with sliding weathertight doors P/S. There shall also be a removable gate aft on centerline at the transom for occasional stern loading. The majority of loading shall be on the main deck, forward or aft, port or starboard. There shall be an electro-hydraulic elevator serving the main and 01 decks. The freight capacity of the elevator shall be 2000 lbs as described in Section 13.0. The elevator shall meet ADA requirements and shall serve passengers only on the main and 01 decks.

The ferry must be completely ADA compliant with regard to rest rooms, signage, access and communications.

The 01 deck shall have both inside and outside seating and designated freight and bike stowage areas. Loading gates shall be provided on the 01 deck, forward and aft, P/S. Outside open seating is forward with outside covered seating aft. The 02 deck contains the pilothouse. Aft of the pilothouse shall be located a small crew area with lockers.

1.5 Regulatory Body Requirements

The ferry is to be built in accordance with the U.S. Coast Guard regulations for small passenger ferries under 100 gross tons carrying more than 150 passengers on a Lakes, Bays & Sounds route, not more than 1 mile from land.

All applicable sections of the most current editions of the following publications at the time of contract signing shall also be considered as having the same force as if they were included verbatim in the Specifications:

a. USCG Subchapter K - "Rules and Regulations for Small Passenger Ferries Under 100 Gross Tons Carrying more than 150 passengers " (46 CFR 114-122)

b. American Bureau of Shipping, Rules for Building and Classing Steel Ferries for Service on Rivers and Intracoastal Waterways. (The ferry shall not be classed.)

c. Vessel Sanitation Program Construction Guidelines

d. Navigation Rules International - Inland" (COMDTINST M16672.2).

e. ADA Draft Passenger Vessel Accessibility Guidelines

f. IEEE-45 Recommended Practice for Electric Installations on Shipboard

g. USCG NVIC 12-82 Recommendations on Control of Excessive Noise

h. IES Recommended Practice for Marine Lighting

i. Underwriter's Laboratories, Inc., Applicable Standards for Marine Electrical Equipment and Lighting Fixtures

j. Federal Communications Commission

k. USCG Admeasurement Rules for ferries under 100 gross Tons (Regulatory Tonnage). Tonnage calculations to be performed by Germanischer Lloyd.

l. ASTM F1321-92, "Standard Guide for Conducting a Stability Test to Determine the Light Ship Displacement and Centers of Gravity of a Vessel."

If any changes to the design or construction are required due to modifications of existing regulatory body requirements or new requirements subsequent to the signing of the construction contract, where compliance with them would cause either an increase or decrease in the cost of the ferry, a change order shall be developed by the Contractor as per the provisions of the contract. The contractor shall be responsible for all regulatory body inspections including scheduling, fees, testing and final documentation, including, but not limited to:

Certificate of Inspection
Master Carpenter's Certificate
Certificate of Documentation
Regulatory Tonnage Certificate
FFC Documentation
Compass Deviation Card
Stability Letter
Certificate of Sanitary Construction

1.6 Contract Guidance Plans

The ferry shall be constructed in accordance with the following Contract and Contract Guidance Plans presented in Tables 2.1 and 2.2, respectively:

Table 2.1: Contract Plans

	Title	Drawing Number
5	Lines & Offsets*	283-32A-003
	Outboard Profile	283-32A-009
	General Arrangements	283-32A-010

Table 2.2: Contract Guidance Plans

Title	Drawing Number
Specifications	
Weight Estimate*	283-32A-002
Stability Analysis*	283-32A-006
Tonnage Plan*	283-32A-008
Machinery Room Arrangements	283-32A-014
Fire Control and Evacuation Plan (Preliminary)	283-32A-015
Accessibility Arrangements Details	283-32A-016
Scantlings Below Main Deck	283-32A-102
Structural Sections Above Main Deck	283-32A-103
Deck Scantlings	283-32A-104
Shafting and Rudder Arrangements	283-32A-201
Fuel Oil System Schematic	283-32A-203
Main Engine and Genset Cooling System Schematic	283-32A-204
Main Engine and Genset Exhaust Plan	283-32A-205
Engine Room Ventilation	283-32A-206
AC Load Analysis	283-32A-301
DC Load Analysis	283-32A-302
AC Electrical System One Line Diagram	283-32A-303
24 VDC Electrical System One Line Diagram	283-32A-304
120 VAC & 24VDC Lighting Schematic	283-32A-305
Hydronic System Schematic	283-32A-501
Firemain System Schematic	283-32A-502
Bilge System Schematic	283-32A-503
Compressed Air Schematic	283-32A-504
Void Vents & Deck Drains	283-32A-505
Sanitary Water & Sewage System Piping Schematic	283-32A-506
Gray Water and FW Piping Schematic	283-32A-507
Insulation Details	283-32A-601
Bench Seat Details	283-32A-602
Anti-Singing Edge Propeller	283-32A-603

Changes to the plans shall not be made without the approval of the Owner and/or Architect in writing. Plans marked with an asterisk (*) are not included in the bid package but shall be furnished to the Contractor after award of the Contract. The Architect shall submit the above Guidance Plans to the USCG for review and approval. The Contractor shall provide all detail working drawings necessary for the construction of the ferry to suit their own construction methods. It should be noted that all system drawings are schematic and generally show where systems should be run. The Contractor shall be required to develop the details of the systems

and how they are to be run. The Contractor shall be provided with a set of preliminary faired hull and superstructure lines and offsets. It is the Contractor's responsibility to fair the lines as needed for construction.

The Contractor shall develop a docking plan in AutoCAD 2008 format showing the location of all as-built underwater appendages, such as rudders, shafting, transducers, drain plugs, skin coolers, anodes, tank boundaries, framing, sections and profiles for keel, bilge blocks or railway blocking. If there are substantial changes, the Contractor shall supply the Owner with as-built versions of the plans in Tables 2.1 and 2.2 above and with any detailed drawings developed during construction.

A preliminary construction schedule shall accompany the Contractor's bid. Within three weeks of signing a construction contract, the Contractor shall supply a detailed construction schedule. The Contractor shall also supply the Owner with a light ship weight estimate within four weeks of signing a construction contract.

1.7 Safety Requirements

Hazardous onboard operating conditions shall be prevented by safe arrangement of machinery and equipment. Protection of personnel against electrical and mechanical operating hazards shall be provided. Shafting, couplings, gears and similar rotating or moving parts shall have protective guards installed for the protection of personnel. Such protective guards shall be removable without dismantling the surrounding machinery. Personnel shall be protected from contact with surfaces 125 deg F or hotter by means of insulation, stand off guards or handrails. All equipment, machinery and its installation shall comply with OSHA requirements as much as possible.

1.8 Care of Ferry During Construction

All parts of the ferry and equipment shall be maintained in a satisfactory condition during the entire period of construction and fitting out. All dirt, chips, scrap material and other foreign matter shall be cleaned out at least once a week during construction. Water shall not be allowed to remain on decks or in the bilges of the ferry. Tanks and voids shall be cleaned and preserved before being closed. Welds shall be thoroughly cleaned. Areas where welding shall be difficult

or impossible to view after construction shall pass inspection by the Owner's representative prior to the closing of such areas.

Special measures shall be taken by the Contractor to minimize damage incident to storage, installation, and construction and to prevent corrosion or other deterioration, especially to all unpainted or polished surfaces and moving parts. All equipment shall be protected against grit and sand blasting. All damage and deterioration of the ferry, its parts, fittings and outfit that were preventable by the use of covers, wrapping, heaters, humidity control devices and other such means shall be corrected and repaired by the Contractor at their expense.

Equipment, prefabricated parts, furniture and materials which are stored in warehouses or elsewhere during the construction period of the ferry shall be thoroughly examined for damage and shall be free of debris, insects and rodents before being placed onboard. All materials, equipment, machinery and other items, whether ordered by the Contractor or furnished by the Owner shall, when received by the Contractor, be marked by the Contractor for use only for this contract and installed or stowed as appropriate. Stowage shall be segregated from materials for other shipyard activities. Stowage for equipment shall be covered, with temperature and humidity control to prevent deterioration, as required and shall be patrolled or otherwise protected against fire, theft, vandalism and the introduction of foreign substances.

The Contractor shall provide and maintain an adequate watch for the ferry until delivery so as to protect the ferry from damage, fire and pilferage. All damage and all items pilfered shall be repaired or replaced by the Contractor without cost to the Owner. Flammable materials shall not be stored onboard the ferry in such a manner that a serious fire hazard is created, and special care shall be given to prevent the possible outbreak of fire. Where torch cutting or welding is being carried out in the vicinity of combustible materials, a fire watch, whose sole duty shall be to watch out for fires and keep firefighting equipment on hand, shall be constantly on duty.

The Contractor is to pay all expenses including insurance, regulatory fees, harbor and pilotage fees, trials expenses, delivery etc., prior to delivery to the Owner.

1.9 Materials and Workmanship

All material and equipment utilized in the construction and outfitting of the ferry shall be new and suitable for the marine environment. Equipment and components shall be selected, installed and tested in accordance with manufacturer's recommended practices and installation requirements. Equipment and components shall not be used on the ferry that in any way would void the manufacturer's warranties. The

contractor shall obtain all mill or manufacturer's certificates and provide copies to the Owner. A "Buy America" procurement policy is required for the entire ferry except for electronics and a few selected items.

A Master Equipment List has been provided as Attachment B. The Contractor shall note that the Mater Equipment List is for information only. The Contractor is to verify that all equipment quantities, model numbers, suitability for intended service, weights, specifications and manufacturer are in accordance with the contract, specifications and drawings. The number of different types, sizes and models of equipment and components used on the ferry shall be limited to the minimum practical. System components such as pumps, motors, fittings and valves shall be standardized throughout the ferry as much as possible to limit support and maintenance requirements. Serviceability, maintenance and ease of purchasing spare parts in the Portland, Maine area shall be included when choosing equipment.

Where specific manufacturers and equipment model numbers are specified, there shall be no substitution with "equal components." In these instances, it is the intention of the Owner to standardize, as much as possible, equipment and spares across its fleet.

Where an item specified is followed with the words "or equal" the Contractor may substitute an equivalent piece of equipment with regard to form, fit, function and performance if approved by the Owner. It is the Contractor's responsibility to provide all necessary documentation supporting an “or equal” claim.

All equipment shall be selected to ensure maximum reliability, maintainability and availability. Equipment and material selection shall be based on the following precedence:

1. Owner's desire to standardize equipment across its fleet
2. Proven marine service record
3. Commercially available spare parts in Portland, ME region
4. Ease of maintenance
5. Minimum number of special tools required for repair
6. Minimum life cycle cost
7. Manufactured in the USA

All bolt heads and nuts shall be of hexagonal standard type in accordance with ANSI standards. Lock washers and nuts shall be provided wherever assemblies or items are bolted to the ferry's

structure, except where the individual sections of the Specifications require more positive locking arrangements. All exterior fastenings, all fastenings that may be in contact with salt water or all connections of dissimilar materials shall be CRES with appropriate isolation from dissimilar metals. All fastener threads and pins to be greased with "Neverseize" compound.

If the Contractor subcontracts construction of the hull and/or other major components, full details of the experience, capability and financial standing of the proposed subcontractor are to be submitted to the Owner for approval well before any commitment is made. Care is to be taken to ensure that any subcontracts adequately protect the Owner's interests.

1.10 Inspection

The ferry is to be constructed and equipped under the supervision and inspection by the Owner's representative and the USCG. The Contractor shall provide a suitable air-conditioned office space, complete with furniture, file cabinets, cleaning service and a telephone line. Access shall be given to the Owner's representative at all times during normal business hours for the purpose of supervising work, inspecting materials and inspecting workmanship. The Owner's representative shall have the authority to reject any material or workmanship, that in their opinion, is defective, unsuitable, or that does not conform to the requirements of these specifications.

1.11 Launching and Drydocking

The Contractor shall be responsible for the satisfactory launching of the ferry. If damage is suspected or found during or after launching, the ferry shall be drydocked for survey and correction at the Contractor's expense. If the ferry is launched more than 60 days prior to delivery, it shall be drydocked to have the sea chests checked, bottom cleaned and the bottom coating touched up to the satisfaction of the Owner's representative.

1.12 Inclining Experiment

Prior to delivery an inclining experiment shall be conducted by the Architect in accordance with reference (m) in Section 1.5. The Builder shall provide the necessary resources and cooperation to assist the Architect in the stability test.

After the stability test, the Builder shall be prepared to add fixed ballast (up to 5 tons) to the vessel under direction of the Architect to correct trim or heel.

1.13 Tests and Trials

The Contractor shall plan and conduct dock and sea trials designed to thoroughly operate and test all of the Ferry's electrical and propulsion plant, steering equipment, auxiliary systems, emergency equipment and electronic navigation equipment. All tests are to be performed in the presence of the Owner or his representative and, where appropriate, the USCG. One week's advance notice is to be provided to the Owner for all tests.

Through hull fittings, through bulkhead fittings, through deck fittings, through house and upper deck fittings are to be tested with a high-pressure hose in accordance with 46 CFR Subchapter K.

Piping systems shall be tested in accordance with 46 CFR Subchapter K or to a minimum of 1.5 times the system working pressure. Pipes, joints and fittings shall be thoroughly checked for leaks. Piping systems shall be thoroughly flushed before attachment of machinery or equipment into the system. The final flushing fluid shall be the fluid normally conveyed by the piping system. Main engine and generator cooling systems including heat exchangers are to be flushed with fresh water. All leaks shall be corrected prior to placing any system in service.

Electrical systems shall be tested in accordance with 46 CFR Subchapter K or for continuity and insulation resistance to levels specified in IEEE 45 or the NEC. Insulation and continuity tests shall be made on branch circuits and feeders prior to the connection of consumers that may be damaged during the course of testing such as electronic equipment. Feeder and branch circuit insulation tests shall be made with the common ground of the AC and DC systems disconnected. Written results of insulation and continuity tests to be provided to Owner for review and approval.

All electrical equipment enclosures shall be electrically bonded to the Ferry's hull. The Contractor shall also conduct a bonding survey and a galvanic corrosion survey after the performance trials and when the Contractor deems the Ferry complete. . Written results of insulation and continuity tests to be provided to Owner for review and approval.

The Contractor shall conduct an infrared survey of all electrical and connected circuits while under load. The survey shall be conducted after the equipment and circuits have reached a stable state and warmed to operating temperatures.

Dock Trials are to be carried out to ensure the correct performance of all equipment. Propulsion and other engine room machinery, control systems and alarm systems, etc., are to be thoroughly tested. All piping, ventilation and electrical systems etc., shall be thoroughly tested. A complete check is to be made of all valve and switch nameplates.

The Contractor is to pay for the fuel, lubricating oil and other consumables required for the trials. The trials condition, quantity of fuel, water etc., is to be agreed upon with the Owner in advance. The Contractor is to engage technical support personnel from the engine manufacturer and other subcontractors and equipment suppliers as necessary. The Contractor is to provide the crew necessary, including the captain, to perform the trials.

The sea trials are to be carried out in accordance with the procedure approved by the Owner and the USCG and are to include as a minimum:

a. Speed Trials:

- 1 double run at 85% power for a distance of 5 nautical miles in each direction in a depth of water exceeding 5 times the ferry's normal draft.
- 1 double run at 100% power for a distance of 5 nautical miles in each direction in a depth of water exceeding 5 times the ferry's normal draft.
- 1 double run at 100% power using the port engine only for a distance of at least 1 nautical mile in each direction in a depth of water exceeding 5 times the ferry's normal draft.
- 1 double run at 100% power using the starboard engine only for a distance of at least 1 nautical mile in each direction in a depth of water exceeding 5 times the ferry's normal draft.

b. Main engine performance analysis:

- Emergency Stop from 100% ahead power to 100% astern power
- Astern running for 15 minutes minimum duration at 85% power
- Continuous full power endurance trial for 4 hours at 85% power
- Steering gear trials and turning circles ahead to right and left at various power levels up to and including 100% power.

During the trials the Owner shall conduct noise and vibration surveys. Any excessive noise or vibration shall be corrected by the Contractor before acceptance of the ferry by the Owner. Noise levels shall not exceed those listed in NVIC 12-82, *Recommendations on Control of Excessive Noise* as follows:

Pilot House	65 dB(A)
Passenger/Crew Spaces	72 dB(A)
ADA Heads	72 dB(A)
Engine Room	110 dB(A)
Open Decks	75 dB(A)

Vibration levels on all structure (decks, bulkheads, casings, overheads, etc.,) bounding enclosed and exposed normal passenger and crew spaces shall not exceed a root mean square velocity of 0.100 inches/second in the vertical, longitudinal or transverse directions, each considered separately.

Upon completion of the sea trials, with the Ferry at the Contractor's dock or other safe berth, an examination is to be made of the main engines and gearboxes, etc. Oil samples are to be drawn from each piece of equipment and sent to an approved oil analysis company. Components are to be opened and inspected if the Owner has any reason to deem this necessary. . Written results of all tests and trials to be provided to Owner for review and approval.

The Owner is to be informed of any test and trial dates for all major items at least one week prior to the tests being conducted. On completion of the trials program and again on delivery, a survey is to be made of the Ferry by the Owner, and any defects which may have developed or any work found to be incomplete is to be corrected and made good by the Contractor before acceptance of the Ferry, unless otherwise agreed to by the Owner. Any unsatisfactory test is to be repeated after the correction of any defects to the satisfaction of the Owner.

1.14 Delivery

The Contractor shall be responsible for delivering the ferry to the State Pier at the CBITD terminal in Portland, Maine with full fuel tanks, full documentation and ready for service in all respects to be able to immediately start carrying passengers, free of all debts and liens. All tanks, bilges and other spaces are to be clean and thoroughly cleared of dunnage, scrap, refuse and dirt. Special care is to be taken that all surfaces in the tanks, piping systems and machinery are clean and free of any foreign material; that all painted surfaces are touched up and that all machinery is in perfect running order with any deficiencies corrected.

1.15 Documentation

5 The Contractor shall prepare a technical manual consisting of all of the purchase orders, invoices, original manufacturer's operating and service manuals, preventive and corrective maintenance manuals and parts lists/sources for all of the ferry's mechanical, electrical components and equipment. Steel mill certificates shall be provided prior to construction, attesting to the fact that the steel was manufactured in the United States. During the construction process, all purchase orders and invoices shall be made available to the Owner for inspection. The Contractor shall also provide electronic versions of any revised Architect's drawings to reflect any differences due to as-built conditions.

1.16 Weight Control

Final light ship weight and centers are very important to the performance of the ferry. The contractor shall undertake a weight control program that includes the updating of the Architect's weight estimate on a periodic basis to reflect actual installed weights of equipment and design changes. Scantlings shall not be changed, neither made lighter nor heavier than what is shown on the drawings, without the approval of the Architect.

1.17 Spares

Main propulsion engine and genset manufacturer's recommended spares for one year for each engine shall be supplied. Two spare bearing internals for the thrust bearings, two spare Drivesaver discs, two spare propellers and two spare Kopflex couplings shall also be supplied. All spares to be new and packaged for preservation and storage, as required.

2.0 STRUCTURE

2.1 Materials

The ferry is to be all welded with steel plates and shapes meeting ABS material specifications. Up to 1/2" thick plate, ASTM A36 steel is acceptable. All scantlings have been sized in accordance with reference (b) of Section 1.5 and shall be installed as shown on the Contract Guidance Plans. Changes to scantlings are not to be made without the prior consent of the Architect. All members shall be radius sniped and a minimum of the lesser of 1.5” or 25% of the depth of the member limber holes shall be provided wherever needed to permit either drainage or venting of all tanks, compartments, pockets and voids.

Where aluminum is fastened in direct contact with a dissimilar material, such as steel, the two metals shall be electrically isolated and joined with CRES fasteners to prevent galvanic corrosion.

2.2 Workmanship

Particular care shall be taken to ensure fair lines, fair plate panels, adequate fit up and the proper alignment of structural members. This ferry is in the public's eye during its operations and a fair hull and superstructure are of primary importance to the Owner. All structural members and

sight edges shall be fair and smooth for good appearance. All corners and plate edges shall be smooth and free from defects that could cause damage to equipment or injury to personnel. Sharp or ragged edges of all structural work, access holes, etc. shall be removed. Attention shall be given to the neatness of structural brackets and clips, to the sniping of angles and the cutting of shapes. All structural corners exposed to the passengers or crew shall be radiussed to a minimum of 3 inches. All corners of openings in plate for doors, windows or trunks shall be radiussed or relieved to prevent stress concentrations.

Direct attachment of fittings to watertight or oil-tight structure shall be by welding only. There shall be no unsupported ends of frames or brackets landing on plate that shall produce hard spots. To ensure sound welds and structural continuity, all structural pieces shall be fitted up and aligned within the ABS tolerances prior to welding.

Lightening, air, drain and limber holes shall be neatly cut with all notches, burrs and ragged edges removed with radiussed corners. Where holes are made in decks, shell or strength members, suitable compensation in the form of insert plates or rings and doublers shall be added. Where changes in structural continuity are unavoidable, suitable brackets are to be fitted. Trunks and coamings in general shall be cut with a corner radius of at least 3".

2.3 Welding

All welding procedures, methods, electrodes and inspection shall be in accordance with the ABS and USCG requirements. All welders are to be certified by the USCG. All faying surfaces exposed to the weather, where not already joined by weld material, shall be sealed with a covering pass of weld bead.

No welding is to be done on shell plating or other structure next to or within 2" of the water while the ferry is afloat. No welding is to be allowed when the air temperature is lower than 20 deg F, when surfaces are wet or exposed to rain, snow or high winds or when operators are exposed to inclement weather conditions that shall impair good workmanship. Any moisture present at the point of welding shall be driven off by heat before welding commences. Materials to be welded shall be free of paint, grease and oil.

Welds shall be uniform and properly sized. Unsatisfactory welding shall be chipped out and re-welded to the satisfaction of the inspector. The striking of an arc on any principal hull plate

surface is prohibited unless the surface upon which the arc was struck is to be incorporated into the welded joint. Marks left by an accidental arc strike shall be ground out to a smooth contour, taking care that the plate thickness is not reduced. Where temporary welds have been made, the remaining weld material shall be ground smooth and flush with the adjacent surface. Any pad eyes or other temporary brackets, etc. utilized in the construction of the ferry are to be carefully removed after use, the remains ground off and the surfaces made good. In no case are they to be knocked off by hammers or other means that can damage the steel to which they are attached.

Before making a second or additional weld pass, all slag shall be removed and the weld and base metal shall be back gouged.

2.4 Welding Schedule

The Contractor shall employ a welding sequence schedule to ensure that all surfaces are fair, free from buckles, bulges and other surface irregularities, to the satisfaction of the Owner. The welding sequence shall be carried out in such a manner as to make allowance to compensate for creeping and shrinkage as the work progresses, holding distortion to a minimum. Locked in stresses shall be avoided or relieved as much as possible. Weld distortion is to be corrected to within the tolerances stipulated in Attachment "A". Welding of structure to decks is to be very carefully considered to avoid any plate buckling or permanent stiffener deflection that may cause the puddling of water and an uneven walking surface for passengers and crew.

2.5 Hull Protection During Outfitting

During the period between launching and delivery, rigid control of welding and grounding shall be maintained. The ferry shall be grounded for welding by means of a strap running from the hull to the shore.

2.6 Weld Inspection

All questionable welds in the hull and superstructure designed to carry primary stresses or to form watertight or oil-tight joints shall be subject to non-destructive inspection upon request of the Owner or the USCG. Defective welds shall be rejected and must be corrected. Any welds shown to have any cracking, incomplete fusion, overlapping or inadequate penetration shall be rejected and must be corrected. Fuel oil tank welds shall be tested by filling each tank in turn to

the level of its overflow and then inspecting all welds for leaks. The Inspector is to approve all the fuel tank welds after the tests.

2.7 Superstructure

All deckhouses, trunks and interior bulkheads shall be of watertight, weathertight, fume tight or smoke tight steel construction as required by the Owner and appropriate regulations. Exterior weathertight welds or seams, if intermittent, shall be made continuous with a light covering pass to seal the faying surfaces against corrosion. All corners are to be rounded with a 3" radius, either pipe or shaped plate. All exterior surfaces are to be flush. Any protruding plate edges are to be fitted with pipe or round bar. All girders and transverses shall maintain structural continuity with a transition plate bracket where the depth of the girders changes abruptly.

2.8 Chocks and Brackets

All discontinuous girders and transverses shall be properly bracketed to ensure continuity between the transition from one shape to another. All stanchions shall be properly aligned with structure and/or other stanchions in order to transmit loads. All stanchions shall be placed on a heel plate at its base and a properly bracketed top plate at the head is to be provided. Chocks shall be fitted in the supported member above the stanchion in line with the stanchion. The tops of main deck and 01 deck superstructure side shell transverse vertical webs shall be efficiently attached to the corresponding deck transverse with a plate bracket.

2.9 Through Deck and Through Hull Penetrations

The watertight integrity of all through deck or bulkhead piping penetrations is to be maintained by welding the through pipe to a sch 80 pipe sleeve. All below main deck overboard penetrations are to be reinforced with a plate doubler welded to the shell plate.

2.10 Foundations

The contractor shall provide heavy-duty steel foundations for all machinery and equipment. All foundations shall be well-limbered and easily accessible for painting and cleaning. Abrupt discontinuities are to be avoided. Foundations shall be heavy enough to transmit forces adequately to main ship's structure without undue movement or vibration. Main propulsion engine foundations shall be properly aligned with the Ferry’s structure to prevent stress

concentrations. Brackets shall be fitted every two feet along the length of the girders, with additional chocks under the mounting locations. All welding of the foundations is to be double continuous.

2.11 Rudders

The rudders shall be fitted as shown on Dwg. No. 283-32A-201. The rudder shall be of the spade type having an integral rudder stock with horizontal arms and double side plates. The rudder shall be fitted in a rudder trunk having lower and upper bearings of a material capable of operating dry. A carrier bearing washer of the same material shall be fitted between the trunk and the underside of the tiller. No grease or oil lubrication is to be supplied to the bearings except as may be needed to assist construction and assembly.

2.12 Propellers

The Contractor shall supply two new 48" diameter x 39" pitch four bladed Manganese Bronze propellers. The BAR is to be 0.70. One propeller is to be LH, the other RH. The propeller design is to be similar to the Michigan Wheel "Workhorse" style. Propellers shall be provided with an anti-sing edge as shown in Dwg. No. 283-32A-603.

2.13 Deck Guard and Safety Steps

A 10" sch 80 split pipe guard is to be fitted at the main deck level, around the entire main deck. The guard is to have bronze drain plugs at low points and fill/vent bronze plugs. The void is to be coated with float-kote or similar preservative.

Two (2) step platform wings are to be fabricated and installed to the superstructure in way of the forward port/stbd 01 deck gates. This platform (approximately 8” x 30”) is to allow safe and ergonomic handling of the gangway.

3.0 DOORS, HATCHES, MANHOLES AND WINDOWS

3.1 Doors

Doors shall be provided generally in accordance with preliminary Table 3.1. Final door detail dimensions are to be developed by the Contractor. Doors shall be operable from both sides,

complete with hardware, latches, holdbacks and rubber snubbers as required for each door. Except where protected by deck overhangs, exterior doors shall be fitted with watersheds of 1½" x ¼" flat bar. All door frames shall be reinforced iwo hardware. Doors capable of being locked shall be at the direction of the Owner. Each keyed door shall be supplied with two keys and brass tags with the name of the space served inscribed thereon. All door locks shall be master keyed. The Engine Room door and all Pilothouse access doors, both interior and reserve for propeller drawing exterior, are to be provided with electronic keypad lock mechanisms. All exterior Pilothouse access door electronic keypads are to be provided with weather covers designed for this style keypad.

Table 3.1 - Preliminary Door Schedule – Cornell-Carr Company, Inc.

Door	Door Type	Location		Door Series	Door Model	Quantity	Sill	Sill Dwg No.	Steel Sill by SY	Door Frame	Door Frame Dwg. No.	Clear Opening	Door Size	Plate Cutout, does not include sill	Material	Handings	Glass Thickness	Glass Size	Glass Type	USCG Fire rating	Hardware	Hardware	Comments
		Deck	Frame	DWG NO.	DWG. NO.							W X H										
Locker	joiner	main	2	CC-2019	CC-2004-A	1	raised, type B	CC-2003	2"	Type A	CC-2001	29" x 77.5"	30" x 78"		stainless steel	LH	none	none	none	B-0	reverse bevel lock	ADA Handle	self-closing against 3.5 deg list
ADA head	joiner	main	10	CC-2000	CC-2004-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	35" x 79.5"	36" x 80"	39" x 81.75"	aluminum	RH	none	none	none	C^1	reverse bevel lock	ADA bathroom handle & signage	panic proof
Forward Storage	joiner	main	9	CC-2000	CC-2006-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	43"x79.5"	44"x80"	46.25"x81.125"	stainless steel	LH	0.375		laminated	A-15	reverse bevel lock	ADA Handle	
Aft storage	weathertight	main	21	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	43"x79.5"	44"x80"	46.25"x81.125"	stainless steel	RH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Aft entry door	weathertight	main	21	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	35" x 79.5"	36" x 80"	38.25" x 81.75"	stainless steel	LH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
ER Access	joiner	main	19	CC-2019	CC-2005-B	1	Type B raised	CC-2003	2"	Type B	CC-2001	35" x 77.5"	36" x 78"	39" x 80.625"	stainless steel	LH	0.375	100 in sq	laminated	A-15	reverse bevel lock	ADA Handle	self-closing against 3.5 deg list
CO2 locker	joiner	main	19.5	CC-2000	CC-2004-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	29" x 79.5"	30"x80.25"	33"x81.75"	stainless steel	RH	none	none	none	A-15	reverse bevel lock	ADA Handle	
ADA head	joiner	01 deck	10	CC-2000	CC-2004-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	35" x 79.5"	36" x 80"	39" x 81.75"	aluminum	RH	none	none	none	C^1	reverse bevel lock	ADA bathroom handle & signage	panic proof
stairwell up	joiner	01 deck	10	CC-2000	CC-2005-B	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	35" x 79.5"	36" x 80"	39" x 81.75"	stainless steel	LH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
stairwell down	joiner	01 deck	13.5	CC-2000	CC-2006-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	35" x 79.5"	36" x 80"	38.25" x 81.75"	stainless steel	RH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Forward entry door	weathertight	01 deck	8.5	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	35" x 79.5"	36" x 80"	38.25" x 81.75"	stainless steel	RH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Aft entry door	weathertight	01 deck	17	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	35" x 79.5"	36" x 80"	38.25" x 81.75"	stainless steel	RH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Forward Storage	weathertight	01 deck	9	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	43"x79.5"	44"x80"	46.25"x81.125"	stainless steel	RH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Aft storage	weathertight	01 deck	17	CC-2110	CC-2006-A	1	1/4" flush, Type C	CC-2013-1	0.25"	Type B	CC-2001	43"x79.5"	44"x80"	46.25"x81.125"	stainless steel	LH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Aft entry door	weathertight	02 deck	14	CC-2110	CC-2006-A	1	Type B raised	CC-2013-1	2"	Type B	CC-2001	30"x78"	31."x78.5"	33.25"x81.125"	stainless steel	LH	0.375		laminated	A-0	reverse bevel lock	ADA Handle	
Aft entry PH	joiner	02 deck	10	CC-2000	CC-2006-A	1	1/4" flush, Type C	CC-2003	0.25"	Type A	CC-2001	29"x79.5"	30"x80"	33"x81.125"	stainless steel	LH	0.375		laminated	A-15	reverse bevel lock	ADA Handle	
Pilot House door	weathertight	02 deck	9	CC-2110	CC-2006-A	1	Type B raised	CC-2013-1	2"	Type B	CC-2001	30"x78"	31."x78.5"	33.25"x81.125"	aluminum	RH	0.375		laminated	C	reverse bevel lock	ADA Handle	

Weathertight sliding doors are to be provided on the main deck forward, P/S. Since the doors slide forward, it is necessary to fit a deadman pin that shall immediately stop the door if it is let go by personnel. The doors shall slide outside the superstructure. The doors shall slide on rollers or wheels at the bottom in a track fabricated from angle and be hung from rollers or wheels captured in an overhead track, similar to the arrangements found on the Owner's current fleet. The doors shall be easily be operated by one person with minimal effort. Each door shall be fitted with a fixed window. The doors shall be fabricated out of stainless steel.

3.2 Deck Hatches

On the main deck and elsewhere 24" clear opening round lift-out Freeman Marine Equipment, Inc. aluminum flush quick acting watertight hatches shall be installed for access to the following compartments as shown on Dwg No. 283-32A-010. The hatches shall have steel rings.

- Forepeak
- Forward void
- Tank void
- Fuel tank void
- Shaft void
- Lazarette
- Pilothouse void
- Elevator trunk escape

On the main deck a 24" clear opening round Freeman Marine Equipment, Inc. steel flush spring-loaded watertight hatch shall be installed for access to the following compartment as shown on Dwg No. 283-32A-010:

- Engine room escape

Vertical ladders or ladder rungs are to be provided iwo the deck hatches down into the space served. Engine room and elevator trunk escape hatches are to be operable from both sides.

3.3 Manholes

Flush oil tight bolted plate manholes shall be provided for the fuel oil tanks. The manhole covers shall have a 15" x 23" clear opening, reinforcing ring and be gasketed to maintain the integrity of the boundary. Covers shall be the same thickness as adjacent tank plate. Covers shall be fitted with a lifting handle, CRES studs and nuts. Ladder rungs of solid round bar shall be provided as

necessary on the inside and outside of the tanks for proper access to the tanks and inside of the tanks.

3.4 Plate Accesses

Flush plate accesses shall be provided in the inboard vent uptake trunks at the main deck level, the engine room air intake trunk at the main deck level and the 02 deck stack house levels, P/S, for access to the main propulsion engine and diesel generator exhaust silencers, intake fan and stack house trunk, respectively. The accesses shall maintain the integrity of the fire boundary class.

3.5 Windows

Opening and fixed windows shall be located and installed where shown on the plans. Pilothouse windows are to be tinted, iaw 46 CFR 116.1030 (b). Windows shall be as described in Table 3.2.

Centers of windows shall be 63" above the finished deck and shall have their sills parallel to the local deck. All windows shall be boxed in with 18 USSG stainless steel sheet and fitted neatly to the surrounding interior sheathing.

The two windows aft of the main deck sliding doors, and the forward sliding door windows, P/S shall be fitted with 3/8" diameter steel round bars, fitted horizontally on 6” centers, secured to the side shell externally by CRES studs and nuts, so arranged that they are 3 inches outside of the glass in order to protect the glass from breakage when mooring lines from the upper deck are dropped overboard.

3.6 Window Wipers

All forward-looking pilothouse windows are to be fitted with Cornell-Carr window wiper assemblies, inboard mounted, Cornell-Carr Dwg. No. CC-5200.

Table 3.2 - Preliminary Window List – Cornell-Carr Company, Inc.

Window	Location		Type (Dwg. No.)	Plate Cut-Out, LXW	Window Size	Quantity	Material	Glass Tint	Glass Thickness	Glass Type	Installation	Holes drilled	Fire class	Comments
	Deck	Frame												
side shell	main	P	CC-1001	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	5	SS	no	0.375	laminated	flat & curved	no		Double sash, metal clips
side shell	main	S	CC-1001	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	5	SS	no	0.375	laminated	flat & curved	no		Double sash, metal clips
side shell	main	P	CC-1002 Type A	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	9	SS	no	0.375	laminated	flat & curved	no		fixed, metal clips
side shell	main	S	CC-1002 Type A	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	9	SS	no	0.375	laminated	flat & curved	no		fixed, metal clips
Side Storage	main	S	DeanSteel Fire Rated	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	3	SS	no	0.375	laminated	flat	no	A-15	fixed, metal clips
side shell	01 Deck	P	CC-1001	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	3	SS	no	0.375	laminated	flat	no		Double sash, metal clips
side shell	01 Deck	S	CC-1001	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	3	SS	no	0.375	laminated	flat	no		Double sash, metal clips
side shell	01 Deck	P	CC-1002 Type A	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	4	SS	no	0.375	laminated	flat	no		fixed, metal clips
side shell	01 Deck	S	CC-1002 Type A	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	4	SS	no	0.375	laminated	flat	no		fixed, metal clips
Side Storage	01 Deck	S	DeanSteel Fire Rated	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	2	SS	no	0.375	laminated	flat	no	A-15	fixed, metal clips
Wind Screen	01 Deck	6.3	CC-1005	3'-1/2" x 2'-2 1/2"	3'-0" x 2'-2"	5	SS	yes	0.375	laminated	flat & curved	no		metal clips
Pilot hse aft BHD	02 Deck	10.5	CC-1005	24" x 24"	23.5" X 23.5"	6	SS	yes	0.375	laminated	flat	no	A-0	metal clips
Pilot House	02 Deck	P/S	CC-1021	various	various	11	SS	yes	0.375	laminated	flat	no	A-0	open out
Pilot hse aft facing	02 Deck	P/S 8.5	CC-1005	Triangular (see drawing)	3'-9" x 1'-6" x 7"	2	SS	yes	0.375	laminated	flat	no	A-0	metal clips
Pilot House	02 Deck	10	CC-1005	24" x 36"	23.5" x 35.5"	2	SS	yes	0.375	laminated	flat	no	A-0	metal clips
Pilot House	02 Deck	P / S	CC-1005	36" x 24"	35.5" x 23.5"	1	SS	yes	0.375	laminated	flat	no	A-0	fixed, metal clips
Crew Room	02 Deck	P/S	CC-7137		12"	3	steel	frosted	0.5	tempered	flat	no	A-0	weld in, no deadlight

4.0 STAIRS & LADDERS

4.1 Stairs

All internal and external stairs, including the engine room, are to be fitted with non-slip welded 18 GA galvanized steel safety step covers manufactured by Safeguard Technology, Inc. Treads are to be industrial grade, photoluminescent. All stairs and ladders are to have evenly spaced treads and risers, with riser and tread dimensions as shown on Dwg. No.283-32A-016.

The engine room is to be fitted with a removable steel inclined stair, with a maximum inclination of 50 deg. Ladder to be fitted with a dirt shield, Wooster treads and railings. A steel padeye of 5000 lb SWL with a factor of safety of 5 is to be installed in the overhead of the engine room access. Pad eye to be so marked as to indicate maximum SWL.

All exterior stair openings are to be fitted with 3/16" x 2" flat bar coaming rain shields where they are exposed to the weather.

4.2 Ladders

The port side of the crew's quarters and the aft side of the pilot house overhead are to be fitted with fixed vertical steel ladders, iaw *ASTM F 840-83, Standard Specification for Ladders, Fixed, Vertical, Steel, Ship's,* Type 1, Normal duty. The top rails are to be continued to the crew's quarters and pilothouse compartment overhead in a 180 deg bend.

Steel u-shaped ladder rungs are to be welded onto bulkheads iwo accesses and deep floors in order to allow safe access.

5.0 HULL FITTINGS

5.1 Rails

Removable expanded metal rails are to be fitted to the 01 deck perimeter as shown on Dwg. No. 283-32A-103. Rails are to be connected with neatly radiussed corners to form a continuous railing. All welding on rails is to be ground smooth. All removable rails and bulwarks are to be numbered sequentially with permanent weld bead. ADA compliant rails shall be fitted on all stairwells, both sides, and other locations as shown on Dwg. No. 283-32A-016. Mid-height child

stair railings shall also be fitted. All bulkhead mounted and stairwell rails are to be underslung with "L" shaped mounting brackets.

The 02 deck rails shall be three course, 39" high, with 2" sch 40 stanchions, 1½" sch 40 top course and 1" sch 40 lower courses. The deck to lower course and lower course to middle course distances are to be 12" each.

Any gratings in the engine room or voids are to have two course railings fabricated from 1½" sch 40 carbon steel pipe and stanchions, where needed for safety. Rails shall be made portable where necessary to facilitate machinery removals. Fixed rails are to be located on the main deck and 01 deck at locations to be determined by the Owner.

Passenger gates are to be fitted on the main deck aft, P/S, and 01 deck forward and aft, P/S. Each gate (except as noted) is to have two panels that open inward. On the 01 deck forward, port side only, the gate should be a bi-fold gate that swings forward. The gates are to be removable and hinged with very heavy-duty CRES fittings. Gates on the 01 deck are to be fabricated in a similar form to the railings, but fabricated from aluminum. Gates on the main deck aft are to be fabricated in a similar fashion as the bulwark, but from aluminum. Gate hardware and gangplank lashing arrangements to be similar to those on the Owner's *AUCOCISCO III*, and to the satisfaction of the Owner.

Removable aluminum bulwarks are to be located on the main deck aft, providing a clear 18’-0” pathway on centerline. The aluminum bulwarks are to be of similar design as the surrounding steel bulwarks but are to be bolted in place with CRES fastenings and isolation material.

A 1.5” Sch 40 pipe rail shall be installed on the outside of the main deck superstructure, P/S, between the forward and aft gates, 3" below the bottom of the windows, for crew hand holds.

5.2 Guards

Suitable covers, guards or rails are to be installed iwo all exposed and dangerous locations or machinery, such as rotating machinery or deck openings.

5.3 Mooring Fittings

Mooring and anchor bitts shall be located on the main and 01 decks as shown on Dwg. No. 283-32A-010. The deck underneath shall be suitably reinforced with flat bar iwo the deck fitting.

Six cleats and closed chocks are to be installed on the main deck. Six cleats and closed chocks are to be fitted on the 01 deck, and two cleats and closed chocks are to be fitted on the 02 deck. All welds and rough surfaces are to be ground smooth to prevent line chafing. All chocks are to be raised on a stout foundation in line with bitts for an easy lead. On the aft side of the fwd main deck sliding doors a hook is to be provided so that the eye of the line can be easily slipped over the hook when undocking, and easily lifted off the hook when approaching the pier, without the need for crew to walk out onto the guard. A flexible reinforced rubber flap is to be fitted over these mooring chocks on the main deck forward to minimize the loss of heat and the ingress of spray.

5.4 Miscellaneous Fittings

Deck and bulkhead padeyes, cleats, hooks, rails, etc. are to be fitted for securing stores, spares, freight, bicycles, carts and pallet movers. Final arrangements to be to the satisfaction of the Owner. Suitable foundations shall be fitted for the radars on the pilothouse top and all electronic navigation equipment to avoid excessive vibration.

5.5 Ground Tackle

A 300 lb Danforth style steel anchor shall be stowed in chocks on the 01 deck forward, port side. The anchor shall be set on a sloped plate at the bottom, suitable stiffened, so that the anchor falls overboard easily when the anchor is released. The sloped plate shall also contain the chock through which the anchor rode shall travel. Twenty feet of 7/8" chain, shackles, and 600' of 1-1/2" nylon of rode shall be stowed in the locker on the main deck forward. The anchor end of the chain shall be led up through a chain pipe with the chain and shackle attached to a hook mounted under the pipe cap, ready for easy attachment to the anchor. The bitter end of the anchor rode shall be attached to a reinforced pad eye on the main deck in the locker that can be easily released, if required. The anchor rope shall be arranged so that when stowed, it shall easily pay out as required.

As a rule the anchor shall only be used in emergencies; therefore, all anchoring gear shall be securely stowed (but easily released) to prevent noise and inadvertent release while underway. A plastic marker buoy approximately 18” in diameter is to be provided and stowed in the forward

locker to buoy the anchor line bitter end when release is necessary. No windlass is to be provided to retrieve the anchor.

5.6 Masts

Three steel pipe masts shall be fitted, generally as shown on Dwg. No. 283-32A-010. The foremast and aft mast shall be fitted with a halyard, Delrin halyard sheaves, cleats and fittings for a proper working installation. Halyards shall be 5/16" diameter braided Dacron with bronze snaphooks. The pilothouse mast shall be fitted with an anchor light and a masthead light iaw USCG COLREGS. The masts shall be vibration free when underway and fitted with suitable foundations as required.

5.7 MOB Retrieval Arrangements

A MOB retrieval system similar to those on the Owner's ferry *AUCOCISCO III* shall be installed on the main deck, port side, just aft of the sliding door. The MOB system consists of a swinging davit, block and tackle and an aluminum ladder (with standoffs and bottom rung platform).

6.0 ACCOMMODATIONS

6.1 Passenger Areas

All enclosed passenger areas are to be outfitted so that they are low risk passenger accommodation spaces, Type 5, iaw NAVIC 9-97. Five metal trash bins with hinged top shall be supplied with appropriate tie downs: three on the main deck and two on the 01 deck. The final location is to be at the direction of the Owner. Three wheelchair tie downs shall be provided in a location determined by the Owner.

6.2 Rest Rooms

Accessible unisex rest rooms built and outfitted iaw ADA are to be located in two locations as shown on Dwg. No. 283-32A-016. Both rest rooms are to be outfitted in a similar fashion. Vitreous china valve operated ADA floor mount water closets with flushometer valves for salt-water service with an ADA handle are to be supplied. Similarly, vitreous china washbasins with a hot and cold ADA lever operated combined faucet, large mirror and large liquid soap dispenser

shall be supplied. The hot water is to be supplied by a locally mounted in-line electric hot water heater. Coat hooks and trash bins shall be supplied also. An ADA horizontal baby changing station shall be mounted on the bulkhead as shown. Toilet paper holders and paper towel dispensers are to be Owner supplied and mounted by the Contractor.

6.3 Pilothouse

The pilothouse is to be arranged to provide maximum visibility all around. The control console shall be fitted with doors for access as required. When navigating, all operations are normally to be controlled from either of the two side stations in the pilot house. There shall also be control stations at the two aft steering stations and in the engine room. Final location of all pilothouse equipment is to be at the direction of the Owner.

The pilothouse is to be fitted with diffused incandescent lighting with a dimmer switch, not fluorescent lighting. Low level red lighting shall be supplied. The pilothouse shall also be fitted with the following:

- Binocular box
- Storm rails on the console, pilot house sides and overhead
- Portable helmsman's chair, black
- Book rack with retaining bar
- A corral type hinged gate to be fitted to the railing at the top of the stairs

6.4 Crew Locker Area

Lockers for crew belongings shall be provided just aft of the pilothouse. Three double-tier, sloped-top, lockable steel lockers shall be provided. Lockers are to be securely fastened to the bulkhead.

6.5 Furniture

In addition to the benches, the 01 deck cabin area is to be fitted with two four-person tables with bench seating, and one table surrounded by bench seating on three sides as shown on Dwg. No. 283-32A-010. The tables are to be of non-combustible construction with laminate finish. The color of tables and seats is to be at the direction of the Owner. The Contractor must ensure that the table on the port side is ADA wheel chair accessible.

The main and 01 interior areas are to be outfitted with contractor-fabricated, fixed benches of painted steel frames and legs with reinforced HPDE plastic lumber seat and back slats as shown on Dwg. No. 283-32A-010. The color of the lumber is to be chosen by the Owner. Bench legs are to be securely mounted to the deck with CRES studs and nuts for removal and repair. Benches are to be supported at 24" intervals, or as recommended by the lumber manufacturer. The gap between back-to-back interior benches is to be neatly fitted with a trim piece. Benches fitted along the inside superstructure sides are to have continuous expanded metal trays fitted to their backs at the top of the backrest.

Exterior benches are to be commercial, fiberglass benches with lift-up seating for lifejacket stowage. Selection of benches is to be approved by the Owner.

The engine room shall be fitted with a workbench and vise. Lifting eyes are to be provided in the engine room overhead. Final locations are to be at the direction of the Owner.

7.0 INSULATION, LININGS, AND CEILINGS

7.1 Insulation, General

All insulation materials are to be incombustible, meeting USCG requirements. Thermal, acoustic and structural fire protection insulation installation is shown on Dwg. No. 283-32A-601. Prior to the application of any insulation or linings, the surfaces to be covered shall be treated and coated as described in Section 14.0. All exposed seams are to be neatly taped and finished.

7.2 Structural Fire Protection Insulation

Structural fire protection insulation shall be installed as shown on Dwg. No. 283-32A-601 iaw with USCG requirements.

7.3 Thermal Insulation

All vertical interior surfaces of bulkheads exposed to the weather within accommodation or crew spaces, where not iwo structural fire protection locations, are to be thermally insulated with USCG approved foil faced 3" fiberglass blankets. All stiffeners, girders, frames, etc., are to be wrapped similarly with 1" blankets. Main deck and 01 deck deckheads are to be insulated with 1" hullboard with fiberglass cloth face as shown on Dwg. No. 283-32A-601, General Note 19. All other deckheads, including the deckhead of void spaces under the main deck iwo passenger

accommodations, not iwo of structural fire protection, and under side of pilot house raised platform, are to be insulated with USCG approved foil faced 6" fiberglass blankets. The blankets shall not be compressed by the installation. The void insulation shall be carried down to the design waterline.

Piping insulation shall be provided for the engine and boiler exhaust pipes in the engine room. The insulation on the piping shall be of sufficient thickness to reduce the surface temperature to 125 deg F. The exhaust piping in the ventilation trunk above the main deck shall be covered with sufficient insulation to reduce the surface temperature to 200 deg F. The expansion joints and flanges shall be covered with removable insulation blankets that are laced together with wire and hooks. Exhaust silencers shall also be covered with removable blankets. The insulation shall be MAS needled glass mat covered with MAS-PTFE cloth and shall not be painted. Anti-sweat insulation shall be placed on the sanitary and cold water piping in the engine room and in the overhead and within the joiner work of the passenger spaces. The insulation shall be K-Flex ECO and shall prevent condensation from forming on the cold water pipes. The hot water piping for the heating system in the under deck voids and within the passenger spaces shall be covered with thermal Insulation. The thermal insulation shall be fiberglass with a suitable covering. The insulation shall be installed with a neat appearance. All pipe insulation shall meet the requirements of the USCG for combustibility.

7.4 Acoustic Insulation

Acoustic insulation as shown on Dwg. No. 283-32A-601 is to be installed in combination with the structural fire protection iwo of the engine room overhead, engine room access, the engine room bulkheads, intake fan trunk and uptakes.

7.5 Linings and Ceilings

All exposed exterior insulated steel bulkheads and interior bulkheads within accommodation or crew spaces iwo of bulkhead vertical stiffeners shall be lined with USSG 18 GA painted sheet steel. All colors are to be at the direction of the Owner. Ducts, pipes, wireways, etc. shall be installed behind linings or boxed in with removable panels for access as required. All windows and door openings shall also be boxed in with the same painted sheet steel. Sheet steel seams shall be covered so as to present a smooth, clean, waterproof (vertical surfaces up to windows

only) and neat appearance. All fasteners are to be CRES.

Rest rooms are to be fitted with 304 CRES USSG 18 GA sheet linings on all vertical bulkhead surfaces 48" high up from the deck. Above 48" the lining shall be USSG 18 GA painted sheet steel. All seams are to be covered watertight to prevent seepage behind lining when washing down the spaces.

Finished ceilings shall be provided in all public and crew spaces and are to be 2' by 2' USCG approved ceramic ceiling panels attached to suitable steel framing with CRES fasteners. Where access is required above the deckhead for operation of valves and where access is required for routine maintenance, easily removable panels shall be installed and labeled.

8.0 DECK COVERINGS

All decks are to be thoroughly cleaned and prepared prior to painting. Colors shall be at the direction of the Owner. All interior and exterior decks and spaces accessible to either passengers or crew are to be non-skid paint, as specified in Section 14.0.

Safety treads shall be installed on all stair treads, at the head and foot of all stairways and inclined ladders and elsewhere to ensure safe footing. Tactile warning areas as shown on Dwg. No. 283-32A-016 are to be installed in accordance with the ADA. Leveling compound is to be fitted in way of the elevator, ADA head doors, and doors to the cargo alley areas on the starboard side of the main and 01 decks as required.

The engine room is to have aluminum treadplate with a raised anti-slip pattern supported by steel angle, with inverted steel angle at the plate edges to form a kick plate at least 2" high. The floor plates are to be fastened down with CRES countersunk screws and to be of manageable size for one person to lift. All sharp edges shall be removed from floor plates and supports.

Portable plates with flush type grabs, hinges and labels shall be provided for access to valves and strainers below the floor plates. Valve hand wheels and rising stems shall not protrude above the floor plates. Supports and coaming angles shall be bolted where they interfere with the overhaul or removal of machinery.

The tank voids and lazarette are to be fitted with aluminum treadplate with installation similar to

that in the engine room as required for access to tanks and the steering gear.

A fabric reinforced electrical grade rubber floor mat, approximately 24” in width shall be provided in front of the main switchboard for its full width in the engine room.

9.0 NAVIGATION EQUIPMENT

The following equipment is to be supplied and installed by the Contractor:

- Analog anemometer (black dial face)
- 6" shock mounted binnacle with quadrantal spheres, with deviation card (24 VDC, 2 deg, with points of 5 deg card)
- Air horn (24 V DC) with whistle control
- Air whistle (stack mounted)
- Two quartz clocks
- Aneroid barometer
- 12" diameter at the mouth ship's bell, polished bronze with lanyard
- Two 10" searchlights with 48” pedestal base
- Five external window wipers

The final selection and location of the above equipment shall be approved by the Owner. See Section 21.0 for list of radios and electronics.

10.0 SAFETY EQUIPMENT

The Contractor shall supply and install all lifesaving equipment iaw the latest USCG requirements, including, but not limited to the following safety equipment list:

- 5 USCG approved throwable 30" life ring buoys with reflective tape and mounting bracket. Two of the buoys are to be provided with approved 60' lengths of line and water light installations.
- 404 Type I adult PFD's with reflective tape
- 60 Type I child PFD's with reflective tape (to be labeled and stored separately)
- 3 USCG approved orange smoke distress signals and watertight container
- 3 USCG approved hand red flares and watertight container

- Fire axe to be stowed in a quick release CRES bracket in a location approved by the Owner
- First Aid kit
- Portable fire extinguishers as required by the USCG
- Man overboard hoisting system similar to that on Owner's existing ferry, *AUCOCISCO III*

The stowage location of the above equipment shall be approved by the Owner. PFD's shall be installed in exterior seating on the main and 01 decks aft, and in deck boxes on the 01 deck. All dated safety equipment such as portable fire extinguishers shall be dated not more than one month before delivery of the ferry. All other safety equipment shall have en expiration date not less than 12 months after delivery.

Full instruction placards shall be provided and mounted by the Contractor for all safety equipment, pollution placards, etc.

11.0 NAMEPLATES, NOTICES, AND MARKINGS

11.1 Ship's Name

The ferry's name and hailing port shall be placed at the transom on the bulwark, similar to the placement on the AUCOCISO III. The ferry's name also shall be placed at the bow, P/S, below the 01 deck. Block letters, 12" high for the transom name, 8" high for the hailing port and 16" high forward P/S, shall be used. All letters are to be outlined in continuous weld bead. The ferry's official number and tonnage shall be permanently affixed with continuous weld bead on a main beam in the engine room iaw USCG Admeasurement requirements.

11.2 Builder's Nameplate

A brass or bronze nameplate with raised cast letters, not larger than 12" x 12" shall be provided and located as directed by the Owner. The nameplate shall give the following information: ferry's name, date of build, builder, hull number, Owner's name, address and Architect's name.

11.3 Draft Marks

Draft marks shall be provided at frames 1 and 26, P/S. They shall be of Arabic numeral type,

permanently attached to the hull with continuous weld bead. The numerals shall be 6" projected height, with the bottom of each numeral at an even foot dimension above the lowest point of the keel, from 5'-0" to 8'-0" above the keel.

11.4 Notice Boards and Frames

Two cork bulkhead mounted public notice boards are to be supplied and located at the Owner's direction. A bulkhead mounted glass frame shall be supplied and mounted, as a minimum, for the following certificates and plans:

- COI
- Stability Letter
- FCC Licenses
- Officer's Licenses
- Safety and Environmental Notices
- Fire Control Plan (Fire control plan shall be developed by the Contractor to reflect the final arrangements and locations of firefighting equipment, etc.)

The frame locations are to be at the direction of the Owner.

The following placards shall be provided and mounted at the direction of the Owner:

- Radiotelephone emergency broadcast procedures
- Pollution prevention
- Donning of life jackets (4)
- CO_2 instructions

11.5 Signage

Signage shall also be provided, as a minimum, for the following items:

- Ship's name and retroreflective tape on all lifesaving equipment
- Escape hatches and emergency exits
- Fuel shutoff valves
- ADA signage
- Fire protection equipment
- PFD lockers/locations

- Hearing Protection Required
- No standing in stairwells
- Hidden valves
- Water for hand washing only. Do not drink.

12.0 MISCELLANEOUS OUTFIT

The Contractor shall supply and install the following items:

- Two American flags, 48" x 72"
- Four 60' 1.5" diameter twisted polypropylene mooring lines with a six foot tapered eye splice
- Two sets of keys and wrenches for all valves, deck plates, etc., as required, plus any equipment needed for specialized items, such as propeller nut wrench, tiller nut wrench and socket wrenches for each size grid cooler nuts.

13.0 ELEVATOR

13.1 General

A passenger/light freight elevator is to be supplied and installed as shown on the drawings. The elevator is manufactured by Canton Elevator, Inc., 347 Third Street NW, Massillon, OH 44647 (Tel 330-833-3600) and is a dual holeless type. The elevator is to designed, built and installed to the American Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks, ANSI A17.1 2007, by ASME, hereinafter referred to as “Code” and Recommended Minimum Passenger Elevator Requirements for the Handicapped.

13.2 Elevator Performance

The elevator shall have the following general characteristics:

- Hydraulic Power Unit: Manufacturer's standard submersible type, with single-speed motor, muffler and solenoid-operated valves.
- Hydraulic Plunger Unit: Manufacturer's standard single acting, twin holeless hydraulic jack unit.
- Power Supply: 208-volt A.C., 3-phase, 60 Hertz with reduced voltage starting.
- Capacity and Speed: 2,000 lbs., 55 FPM average speed.
- Landings and Travel: Main deck and 01 deck; approximately 11'-0 3/4" of travel.

13.3 Devices and Equipment

The elevator shall be supplied with the following equipment:

- Automatic Two-way Leveling Device: Provide with leveling tolerance of ¼" for travel either direction.
- Door Edge Protection Device: Provide 2 dimensional infra-red full height array to stop and re-open door without contacting passenger. Include anti-delay feature for slow closing while sounding audible alarm (nudging).
- Manual Valve: Provide emergency valve for safe lowering of car to lowest level in case of power unit failure.
- Signal Equipment: Provide manufacturer's standard signal equipment and graphics system, for the required control and operation of elevators. Provide stainless steel exposed metal surfaces, with illuminated translucent signals. Provide 1 car-control station in car. Provide hall bell and lanterns (up and down) for each entrance.

13.4 Passenger Cab Enclosures

The Elevator Cab shall be the Canton Elevator, Inc. Tradesman Series standard design. Cab standard components and final configuration shall meet the requirements of the ASME/ANSI A17.1 Elevator Code.

Cab Features shall include:

- White Canopy
- Return wall(s) to be Integral Design front with entrance columns.
- Emergency Light with Battery and Charger.
- Emergency exit in ceiling.
- Handset tied into ship's A phone system.
- The clear height under the suspended ceiling shall be 7’-0” minimum.

Cab Variable Design Features included are as follows:

- Single speed fan power ventilation.
- The suspended ceiling shall be supported in a natural anodized aluminum frame.
- The suspended ceiling shall be comprised of removable, translucent, closed cell, non-combustible panels. Fluorescent light fixtures shall be provided above the suspended ceiling. Fixtures shall be provided in sufficient number to meet minimum code requirements.
- Cab and furnishings to be fabricated form non-combustible materials.
- The wall(s) containing Car Operating Panel(s) shall be stainless steel.
- Car operating panel shall have a hinged cover and contain all buttons and switches required by code and be mounted in return panel adjacent to car door.
- Protective pads for side and rear walls.
- 3/8” x 2” flat metal handrail on side and rear walls.
- Car sill shall be extruded aluminum.
- All items so noted shall be stainless steel, #4 brushed finish.

13.5 Passenger Type Hoistway Entrances (U.L. “B” Labeled)

Hollow metal, horizontal sliding hoistway entrances shall be provided with side slide entrances, 3’-0” W x 7'-0” H.

Entrances shall include unit frames, flush design door panels, sight guards, sills, strut angles, headers, hanger covers, fascia plates, toe guards, dust covers and necessary hardware. Necessary support for entrance sills is included. Cab doors are to have a UL 1-1/2 hour fire rating.

Material/Finish shall be as follows, noting that all material used in the construction of the elevator cab shall be of approved noncombustible construction. Any furnishings or veneers must meet the requirements of 46 CFR 116.423. Fascia, hanger covers, toe guards, dust covers, and structural members shall be fabricated and finished in accordance with Manufacturer's standards.

- Entrance Frames: Finish at all front openings shall be baked enamel.
- Door Panels and Sight Guards: Finish at all front openings shall be baked enamel.
- Entrance Sills: Finish at all front openings shall be extruded aluminum.

Where a baked enamel finish is proposed, the finished color shall be selected by the Owner from Manufacturer's standard colors. Manufacturer's standard entrance jamb tactile markings (i.e. Jamb Plates) shall be supplied on both jambs, at all floors. Plates shall be surface mounted. Plates shall be finished to match stainless steel.

14.0 PAINT & COATING SYSTEMS

14.1 General

The ferry shall be painted to a high standard of finish as the ferry is in the public eye at all times and must present a professional and neat appearance to its customers. The paint and coating system must adequately protect the steel substrate.

All surface preparation and paint application shall be applied in strict accordance with the coating system manufacturer's recommendations. Coating application shall be performed under the supervision of an independent coating consultant. Paints are not to be thinned nor altered unless approved by the manufacturer. A paint log is to be supplied showing that the paint manufacturer's requirements for environmental conditions, surface prep, paint mixing, paint application and dry film thickness (DFT) were followed.

No painting or coating shall be conducted under damp or unfavorable weather conditions. Where multiple coats of primer are applied, successive coats shall be tinted different colors. All

fixtures, deck and bulkhead coverings, adjacent surfaces, equipment, signs, etc., shall be protected during painting. Any overspray shall be removed to the satisfaction of the Owner. All parts or spaces including piping, ducts, etc., not specifically mentioned or covered by these specs shall be painted to conform with the surrounding spaces. No primer or finish paint shall be applied to weld seams that must be tested for tightness until after the tests are complete. After erection, all weld lines and other areas on the Ferry, where any primer has been burned or abraded, shall be mechanically cleaned and coated with two stripe coats by bush application.

Paints applied to piping, machinery and other equipment that operate at temperatures greater than 120 deg F shall be an approved heat resistant type.

Any painted surfaces, including machinery and equipment, which become damaged prior to delivery shall be touched up to the satisfaction of the Owner. If the ferry should remain undelivered for 60 days after launching, the ferry shall be hauled and the underwater areas given one additional coat of A/F paint if inspection warrants it.

14.2 Paint Schedule

The painting schedule is presented in Table 14.1. The color scheme is to be at the direction of the Owner. The overhead inside the pilothouse is to be painted black. The paint schedule must be in accordance with the Owner's fleet paint schedule.

Table 14.1: Paint Schedule

Location	Paint Type	Coats	Total Dry Film Thickness mils	Comments
Keel to DLL	Bar Rust Primer 235	2	10	
	ABC #3 Anti-fouling	2	10	
Exterior vertical surfaces, DLL up	Inorganic zinc primer Catha-Coat 302	1	3	
	Devran 201	1	3	
	Devthane 379UVA Gloss Enamel	1	3	Colors chosen by Owner
Exterior horizontal surfaces, DLL up	Inorganic zinc primer Catha-Coat 302	1	3	
(All except decks and top of rub rail)	Devran 201	1	3	
	Devthane 379UVA Gloss Enamel	1	3	
Exterior decks and top of rub rail				Top of rubrail Black 235, main deck exterior Haze Grey 235, upper exterior decks IM Grey 235, interior decks except engine room Green 224HS
Interior and exterior horizontal	Inorganic zinc primer Catha-Coat 302	1	3	
walking surfaces	Bar Rust 235 - Exterior	2	10	White play sand back-
	Devran 234HS - Interior	2	12	rolled into topcoat
Interior structure including insulation	Devflex 4020	1	3	
and overhead	Devflex 4206	2	2	1600 Clay Tan
All interior horizontal and vertical surfaces, below the main deck	Bar Rust Primer 235	2	10	IM grey finish, all surfaces
Engine room above deck plate level	Devthane 389 White	2	10	IM grey finish, all surfaces
Engine room bilge	Bar Rust Primer 235	2	10	Oxide red finish
All insulated or sheathed interior horizontal and vertical surfaces, above the main deck	Bar Rust Primer 235	1	5	Under insulation
Joiner Panels	Powdered coated to match Devoe 1600 Clay Tan			
Enclosed main deck guard and rudder	Float kote			

Note: Any members not continuously welded shall have a brush coat of Preprime 167 at joint before coating system application.

14.3 Cathodic Protection

A system of cathodic anodes, manufactured iaw MIL-A-18001, shall be installed iaw the following schedule:

- sea chests
- rudders
- shaft zincs
- grid coolers
- hull

The anodes shall be attached to the hull with 316 CRES studs, lock washers and nuts. Supplemental 12 pound zincs mounted on each side of the keel and electrically isolated from the hull shall be electrically connected to all the keel coolers on that side of the ferry with 0 AWG wire suitable supported to prevent movement and damage from debris. The final anode arrangement shall be to the satisfaction of the Owner. No paint is to be applied to the zincs nor left thereon. Unless no significant welding is performed after launch, suitable temporary cathodic protection is to be provided during the period afloat prior to trials, with the final zincs fitted subsequent to completion of all significant welding. A bonding jumper cable shall be installed on each shaft line across the Drivesaver to ensure electrical bonding.

14.4 Paint Thickness Tests

Dry film thickness readings are to be taken after the application of each main paint coat. Any extra coats required to meet the recommended thicknesses are to be applied prior to the application of the next coat. A report of dry film thickness readings shall be provided to the Owner for review and approval.

15.0 MAIN AND AUXILIARY MACHINERY

The Contractor shall provide all of the main and auxiliary machinery and accessories unless otherwise stated. The Contractor shall employ the use of manufacturer technical representatives

for the commissioning of the main propulsion and steering gear controls to ensure that the systems function seamlessly.

The general layout of the equipment to be installed in the engine room may be found on Dwg. No. 283-32A-014. The machinery shall be arranged to maximize the working space around the main and auxiliary engines. Valves, switches, gages and other operator interfaces shall be located in close proximity to the equipment they serve and at convenient operating heights. Valves, switches, gages and other operator interfaces shall be suitably marked with indelible labels that indicate the controlled device, valve position, service or other information relevant to the operator. Pressure gages shall be furnished with an appropriate snubber and shut off cock. Pipelines shall be painted with color-coded indications with regard to the fluid and flow direction. Drains shall be installed in the low sections of pipelines subject to freezing and air lines. Vent cocks shall be provided for pipelines conveying coolant.

The Contractor is responsible to submit the control system FEMA and any other main engine control system plans required by the USCG.

15.1 Main Engines and Transmissions

The main propulsion engines shall be 4-cycle in line six-cylinder turbocharged aftercooled electronic unit injection system and electronically controlled diesel engines. They are to be keel cooled. The actual fuel rate is to be guaranteed by the manufacturer to be ± 5% and the power to be ± 3% of the published values.

The engine shall be continuously rated to produce 450 BHP at 1800 rpm. The engine, as rated, must meet the severe duty cycle imposed by the operation of the ferry for an unlimited number of hours per year without an increase in maintenance of the engines beyond normal maintenance. Rating to be based upon SAE J1228 standard conditions of 77 deg F air inlet temperature, 29.31 in. Hg dry barometer and 100 deg F fuel inlet temperature.

The reduction gears shall be close coupled, 3.50:1 ratio, rated for a continuous duty service of 450 BHP at 1800 engine rpm. Each gearbox is to be arranged to give propeller turns in the opposite direction, with the tops of the propellers turning outboard, when viewed from aft looking forward. A shaft brake, integrated with the electronic control system shall also be

installed on each shaft. Gearboxes are to be provided with an external oil cooler. Due to the severe nature of the ferry's service, the reduction gear is to be one model heavier than that recommended by the manufacturer for a continuous rating of 450 BHP at 1800 rpm.

The main engines shall be 24V electric start with 80 amp 24 VDC alternators. For the purpose of clarity, the machinery installation drawings depict DDC Series 60 engines with Twin Disc 516 marine transmissions; however, other engines and transmissions of equal characteristics may be proposed. The engines shall be resiliently mounted on the frame rails and the output of the transmission aligned to the tailshaft and thrust bearing. There shall be a total of six (6) resilient mounts supplied with the engine and gear. The specification of the resilient mounts will be determined when the engines are selected to the satisfaction of the Owner. The engine mounts shall be one size larger than the minimum manufacturer's recommended mount size. Each engine shall have four (4) resilient mounts and each transmission shall have two (2) resilient mounts. The flanges shall be bolted to the engine frames. The mounts shall be loaded in proportion to the static load carried at the mounting point of the engine/gear combination (see Dwg. No. 283-32A-014.) The centerline of the transmission is located below the centerline of the engine crankshaft. The engines and transmissions shall be keel cooled by new Fernstrum or equal package coolers. The instrument panels and engine start and stop controls shall be mounted in the pilothouse instrument pod. Engine start/stop, direction and speed controls shall also be installed in the machinery space and on two control pedestals located port and starboard aft on the 02 deck. The Contractor shall be responsible for drawing or obtaining the connection diagrams for the main engine control, instrumentation and alarm panels from the engine vendor.

The engine charge and jacket water cooling systems shall be connected to the appropriate gridcooler shown in Dwg. No. 283-32A-204. The piping shall convey cooling water to and from the engines' attached charge air cooler, jacket water and transmission cooler.

The main engine starter and generator electrical connections shall be per Dwg. No. 283-32A-304.

Each main engine's exhaust shall be connected to its respective silencer per Dwg. No. 283-32A-205. The exhaust piping shall be supported on resilient mounts approved by the Owner . All exhaust piping shall be insulated.

The engines shall be electrically bonded to the ferry's hull using a ground strap of suitable size. The tail shaft aft of the Drivesaver shall be grounded to the hull with a ground brush.

Drip pans with a drain plug are to be fitted under each main engine and gear.

The engine local control and gage panel shall be mounted on the inboard side of each engine.

Engine and transmission oil drains are to be fitted with suitable valves and manifolding to permit oil drain and refill to and from the waste and replenishment oil tanks via an oil transfer pump. Sump drains shall be a minimum of ½" pipe and shut off valves shall be fitted as close as practicable to the sumps.

All flexible connections or hoses and hose lengths shall be USCG approved. The hoses shall be supported as necessary.

The engine/transmission shall be aligned to the thrust shaft without the intermediate shaft installed but with the brake disc, distance piece and a weight equal to ½ of the combined weight of the intermediate shaft and couplings placed on the distance piece output flange.

Guards shall be provided around any exposed rotating shafting.

15.2 Main Engine and Transmission Controls System

A ZF Mathers Clear Command engine, transmission and shaft brake control system with six (6) stations shall be supplied to control the engines. The Contractor shall be responsible for mounting the components, installing the control and sensor cables from the machinery space to the control stations and connecting the control system components. The Contractor shall create or obtain the required control system connection diagrams for the engine control panels. Each control station shall have a ZF Clear Command control head, an engine E-Stop, engine start/stop, and a tachometer for each engine. Three control stations shall be mounted in the pilothouse. One control station shall be mounted in the machinery space. The fifth and sixth control stations shall be mounted on the aft end, port and starboard of the 02 deck. The three control stations in the pilothouse and the control stations aft of the pilothouse shall also have a center return NFU lever switch for controlling the rudder angle and a rudder angle indicator. A selector switch shall be provided to transfer the control from the pilothouse to any of the remote control stations. Only

the control station selected shall have active control of the functions of the control station. The final location of all controls and instrumentation to be decided by the Owner.

Two 24 VDC distribution panels shall be installed in the machinery space to supply power to each engine's ZF Mathers control, electronic engine control circuits and the thrust bearing temperature monitor. The power for the panels shall be sourced from the battery bank selector switch. The main breaker shall be of sufficient rating for the engine and transmission control load. An appropriate number of circuit breakers shall be provided for the engine and transmission controls plus spares. The engine stop control system shall be interfaced with the engine room CO_2 release system. Technical representatives shall be employed to assist in commissioning the systems.

The cables shall be run single banked in wire trays and supported every 24" with metal cable clamps. The battery installation shall meet the requirements of 46 CFR Subchapter J Part 111. The minimum wire size shall be 12 AWG for the power distribution circuits. The wire size from the battery switch to the Bass distribution panels shall be a minimum of 4 AWG. The engine control panels shall be drip proof. The 24VDC power distribution cables shall be marked with regard to polarity. The distribution panel branch circuits shall be protected with circuit breakers.

Penetrations through watertight and fire rated boundaries shall be made in a manner to prevent compromising the boundary's watertight or fire integrity.

The aft control stations on the 02 deck shall be permanently mounted on pedestals and provided with lockable sliding or hinged weathertight covers. The pedestals shall be equipped with thermostatically controlled electric space heaters. The space heaters shall be mounted within the pedestal head and located away from any of the wiring.

The 24 VDC distribution panels shall be mounted within 7 feet of the batteries or suitable fuses will be provided in the feeder wire.

15.3 Shafting Installation

The shafting components include, from the propeller forward, tailshaft, solid coupling, distance piece, solid coupling, thrust shaft and bearing, solid coupling, shaft brake, flexible coupling, intermediate shaft, flexible coupling, drivesaver, distance piece, transmission and engine. The shaft components shall be machined from Aquamet 17 material. The tailshaft shall be radially

supported by cutlass bearings fitted in the shaft strut and forward and aft ends of the stern tube log. The thrust bearing and thrust shaft shall be supported by a suitable foundation. The thrust shaft shall be machined from Aquamet 17 shafting of sufficient diameter to be fitted to the bearings inside of the SKF thrust bearing housing. The thrust shaft shall be connected to the tailshaft with a solid coupling. A Drivesaver shall be fitted between the forward flex coupling and the distance piece. The forward end of the thrust shaft shall be fitted with a solid coupling. The shaft brake disc shall be mounted between the forward solid coupling on the thrust shaft and the aft flexible coupling on the intermediate shaft. Fitted bolts shall be used to mount the brake disc between the coupling halves. The intermediate shaft shall be fitted with Kopflex flexible gear couplings. One end of the intermediate shaft shall be connected to the solid coupling and brake disc on the forward end of the thrust shaft. The forward flexible coupling shall be bolted to a distance piece. The distance piece shall be of sufficient length to position the brake disc to avoid any protuberances from the transmission. The forward flange of the distance piece shall be joined to the transmission output flange. The engines shall be close coupled to the transmissions. The layout of the shaft line is found on Dwg. No. 283-32A-201.

The initial alignment of the shafting system is critical. The thrust bearing housing, stern tube and strut bearings are to be aligned as a unit. The engine and transmission shall be aligned to the coupling at the thrust bearing. The Owner's representative shall witness and approve the alignment of the strut, stern tube and thrust bearing housing prior to chocking and the alignment of the transmission output flange to the thrust shaft input flange prior to the installation of the intermediate shaft.

Each stern tube stuffing box shall be fitted with a corrosion resistant water collection pan equipped with a 24 VDC automatic bilge pump. The discharge of the pump shall be connected to an overboard pipe through a check valve.

15.3.1 Tailshaft and Stuffing Box

The tailshafts shall be fitted with a standard SAE taper with a keyway machined at each end to fit to the propeller and the solid coupling half. Lasdrop water lubricated shaft packing glands shall be fitted to the forward end of the stern tubes. The forward end of the stern tube will have the machining and flange to accept a suitable Duramax packing gland. A pipe stub, welded or machined to mate with the stern tube flange will be

provided for the Lasdrop shaft seal. This is so a Duramax Seal could be fitted at a later date if so desired by Casco Bay Lines. The solid coupling halves will be retained with nuts and shall mate with the aftmost couplings on the thrust shafts.

15.3.2 Thrust Shaft and Bearings

Each thrust shaft shall be fabricated from Aquamet 17. The thrust shafts shall be machined to install the bearing components for the SKF D24ZP thrust radial/bearing units. Each end of the shafts shall be machined with a standard SAE taper, keyway and threads. The solid couplings mounted on each end of the shafts shall be machined with a matching taper and keyway. The forward couplings shall be the solid half of a Kopflex H series 35 gear coupling unit. Following the assembly of the thrust bearing components on the thrust shaft the coupling halves shall be placed on the tapers with keys and the retaining nuts tightened. The coupling and thrust shaft tapers shall be machined to tolerances and surface finishes in accordance with accepted industry standards. Prior to tightening, the mating of the coupling and shaft tapers shall be checked with bluing. A minimum of 80% contact must be proved prior to assembly.

The thrust bearing housing shall be mounted to the thrust bearing girders with through bolts. The thrust bearing housing will be aligned to the stern tube bore. Following alignment, Chockfast shall be used to build up the girder surface to the thrust bearing mounting plate. The Chockfast must be used in accordance with the manufacturer's instructions.

After the thrust bearing housing has been aligned and secured, the thrust shaft may be installed and mated to the tailshaft. The coupling bolts shall be installed in accordance to the manufacturer's specifications for the transmitted power and service.

Each thrust bearing shall be fitted with a temperature and fluid level sensor. A GEMS LS-159000 float switch shall be fitted to a standpipe screwed into the bearing's oil drain hole. The level switch shall be positioned to activate upon loss of fluid level. The standpipe shall not interfere with the normal maintenance of the bearing. The standpipe shall be suitably bracketed to prevent motion relative to the thrust bearing housing. The temperature shall be measured via an OMEGA PR-11-2-100-1/4-12-E RTD fitted to a compression fitting screwed in the oil fill plug. The RTD leads shall be run to a watertight junction box located in each void and then continued to the display units. The RTD shall be read on an OMEGA CNi 833-DC, 24 VDC

electronic display mounted in clear sight within the engine room. The electronic display shall be panel mounted in the face of a NEMA 4 enclosure. Both display units shall be mounted within the same enclosure. Power for the RTD displays shall be provided by a circuit breaker in the 24 VDC distribution panels for the control system. The electronic display shall have a dry contact alarm output. The temperature alarm shall be set for 180 deg F. Each sensor shall be monitored by the alarm panel located in the pilothouse. Each thrust bearing alarm channel shall have a nameplate "Thrust Bearing Temperature High" or "Thrust Bearing Oil Level Low".

15.3.3 Intermediate Shaft and Couplings

An intermediate shaft shall be installed between each thrust shaft and transmission drive flange. This shall require fabrication of a straight shaft with the ends machined to accept a Kopflex series H 35 flexible gear coupling and a distance piece of approximately 8" in length to join the Kopflex flexible gear coupling flange to the transmission output flange. The drivesaver shall be mounted between this distance piece and the forward Kopflex coupling. The intermediate shaft shall be fabricated from 3.5" diameter Aquamet 17. The ends shall be machined with a key way. Each Kopflex flexible gear coupling shall be machined as required to provide an interference fit of approximately 0.0005"/in. of shaft diameter on the shaft. The distance piece shall be fabricated of steel with a minimum UTS of 60 ksi and have flanges to match the bolt circle of the Kopflex flexible gear coupling and the transmission output flange. The cylinder shall be fabricated from 6" Sch 120 carbon steel pipe A106B. The minimum thickness of the flanges shall be 7/8". The couplings shall be joined with fitted bolts in accordance with the manufacturer's requirements.

The shaft brake disc shall be fitted between the faces of the Kopflex flexible gear coupling at the intermediate shaft output and the thrust shaft input coupling. Care must be taken to ensure that the sealing of the brake disc coupling interface be adequate to prevent throwing gear coupling lubricant over the brake disc face. This may be accomplished by machining a suitable o-ring groove in the brake disc on both sides.

15.3.4 Shaft Brake Installation

A ZF Mathers SB 30 shaft brake with two calipers shall be fitted to each shaft line. The brake disc shall be mounted between the Kopflex flexible coupling half on the intermediate shaft

output and thrust shaft. The brake disc shall be drilled for the same bolt circle as the couplings. The bolts shall be fitted in accordance with the brake manufacturer's instructions. A bracket shall be fabricated to support the caliper assemblies and transmit the torque to the surrounding structure. The brake caliper assembly shall be mounted to the bracket in accordance with ZF Mathers instructions. The brake cylinder and control valves shall be mounted within the machinery space along the bulkhead at frame 14. The fluid connection from the brake cylinder shall be seamless steel tubing. A short, flexible high-pressure hose shall connect the tubing to the brake caliper. The air supply shall be from the compressed air system as depicted on Dwg. No. 283-32A-504.

The brake system shall be interfaced with the engine control system and the ZF Mathers Clear Command Control system. The brake release and set points shall be adjusted so that the brake is released before the transmission is clutched in and set after the transmission is clutched out.

Any and all fluid and air connections and hoses shall be thoroughly flushed and cleaned prior to assembly and system commissioning.

The run out of the brake disc must be within the manufacturer's tolerances.

The brake system fluid and electrical components shall be mounted within the machinery space in accordance with the manufacturer's installation instructions. The pressure intensifier shall be mounted at a higher level than the brake caliper.

An air pressure switch shall be fitted to the brake system to warn of low air pressure. The pressure switch shall be set for 100 PSIG and shall activate an alarm on the alarm panel in the pilothouse. The alarm channel shall have a nameplate "Low Brake Air Pressure".

15.4 Steering System

The ferry will be outfitted with a steering gear system and the Contractor will propose an optional bow thruster as described in the following sections.

15.4.1 Steering System

The Contractor shall provide the ferry with a steering gear system in accordance with 46 CFR Subchapter K. The port and starboard rudder tillers are to be connected with a jockey bar with threaded ends, fittings and lock nuts for toe in/out adjustment. The steering gear shall be a

Jastram model C2-76-300-2-37. The system shall be hydraulic and receive power from electrically driven hydraulic pump units installed in the steering gear room. The hydraulic pumps shall be of sufficient capacity so that only one shall be necessary to provide the required maneuvering capability. The pumps shall be selectable so that only one may be used at a time. The pumps shall draw hydraulic fluid from a 20-gallon split reservoir tank. The pump unit shall be located in accordance with drawing 283-32A-014. The system shall have full follow up and non-follow up modes. The normal operating station, with a full follow up wheel and non-follow up lever, shall be in the pilothouse. There shall be four (4) additional non-follow up stations. Two shall be located in the pilothouse, port and starboard, and two on the aft end, port and starboard, on the 02 deck. There shall be an emergency steering station located in the steering gear room. Each non-follow up steering station shall have a non-follow up lever and a rudder angle indicator. The rudder angle indicators on the aft 02 deck shall have reverse indication so that the rudder indication shall be oriented correctly when the operator is facing aft. A selector switch at the pilothouse station shall determine which non-follow up lever can be used and permit the pilothouse station to override any other station. The system instrumentation and controls shall be provided from the ferry's 24 VDC system per drawing 283-32A-304. The steering gear pumps shall receive 208V 3 PH power from the main switchboard per drawing 283-32A-303. The NFU levers in the pilothouse shall be sufficiently close to the P/S windows to permit operation while looking out the windows.

Instrumentation, alarms and controls shall be provided as required by 46 CFR Subchapter K and shall be incorporated into the pilothouse steering station control panel.

The Contractor shall provide the necessary plans, test procedures and documentation to the USCG for the plan approval, as required.

The system and piping shall be thoroughly flushed prior to connecting the control valves and pumps.

The electrical wiring shall meet the requirements of 46 CFR Subchapter K.

The final location of all controls and instrumentation to be decided by the Owner.

15.4.2 Bow Thruster

As an add-alternate to the RFP, a bow thruster is to be incorporated for improved vessel control while docking. The bow thruster shall be an electric type powered by the generator not providing the vessel electric load. This shall be accomplished by an arrangement of interlocks and circuit breakers on the main switchboard to prevent the bow thruster motor from being powered from the main switchboard. The electric motor for the bow thruster will be 50 HP and will be driven by a variable frequency drive. The bow thruster will be capable of being operated from five control stations; three in the pilothouse and two on the 02 deck aft. In addition, the bow thruster will be capable of being operated from the VFD.

The VFD will be furnished with the sufficient line reactance or other means to reduce the harmonics to a level consistent with IEEE-45.

The VFD will be located as close to the bow thruster motor as possible. The cables between the switchboard and the VFD and from the VFD to the motor will be suitable for the service for which they are intended.

Power for the bow thruster will be 208 V 3 PH from the vessel's switchboard. Additional control power, if required, will be from the vessel's 24 VDC system.

Estimated weight and space impacts on the Ferry's light ship weight and general arrangements shall be provided with the Contractor's bid for the optional bow thruster. Final bow thruster arrangements and details to be reviewed and approved by Owner, if option is selected.

15.5 Fuel System

The fuel system shall consist of any tanks, valves, piping and filters necessary to load, store and convey fuel to and from the main and auxiliary engines. The fuel system is depicted on Dwg. No. 283-32A-203. The main fuel lines shall be constructed of 1-1/2" seamless steel A106 schedule 40 pipe. Shutoff and check valves shall be provided at each fuel tank outlet. A manifold, connected to the fuel supply pipes shall be provided to direct the fuel to each main and auxiliary engine and permit the fuel supply to be provided by either or both fuel tanks. From the fuel supply manifold the fuel shall be directed to duplex USCG approved filter units, one per engine. The fuel supply manifold shall also have a connection to provide fuel to the oil-fired boiler. The 1-1/2" pipe shall be reduced to match the connections on the filters. After the filters the fuel pipe shall be reduced in accordance with the fuel flow requirement of the engines served. The supply pipe size for the main engines shall be a minimum of 3/4". The supply pipe size for the auxiliary engines shall be 3/8". A USCG approved flexible fuel hose shall be placed between the engine's fuel inlet connection and the fuel supply pipe. From each engine's return connection a 1/2" pipe shall convey the fuel back to the storage tanks. A USCG approved flexible fuel hose shall be fitted between each engine's fuel return connection and the pipe. A suitable manifold shall be provided to connect the fuel flow from each engine and direct the return flow to either or both fuel tanks. Each return pipe shall have a check valve fitted before the return manifold. The piping shall be suitably supported and routed as directly as possible while avoiding hot surfaces and structure.

The pipe connections shall be made with an approved method. Pipe flanges shall be wrapped with a suitable spray shield.

The fuel tanks shall be fitted with electronic tank level indicators and high and low level switches. The electronic tank level transducer shall be GEMS Suresite series and be powered from the 24 VDC system. The output from the level transducers can be 4-20mA or 0-5VDC. LED/LCD displays shall be provided for each fuel tank in the engine room, at the fuel fill station and in the pilothouse. The tank level indicator in the pilothouse shall be lighted for viewing under low light conditions. Each tank level indicator shall be scaled and calibrated for the tank they serve and be graduated in tank depth (inches) and volume (gallons). The Contractor shall

supply as built tank capacity plans and sounding tables for the tanks based upon the installed locations of the TLI's.

The tank level alarm switches shall be float type units GEMS LS-7 series and shall be connected to the alarm panel in the pilothouse and at the fuel fill station. Each level switch alarm tag shall indicate the tank and the level high or low. The level alarms shall be active at tank volume of 10% for low and 90% for high.

The fill station connections shall be made lockable. A high-level alarm output from the alarm panel will be used to activate an audible alarm horn located in a weathertight enclosure at the fuel fill station.

The containment shall be fitted with a bronze plug.

The fuel tank supply emergency shut off valves shall operable from pull handles located in the main cabin. The pull handles will be mounted within a glass covered box flush mounted in the bulkhead for the interior stair. The box shall be painted red and suitably marked.

The fuel tanks shall be vented to the 01 deck outside the superstructure as depicted on Dwg. No. 283-32A-203. Each vent shall be 2" and have an appropriate vent head with float valve and wire mesh screen. A 15-gallon spill containment shall surround each fuel tank vent.

15.6 Lubrication and Hydraulic Oil Systems

Three tanks shall be provided in the engine room for the storage and retention of engine lubricating oil, hydraulic oil and waste oil. The tanks shall be installed in accordance with 46 CFR Subchapter K. Each tank shall be capable of containing 55 gallons of its respective fluid. The lubricating and hydraulic oil tanks shall be equipped with self-closing drain cocks, vents and level indicators. Tanks shall be filled from a connection on the main deck, aft, forward of the gate. The final location is to be approved by the Owner. The fill lines should be 1 1/2" equipped with a valve and cap, and shall be surrounded by a containment. The drain cocks shall be fitted with a cap that is retained with a chain. A drip pan shall be positioned beneath the drain connections. A reversible 24 VDC oil drain pump shall be installed beneath the tanks. A suitable manifold and valves shall be provided to enable transferring the fluids in the engine new oil and waste oil tanks to and from the systems they serve. A suitable hose and fitting shall be

furnished to connect to the engine sump drain and fill connections of the main and auxiliary engines.

The waste oil tank drain shall be 1-1/2" IPS and fitted to the tank bottom. A suitable drain valve shall be fitted with cap. The cap shall be retained with a chain.

The tanks shall be vented to the main deck outside of the superstructure. The vent shall be fitted with a float valve and fire screen. A 5-gallon containment shall be placed around the vent heads for all three tanks.

The tanks shall be located as shown on Dwg. No. 283-32A-014.

15.7 Engine Cooling Systems

Engine cooling shall be provided by Fernstrum gridcoolers or equal. Each main engine cooling system has two cooling circuits: jacket water and charge air/transmission. Each auxiliary engine has a single jacket water cooler. The gridcoolers shall be located on the outside of the shell and installed in accordance with the manufacturer's instructions and additional information found in this section. The main engine gridcoolers shall be sized for sufficient heat rejection to 85 deg F seawater at the rated power of the engines at a speed of 4 knots. For representation the drawing 283-32A-204 depicts the required coolers for Detroit Series 60 main engines and Northern Lights 65 KW generator engines. The genset gridcoolers shall be sized for sufficient heat rejection to 85 deg F seawater at the rated power of the engines at a speed of 0 knots. "U-L" type gridcoolers shall be used so that only one cofferdam needs to be provided for each cooler and the coolers shall have the necessary brackets to permit mounting directly to the hull on studs. These gridcoolers are configured so that both the inlet and outlet pipes shall emanate from the same end. The gridcoolers shall be mounted in line on opposite sides of the hull with the charge air cooler foremost and the generator cooler aftmost. Stainless steel studs welded to the ferry's bottom and nuts shall be used to secure the end and intermediate gridcooler brackets to the hull. The gridcoolers shall be fitted with a guard constructed from ½" flat bar with 2" x ½" bolted cross bars and configured to provide protection and the proper water circulation around the gridcooler. The gridcooler guard will be coated with the same system as the underwater hull. The guard shall be sufficiently open to permit changing the gridcooler zinc anodes and the

auxiliary 12 pound zinc anode without disassembling the guard. A two-chamber cofferdam suitable to encompass both nipples shall be used around the hull penetration for each gridcooler set. Each grid cooler shall be electrically bonded to its respective cofferdam. Cooler nut sockets are to be fabricated for each nut size and stored onboard the ferry. Each cofferdam shall be fitted with a lugged ductile iron butterfly valve for each cooling water pipe and a vent with shutoff cock. From the cofferdam valves the cooling water shall be conveyed to the cooling connections on each engine. The pipe shall be the same size as the respective connection on each engine. The pipe shall be run as directly as possible and be provided with a sufficient number of supports. The pipe shall be connected to each engine's connection through a flanged rubber expansion joint. A bonding strap shall be fitted across the inlet and outlet flanges of each expansion joint. Vent cocks shall be provided at the high points of each pipe prior to the expansion joint.

The cooling water pipes external to the main engine shall be constructed of schedule 40 A106 steel pipe. They shall be joined to the penetration through a cast steel body, lugged butterfly valve and connected to the engine through flanged rubber expansion joints.

The high points of the cooling pipes shall be fitted with threaded sockets and vent valves.

A Murphy switch gage shall be fitted to the expansion tank on each engine. The Murphy switch gage shall output to a channel on the existing alarm panel in the pilothouse. The alarm tag on the panel shall read " x Main Engine Expansion Tank Level Low" where "x" is either port or starboard.

Access holes shall be cut into any deck plates above the cofferdams to permit operation of the valves. The holes shall be blocked with removal plates and the holes marked with the valve identification.

Flanged rubber flexible connections shall be fitted to the cooling pipes at the engine inlet and outlet connections. The connections shall be installed in accordance with 46 CFR Subchapter K.

One nipple of each gridcooler shall be electrically bonded to the hull through an 8 AWG Cu conductor inside the cofferdam.

The gridcooler shall be shimmed, twisted or bent as required to match the hull lines in the vicinity of the gridcooler mounting area. Any bending of the gridcooler(s) shall be done in accordance with the manufacturer's procedures.

15.8 Fresh Water System

Fresh water shall be provided to the two ADA heads from a 1100 gallon HDPE holding tank by a pressure set. The captive air tank shall have a 15-gallon equivalent capacity. The pump shall be powered by 230/1/60 from a circuit breaker on the switchboard. Nipples on the HPDE tank shall be installed in strict accordance with the manufacturer's instructions. The pump shall be connected to the 1100 gallon HDPE holding tank through 2" galvanized Sch 40 pipe. After entering the engine room, the pipe shall be reduced down to the size required by the pressure set. A check valve shall be fitted to the pump suction pipe. The pump shall discharge through 1" type K Cu tubing and enter the upper decks through the starboard ventilation trunk. The pipe shall branch out in the overhead of the main deck passenger space to each of the two ADA heads. The pipe shall be reduced to ½" before terminating in the heads. A stop valve shall be fitted in the heads. From this stop valve the pipe shall branch out to the cold water side of an ADA faucet set on the lavatory and to an in-line water heater. A stop valve shall also be installed prior to the pipe entry into the water heater. 3/8" flexible pipe stems shall join the hot and cold pipe to the lavatory faucets. The freshwater system is depicted on Dwg. No. 283-32A-507.

The pressure set shall be furnished with a pressure gage and pressure switch. The pressure switch shall be set to cycle on at 30 psig on and off at 45 psig.

A suitable foundation shall be fabricated to mount the pressure set in the location depicted on Dwg. No. 283-32A-014.

The 1100-gallon fresh water tank shall be fitted with electronic tank level indicators and high and low level switches. The electronic tank level transducer shall be ultrasonic type and be powered from the 24 VDC system. The output from the level transducers can be 4-20mA or 0-5VDC. LED/LCD displays shall be provided for each fuel tank in the engine room, at the fill station and in the pilothouse. The tank level indicator in the pilothouse shall be lighted for

viewing under low light conditions. Each tank level indicator shall be scaled for the tank they serve and be graduated in tank depth (inches) and volume (gallons).

The tank level alarm switches shall be float type units GEMS LS-7 series mounted to the side of the tank. The tank level alarm sensors shall be connected to the alarm panel in the pilothouse and at the fuel fill station. Each level switch alarm tag shall indicate the tank and the level high or low. The level alarms shall be active at tank volume of 10% for low and 90% for high.

The HDPE tanks will need to specified with the right connections for all of the attached level sensors, access covers, fill pipes, vent pipes and suction pipes. The connections will be those recommended by the manufacturer and installed according to their instructions.

A 1½" fill pipe shall be provided to fill the tank. The fill pipe shall be located on the ferry's centerline on the forward bulkhead on the 01 deck house, iaw USPHS regulations. The fill pipe shall be furnished with a cap secured with a lanyard or chain.

The inline water heaters shall be powered by 230/1/60 power from a circuit breaker on the switchboard.

A 1" stop/check valve shall be provided to cross connect the fresh water system with the sanitary system.

A bucket fill station shall be provided on the main deck forward of the ADA head in the passenger space. The hot and cold water shall be supplied by branch lines from the ADA head's hot and cold water piping. The fill station shall be recess-mounted into the bulkhead of the head to reduce passageway interference.

The freshwater piping shall be run as directly as possible and avoid interferences with structure. The discharge piping shall be run entirely within heated spaces to minimize the possibility of freezing. The piping shall be supported throughout.

15.9 Salt Water Systems

The ferry's salt water systems shall be constructed iaw 46 CFR Subchapter K. Salt water shall be used for the sanitary water system and the fire main. Both systems shall draw seawater from the sea chest located approximately on the ferry's centerline. Each system shall be provided with its respective bronze simplex strainer and suitable valves and piping. The valves connected to

the sea chest shall be lugged ductile iron body butterfly valves with stainless steel stems. The sea chest shall also be furnished with a vent and a valve with a quick disconnect connection for blowing the sea chest out with compressed air.

15.10 Sanitary System Water

Sanitary system salt water to operate the ferry's two water closets shall be provided by a pressure set. The pump shall be powered by 230/1/60 current from a circuit breaker on the switchboard. The pump shall be connected to the seachest through a 2" bronze simplex strainer. Lugged ductile iron butterfly valves with stainless steel shafts shall be used on the seachest outlet. The pipe shall be reduced as necessary after the strainer to the size required by the sanitary pressure set. A check valve shall be fitted before the pump inlet. The supply pipe from the seachest valve to the pump inlet shall be schedule 40, 90-10 CuNi. The pump outlet shall be 1" and shall run through a stop valve up through the starboard ventilation trunk and then branch out in the main deck overhead to supply water to each watercloset. The supply pipe shall be constructed of 1" schedule 40 90-10 CuNi pipe. A stop valve and an ADA approved flushometer shall be fitted at each water closet. The sanitary system is depicted on Dwg. No. 283-32A-506.

The pipe shall be properly supported throughout its length. The pipe run shall be as direct as possible and avoid structure. Penetrations through fire and water boundaries shall be made so as not to compromise the boundary integrity.

The pressure set shall be equipped with a discharge pressure gage and a pressure switch. The pressure switch shall be set to cycle on at 30 psig and off at 45 psig.

A suitable foundation shall be fabricated to mount the pressure set in the location depicted on Dwg. No. 283-32A-014.

15.11 Firemain

The firemain shall meet the requirements of 46 CFR Subchapter K. The firemain shall be a dry type and the fire pump shall be located so as to have a flooded suction at the ferry's light draft. The fire pump shall be capable of supplying 83 gpm of water at 230 TDH. The pump shall be horizontal, close coupled, constructed of stainless steel and be driven by a 10 hp TEFC electric motor. The power for the motor shall be 208/3/60 and shall be supplied by a circuit breaker on

the switchboard. The pump shall be connected to the seachest through a 3" bronze simplex strainer and lugged ductile iron butterfly valves. The pump shall discharge to the fire main or to overboard. An independent bilge suction branch line shall be connected to the fire pump suction manifold. The pump shall be operated from both a local control station and from a control station located in the pilot house. A suction and discharge pressure gage shall be provided at the pump. A discharge pressure gage shall be provided at the pilothouse operator station. Each gage shall be provided with a shut off cock and snubber.

Fire stations shall be provided as indicated on Dwg. No. 283-32A-502. Each fire station shall be complete with a 50 ft. length of USCG approved 1½" hose, USCG approved combination nozzle, hose wrench and hydrant valve.

The fire pump controller shall have an electrical interlock to allow the fire pump to start, not the elevator, during the simultaneous attempt to start the fire pump and the elevator motors.

The contractor shall be responsible for supplying the correct nozzle with which to test the fire system for the USCG.

Details of the firemain system can be found on Dwg. No. 283-32A-502. A suitable foundation shall be fabricated to mount the fire pump in the location depicted.

15.12 Bilge System

The bilge system shall meet the requirements of 46 CFR Subchapter K. The bilge pump shall be a self-priming pump with electric motor powered from the main switchboard. The pump shall be connected to the bilge main and be capable of pumping 100 GPM at 50 ft TDH. The bilge system is depicted on Dwg. No. 283-32A-503.

The bilge pump suction shall be connected to the 2-1/2" bilge main.

The bilge pump shall be fitted with a suction and discharge pressure gages. Each gage shall have a shut off cock and snubber. The gages shall be indelibly marked and positioned to be easily read from the bilge manifold.

The bilge manifold valves shall be operable from above the engine room deck plates. Each valve shall be marked with regard to the bilge space they service. Cross connections, overboards and sea suctions shall be similarly marked. The tags shall be made of corrosion resistant material and fixed to the respective bilge valve's hand wheel.

Each space with a bilge suction, including the elevator pit, shall be provided with a high bilge level alarm. The bilge alarm shall be activated by the operation of a float type switch and annunciate on a dedicated alarm panel in the pilothouse. There shall be one alarm for each protected space. The tag for each alarm shall indicate the space followed by "Bilge Level High".

The independent bilge suction for the engine room shall be provided by a 2" branch line off the fire pump suction manifold.

15.13 Exhaust System

The main engine exhaust systems shall be a dry type utilizing EM Products, 8" EM TAU silencers. The generator engine exhaust systems shall utilize 4" EM JR silencers. The piping from the main and auxiliary engines to the silencers and then to the exit from the stack shall be constructed of Schedule 20, 316L stainless steel pipe. For representation drawing 283-32A-205 depicts the ferry's exhaust system using Detroit Series 60 main engines, Northern Lights 65 kW generators and a Burnham VO-904A Boiler. Other main propulsion and genset machinery may be acceptable but only the portion of the exhaust piping within the engine room shall change. The main engine exhaust piping shall be 8" pipe. The auxiliary engine exhaust shall be

constructed of 4" pipe. From each engine's exhaust connection the exhaust system shall convey the engine exhaust horizontally and forward to the vertical trunks located centrally in the engine room. At the trunks the exhaust pipes shall run vertically to fidley, located on the 02 deck. In the fidley the exhaust pipe shall be directed inboard and then vertically finally exiting from the single stack. Each engine exhaust pipe shall have flexible joints located at the engine outlet and after each exhaust silencer. The pipe within the engine room shall be supported by resiliently mounted pipe hangers similar to those shown on Dwg. No. 283-32A-205 for the silencers, spaced every 3' and at each elbow. Brackets and resilient mounts connecting the silencers to the ventilation trunk stiffeners shall support the silencers. Brackets mounted on the exterior of the silencer bodies are to be installed by the silencer manufacturer. All resilient mounts are to be arranged so the rubber elements are adjacent to the ship's structure, not adjacent to the pipe attachment. The pipe within the trunk shall be supported by a pipe support attached to the upper elbow and the deckhouse structure. The pipe within the fidley shall run inboard and terminate with elbows at horizontal flanges below the stack. Hinged rain caps shall be placed at the top of the engine exhaust pipes to prevent the entry of rainwater. Each engine's exhaust pipe and silencer shall be insulated from the engine exhaust connection to the upper flange in the fidley. The pipe connections shall be welded except at the silencer and expansion joint where it shall be flanged and bolted. The exhaust system shall meet the requirements of 46 CFR Subchapter K. BOA flexible exhaust connections shall be supplied by the Contractor and placed on each turbocharger outlet flange before the piping and at other locations where expansion joints are indicated on the drawings.

The boiler exhaust shall be placed in the port trunk. The boiler exhaust piping shall be constructed of schedule 20 316L pipe, sized to the selected boiler's exhaust size. The boiler exhaust piping shall be the same as that for the engines with the exception that there is no silencer and expansion joints shall be located at the main deck level.

The exhaust system flanged joints shall be made leak free by using non-asbestos wire reinforced gasket material suitable for 400 deg C.

The main engine turbocharger shall be fitted with a manufacturer supplied adapter flange. The exhaust piping shall transition from this flange to 6" before the first expansion joint.

The exhaust systems shall be lagged from the turbocharger outlet to the upper flange in the fidley. No lagging is required from the upper flange in the fidley through the stack. The lagging shall be removable to access any take down flanges. The lagging shall be of sufficient thickness and material to limit the lagging surface temperature to less than 125 deg F within the engine room and 200 deg F in the ventilation trunk.

A sufficient number of take down joints shall be installed in each exhaust system to permit removal of the exhaust system within the engine room through the engine room access stairway.

A sufficient number of take down joints shall be installed to remove the silencers without otherwise disturbing the piping system and to remove the vertical section of exhaust piping above the silencer through a temporary access hole cut in the fidley top.

15.14 Heating and Ventilation

The heating system has been sized for the following design conditions:

Winter Outdoors	-5 deg F, DB
Winter Seawater Temperature	32 deg F
Winter Indoors-passenger spaces	70 deg F, DB
Winter Indoors-below main deck	45 deg F, DB

The heating system, as installed, must meet the above design conditions.

The ferry shall have a heating and ventilation system that shall provide ventilation and combustion air to the engine room, exhaust the air from the ADA heads, heat certain under-deck voids, passenger spaces and pilot house and provide heated air to defog the pilothouse windows. Powered engine room ventilation shall be provided by a 24” vane axial, 2 speed 3 hp, 7500 cfm at 1” WC engine room supply fan with straightening vanes. ADA head exhaust ventilation shall be provided by two 125 cfm fans. Two 125 cfm exhaust fans and one 1000 cfm window defroster fan will provide powered ventilation in the pilothouse. Space heating shall be provided by hydronic unit heaters in certain voids, a mixture of convection fin-tube units and hydronic unit heaters in the passenger spaces and ADA heads and a fan coil unit in the pilothouse. The heat to the hydronic system shall be provided by a 300 MBTU/hr heating boiler and associated circulation equipment. The boiler will be required to meet the applicable sections of 46 CFR.

In addition to space heating, hydronic air curtains shall be installed over each passenger door to weather. The air curtains shall use the hydronic system water and shall be equipped with switches so that they operate only when the doors are opened.

Ventilation throughout the passenger spaces shall be natural through opening windows.

The specifications of the fancoil heaters, fin tube heaters, defogger heater, ventilation fans and exhaust fans are listed on Dwg. No. 283-21-501.

15.14.1 Hydronic Heating

The hydronic heating system shall be installed in accordance with 46 CFR Subchapter K. The hydronic heating system is depicted on Dwg. No. 283-21-501 and shall consist of a 300 MBTU/hr heating boiler circulating a propylene glycol solution throughout the system. The hydronic system will feature a primary and secondary loop type circulation.

The water tank void, fuel tank void, engine room and steering gear room shall each have a hydronic heater to maintain the temperature at 45 deg F with an outside temperature of -5 deg F. Each unit heater shall have a thermostat to control the operation of the fan.

The main and 01 deck passenger areas and ADA heads shall be heated by a combination of 1" and 1-1/4" baseboard convective fin-tube units. The tubing shall be type K Cu and the fins shall be aluminum at 58 fins per inch. The convection fin-tube units shall be installed six inches above the deck. The passenger entry doors shall also have hydronic low profile air curtains that shall operate when the door is opened. The air curtains shall be controlled with door activation switches.

The main and 01 deck cargo alleys shall be heated by overhead mounted hydronic heaters. Each cargo alley will have its own thermostat. The space will be cable of being maintained at a temperature of 45 F with an outside air temperature of -5F.

The pilothouse and crew space shall have cabinet style fan coil units. These units shall have a thermostat and be connected to the hydronic heating system.

Each heating fin tube unit, fan coil unit, or air curtain heating loop shall be fitted with an inlet/outlet ball shut off valve and manually operated air bleed valve. Shut off valves shall be

placed in an accessible location. Where the overhead or some other covering is used, the location of the valves shall be indicated.

Each secondary heating loop shall be furnished with an automatic air removal device.

A heating management program shall be installed so that the heating system demand shall change in response to time of day and outside temperature.

Electrical power for the heating system shall be furnished by the boiler 208V 1 PH distribution panel. The boiler panel will be powered when the vessel is on shore power.

The boiler shall have a remote shutdown switch located in the pilothouse and shall also shut down upon the release of CO_2 into the machinery space.

Suitable piping and valves shall be used to supply the oil to the burner. A duplex filter unit shall be placed in the supply piping to the burner.

A make up water line shall be provided form the ferry's freshwater system to the boiler. The system shall be charged with a 40% solution of propylene glycol and water. The heating system shall be fitted with instrumentation as noted on Dwg. No. 283-21-501.

15.14.2 Engine Room Ventilation

Engine ventilation shall be provided by a 2-speed power driven fan located in the 3' x 6' trunk located above the starboard forward corner of the engine room. The ventilation air shall exhaust through ventilation trunks and terminate at the aft side of the fidley on the 02 deck. The fan maximum speed shall be 1800 rpm. The fan shall be mounted on resilient mounts welded to the main deck. A straightening vane set shall be provided between the fan and the mating flange. The flanges shall be gasketed. Ducting shall be fitted below the main deck to distribute the air throughout the engine room. A USCG approved A-60 24 VDC, 750 mm x 750 mm square fire damper shall be bolted to flanges immediately below the main deck at the outlet of the fan. This fan damper shall close upon activation of the engine room CO_2 system, the melting of a fusible link or the loss of 24 VDC power. A plenum shall be fitted below the fire damper and have outlets to direct the air along the starboard side and transversely. Outlets shall be provided as depicted on Dwg. No. 283-32A-206. The duct shall be sized to limit the air velocity to less than 2000 fpm. The inlet plenum shall have a minimum clearance of 6 inches on all sides and 3 feet

vertically of the fan inlet. Grillwork/louvers shall be provided in the superstructure side to provide air to the plenum. The louvers shall have a minimum free area 6 square feet and shall be meet the AMCA criteria for the beginning point of water penetration at the system design flow velocity. The engine room air shall be exhausted through the ventilation trunks located centrally in the engine room. Each ventilation trunk shall start at the engine room overhead and terminate in the middle of the aft bulkhead of the 02 deck. The outlet from the fidley shall be fitted with a USCG approved A-60 24 VDC 30" x 30" automatic fire damper that shall close upon CO_2 discharge, melting of the fusible link or loss of 24 VDC power. A switch shall be provided to disconnect the voltage from the damper to permit the ferry's operator to close the vent trunk from the pilothouse when the ferry is out of operation.

A ½" mesh stainless steel hardware cloth screen shall be fitted to the ventilation inlet and outlet louvers to catch debris.

The fire dampers shall be constructed of stainless steel and an indicator shall be provided to show their position. The fire dampers shall be capable of withstanding the static pressure of the installed fan without damage.

A ventilation fan shut down switch shall be provided in the pilothouse. The ventilation fan shall also shut down upon activation of the engine room CO_2 system.

15.14.3 ADA Head Exhaust Fans

Each ADA head shall be furnished with a 125 cfm exhaust fan. The fan shall be turned on with the operation of the head's light switch and shall exhaust to the outside of the ferry. Each exhaust outlet shall be furnished with a screen and a gasketed and hinged cover. The covers shall be accessible from the outside of the superstructure. Fans from the main deck shall exhaust over the side and under the pilothouse to the weather from the 01 deck ADA head.

15.14.4 Pilothouse Window Defogger

An axial fan with an in line electric heater shall supply air to each pilothouse window for defogging. A marine grade axial fan rated for 1000 cfm at 1" WC shall be used to blow air through the heater. The electric heater shall be a marine rated 5 KW duct unit operating on 208/3/60 power from a circuit breaker on the switchboard. The duct, fan and heater shall be

placed beneath the pilothouse raised deck. Branch lines shall come off the heater plenum and distribute the air to each window through diffusers mounted in the console top. The diffusers shall be capable of changing the airflow direction and volume. The heater shall be furnished with electrical safeguards and interlocks in accordance with 46 CFR Subchapter K. The inlet air for the defogger shall be drawn from a suitable sized grillwork and damper mounted on the aft bulkhead of the pilothouse so as to draw air from the crew space. A separate duct and damper shall be provided to the fan inlet to draw air from the weather. The inlet air ducting and plenum shall be constructed of 16 gauge galvanized sheet metal. The branch lines to the defogger outlets shall be constructed of flexible galvanized or aluminum ducting.

The heater/fan unit shall be provided with controls for on-off and temperature operable from the pilothouse console.

15.14.5 Pilothouse Exhaust Fans

The pilothouse shall be furnished with two 125 cfm exhaust fans. The fan shall exhaust to the weather through the pilothouse roof. Each exhaust outlet shall be furnished with a screen and weathertight louver or mushroom style exhaust.

15.15 Compressed Air Systems

The ferry shall have a compressed air system to provide clean dry air in sufficient quantity to the shaft brakes and air whistle. The system shall operate at 175 psig and shall be reduced as required to serve the various systems. Drains shall be provided at the low points of the piping system. The air piping is to be run in the overhead of the engine room. A manifold shall direct the air to the various services.

A 2-stage air compressor rated at 9 scfm and 175 psig with an 80 gallon air receiver shall be installed. The air compressor shall be rated to 3 hp and be supplied with 208/3/60 power from the switchboard. The air compressor shall cycle on at 150 psig and off at 175 psig.

The air receiver shall have an ASME "U" stamp and be fitted with a relief valve, shut off valve and drain valve as appropriate. The air receiver may be mounted vertically or horizontally depending upon the space constraints.

An air dryer shall be fitted to remove the moisture from the air. The air dryer shall be sufficient capacity to remove moisture to a dew point of 38 F and particles to 3 micron from all of the air supplied by the air compressor. A bypass valve shall be installed around the air dryer.

The relief valves shall relieve outside of the machinery space.

A convenience air connection shall be installed and located in a central location within the engine room. A hose shall be furnished of the correct length and with the correct fitting to connect to the sea chest vent blow out line and to reach all corners of the engine room.

The air system shall be thoroughly blown out with compressed air prior to connecting to any control valves. The system strainers and filters shall all be installed prior to commissioning any of the air systems.

Pressure gages shall be provided for the air receiver, after each reducing valve and at the air dryer. A pressure switch shall be fitted to the brake air system. The pressure switch shall be set at 100 psig to activate an alarm on the Murphy ST-10 panel in the pilothouse. The alarm tag shall be "Shaft Brake Air Pressure Low". Gages shall be fitted with snubbers and shutoff cocks

15.16 Pumps

The pumps provided for the ferry shall be electrically driven unless otherwise stated and of sufficient power to provide the required fluid flows. The pumps shall be of the same manufacturer as those listed on the drawings and in the equipment list as they duplicate equipment currently used by the Owner in its fleet.

Pumps shall be horizontal types mounted on a common bedplate with the motor. The pumps shall be of high-grade marine commercial quality. The pumps shall be constructed of materials compatible with the conveyed fluid. Pumps used in salt water service shall be constructed of stainless steel or bronze unless otherwise stated. Pumps shall have mechanical seals. Pumps shall operate at no more than 3600 rpm with 1800 rpm being the desirable speed.

Motors shall be of TEFC or drip proof construction and have sealed ball bearings. Motors 1 hp and above shall operate on 208/3/60 unless otherwise specified. Motors shall have a service factor of 1.15 and KVA code G or better. The motors shall not be capable of being overloaded by the pumps in any flow condition.

15.17 Sewage System

The sewage generated from the two ADA heads will be collected in a nominal 1100 gallon HDPE tank located in the tank void. This tank will be fitted with a vent, level transducer, high and low level alarm switches, suction pipe, and access cover.

The gray water from the two ADA heads will be collected in a similar tank and have the same features as the sewage tank. Both tanks will be capable of being connected to the sewage transfer pumps for pumping to shore.

The sewage and gray water shall be transferred to the shore through either one of two (2) sewage pumps. The sewage pumps shall be connected to a common 2" sewage discharge line that terminates on the ferry's centerline forward of the 01 deck house. Each pump shall have a

suction valve, discharge check valve and discharge valve. The pumps shall be powered with 208/3/60 power from individual circuit breakers on the switchboard.

A sewage pump emergency stop switch shall be fitted at the shore discharge connection. The stop switch shall be common for both pumps.

A 1" connection from the fire main will be installed to provide flushing water to the shore connection piping at the pump's common discharge point.

The 1100-gallon tanks shall each be fitted with electronic tank level indicators and high and low level switches. The electronic tank level transducer shall be Ultrasonic type and be powered from the 24 VDC system. The output from the level transducers can be 4-20mA or 0-5VDC. LED/LCD displays shall be provided for each tank in the at the discharge station and in the pilothouse. The tank level indicator in the pilothouse shall be lighted for viewing under low light conditions. Each tank level indicator shall be scaled for the tank they serve and be graduated in tank depth (inches) and volume (gallons).

The tank level alarm switches shall be float type units GEMS LS-7 series and shall be connected to the alarm panel in the pilothouse and at the sewage discharge station. Each level switch alarm tag shall indicate the tank and the level high or low. The level alarms shall be active at tank volume of 10% for low and 90% for high.

The HDPE tanks will need to specified with the right connections for the imposed head for all of the attached level sensors, access covers, fill pipes, vent pipes and suction pipes. The connections will be those recommended by the manufacturer and installed according to their instructions. The HDPE tank will be specified for the carriage of liquids with a specific gravity of 1.9.

A suitable foundation shall be fabricated to mount the sewage pumps in the location depicted on Dwg. No. 283-32A-014.

15.18 Fixed CO_2 System

A fixed manually operated CO_2 system is to be provided for the engine room. Actuation of the engine room system shall shut down the engine room ventilation intake fan and fire dampers.

16.0 PIPING

The contractor shall install complete piping systems as indicated in this specification and plans. The piping and connections shall be of the correct size, schedule and material required for the fluid conveyed, the temperature and the pressure. The piping shall be run as directly as possible and avoid interferences with ferry structure. The piping shall be properly supported throughout its length. Pipe supports shall be welded to the ferry structure. A suitable number of bends and expansion joints shall be installed to prevent damage from thermal expansion or ferry motion. Flexible hoses or connections shall be used to join pipe systems to the main and auxiliary engines. A suitable number of take down joints shall be provided in each piping system to permit disassembly and removal without having to cut the pipe or holes in the Ferry plates or structure.

Piping systems shall be routed away from electrical equipment and panel boards. Piping containing fuels or oils shall be routed to avoid exhaust pies and hot engine surfaces.

Pipe penetrations through bulkheads subdivisions shall be made so as not to compromise the water and fire integrity of the space.

Remote valve operators shall be furnished for the equipment as specified in the plans and include the fuel tank shut offs and the forepeak suction valve.

Pipes conveying freshwater or sanitary water shall be run entirely within heated spaces.

Valves shall be selected based on the pressure, service, temperature and type of fluid being conveyed. All valves shall bear an indelible mark indicating the valve service.

All pipe systems shall be thoroughly flushed. The final flushing shall be with the fluid they convey except the diesel engine cooling systems, which shall be flushed with pure potable quality water. All pipe systems shall be pressure tested in accordance with 46 CFR Subchapter K or to 1.5x the normal system pressure.

17.0 DIESEL GENERATOR UNITS

Two 65 KWe 208/3/60 diesel generator units or equal shall supply electric power for the ferry. The generator engines shall be keel cooled with Fernstrum U-L type grid coolers or equal located as shown on drawing 283-32A-204. The generator engines shall be 24 VDC electric start. The generators shall be supplied resiliently mounted on suitable foundations. Each engine shall be furnished with duplex water removal filters in the fuel supply line from the fuel storage tank. Each engine shall be connected to its respective exhaust pipe through a BOA expansion joint located as close as practicable to the engine exhaust outlet flange. Each engine shall be grounded to the ferry's hull via a suitable grounding conductor.

Instrumentation for the engines shall be provided at each engine control panel and on the pilothouse console. The instrumentation shall include jacket water temperature and oil pressure, voltage and current. An hour meter shall be provided on the local control panel.

If the optional bow thruster is fitted then each genset must be capable of being started and stopped from each of the remote control stations. These stations will include the pilothouse, and the two 02 deck aft stations. The stop button of the on line genset must be interlocked to prevent the genset from being stopped from the remote stations is on line to the main switchboard. The genset used for the bow thruster must be capable of being started and stopped at will from any of the control stations.

Each genset will have its own respective set of start/run batteries. The genset alternators will be used to recharge these batteries during normal operation. A battery charger will be fitted to maintain the battery charge while the vessel is docked.

The engine stop circuit shall be interfaced with the CO_2 system. Genset emergency shutdown switches shall be installed in the pilot house.

18.0 INSTRUMENTS AND CONTROL BOARDS

Instrumentation shall be provided for the machinery located in the engine room. Gages, when located in the pilothouse, shall be provided with back lighting capable of being dimmed in low ambient light. Digital displays shall be suitably bright for reading by daylight. Digital displays shall also be capable of being read from angles in excess of 45 degrees from dead

on. Pressure gages and transducers shall be fitted with shut off cocks at each pressure connection and suitable snubbers. Gages shall be mounted on suitable gage boards or panel mounted. Gages shall be compatible with the 24 VDC system. Other gage source voltages may be used provided a suitable DC-DC converter is used. Gage tubing shall be run without kinks, be suitably supported and have a minimum of connections. Gage wiring shall be continuous where possible fitted with "sta-kon" type terminations. Where the gage wiring is not continuous it shall be connected within a suitable junction box. Wire terminations shall use "ring type" terminals.

Each engine, main and auxiliary, shall be provided with instrumentation at the engine side and in the pilothouse. Instrumentation for each engine is listed in its respective section. At a minimum, each engine's jacket water temperature and oil pressure shall be monitored at each station. Additional instrumentation for the main engines shall include oil temperature, jacket water pressure, transmission pressure, transmission temperature and rpm. Audible and visual alarms shall be fitted for the instrumentation located in the pilothouse and in the engine room.

Each pump shall have a discharge pressure gage. The bilge, sewage transfer and fire pumps shall also have a suction gage. The fire pump pressure shall also be monitored in the pilothouse.

Each tank, freshwater, sewage and gray water, shall be equipped with an electronic type of tank level indicator. In addition to the tank level gage, each tank shall be fitted with a GEMS LS-7 high and low level switch. The tank level gages and switches shall be fitted through the tank tops so as to eliminate as many side penetrations as possible. The high and low level alarm settings for the level switches shall be 90% and 10% respectively.

The requirements for the fuel tank level indicators and alarms are found in Section 15.0 Fuel System.

All tank levels shall be monitored in the engine room and the pilothouse. Fuel tank level gages shall also be installed at the fuel fill station. The gages shall be calibrated for tank depth (inches) and volume (gallons) for their respective fluids and shall be calibrated for the actual as-built locations of the TLI's. The Contractor is to provide as-built capacity tables and sounding tables for every tank based upon the as-built locations of the TLI's. The tank level displays shall be LED/LCD panel type 5 digit display. They shall be capable of being powered from multiple

voltage sources and shall be capable of reading a 4-20mA, or 0-5 VDC input. Each display shall also have a relay output and analog output. It is envisioned that each tank level sensor will drive all of its respective panel meters. Where the meters are located outside, they shall be in a NEMA 4X enclosure.

The tank level alarms, high or low, will be monitored by a panel display that contains a visual and audible alarm for the high and/or low level condition. The set points for the high/low levels shall be 90% and 10% respectively.

Two additional alarm panels shall be used to monitor dry contact alarm outputs in the pilothouse. One panel shall be dedicated to the bilge level alarms. Each alarm shall be properly tagged with nomenclature that denotes the equipment served and the cause.

19.0 ELECTRICAL SYSTEM

The electrical system shall supply the required electric power to the installed equipment in accordance with 46 CFR Subchapter K. Equipment shall have drip proof construction and rated for service in 50 C ambient conditions. The equipment shall be installed with low smoke marine cable. Cable for power circuits shall be a minimum of 6500 circular mils (12 AWG) while cable for lighting shall be a minimum of 4100 circular mils (14 AWG). The cable shall be run single banked in wire ways and supported with metal straps every 24 inches. The cable shall be sized in accordance with IEEE Std 45 and 46 CFR Subchapter K. Cable penetrations of watertight bulkheads and fire zones shall not compromise the water or fire integrity of the bulkhead or zone. Electrical control boxes shall contain a sufficient number of terminals to connect the required number of conductors. Twenty percent extra terminals shall be provided in any junction box. The cables shall be continuous and not spliced. All electrical equipment, wiring, boxes, fittings etc shall be new. Electrical equipment, where possible shall not be mounted where it shall be subject to water spray from failed piping or excessive heat or mechanical damage. Electrical equipment and wiring shall not be placed or run in the bilges with the exception of sensors located beneath the deck plates or bilge sensors.

The electrical system one-line diagrams are depicted on Dwg. Nos. 283-32A-303 and 283-32A-304.

Motors greater than 1 hp shall be TEFC constructed, be premium efficiency and have a code G or better starting KVA and operate from 208/3/60 power unless otherwise stated.

Cable sizing may be modified as required to conform with manufacturer recommendations or supplied components.

19.1 Switchboards

The switchboard shall be mounted in the engine room on the centerline along the aft bulkhead. The switchboard shall meet the requirements of 46 CFR Subchapter K. The switchboard shall be suitable for 208/3/60 and have a dead front and be drip proof. The switchboard shall be configured to permit, through interlocks, either generator or the shore power to provide the electric power to the ferry. The switchboard shall have voltage, ammeter and frequency meters capable of reading these values from each voltage source though a selector switch. Nameplates shall be provided for each switch, circuit breaker, pilot light, gage or other indicator located on the switchboard surface. The switchboard shall also have a neutral current monitor. Each generator feeder shall have a circuit breaker and a neutral conductor disconnect that operates simultaneously with the generator circuit breaker. The switchboard shall provide power through circuit breakers to the 208/120 VAC distribution panels located in the engine room and pilothouse. The switchboard shall house the shore power circuit breaker. The switchboard shall also house the circuit breaker that supplies power to the passenger elevator and other large consumer loads.

19.2 Electrical Distribution

The electrical distribution shall be installed in accordance with 46 CFR Subchapter K. Both 208/120 VAC and 24 VDC voltages shall be distributed throughout the ferry in accordance with the one-line diagrams found on Dwg. Nos. 283-32A-303 and 283-32A-304. The 208/120 VAC shall be sourced from the generators via the switchboard and distribution panels located in the pilothouse and the engine room. Circuit breakers on the switchboard shall distribute 208 3-phase power to certain large power consumers and the 208/120 distribution panels located in the engine room and the pilothouse. An additional arrangement of circuit breakers and interlocks shall be provided to supply power to the optional bow thruster unit. This arrangement will prevent the switchboard from providing power to the bow thruster while allowing the off-line generator to be

connected. In addition a shore power circuit breaker will be furnished to supply 208V 1PH shore power to the engine room distribution panel. The shore power circuit breaker will be interlocked with the circuit breaker of this panel to prevent simultaneous operation. The engine room panel shall distribute 208/120 1-phase power to the lighting circuits, battery chargers, and heating boiler. The pilothouse panel shall distribute 208/120 1-phase power to the interior lights, exterior lights, point of use water heaters, hand dryers, interior outlets and floodlights. The loads across the phases shall be balanced as well as possible. The feeders for the distribution panels and branch circuits shall be sized for ampacity and to limit the voltage drop to no more than 3%. Nameplates shall be provided for each circuit.

Each AC distribution panel shall have a main circuit breaker and the required number of branch circuit breakers. The circuit breakers shall be secured in the panel with screws. Each circuit breaker shall have a 10,000 AIC and be capable of switching service. Two 15 A spare circuit breakers shall be provided in each distribution panel.

Each DC distribution panel shall have a main circuit breaker and the required number of branch circuit breakers. Two 10 A spare circuit breakers shall be provided in each distribution panel.

The 24 VDC power shall be sourced from batteries located in the engine room and the pilothouse. There shall be a total of five (5) battery banks. Three of the banks will consist of 2-8D batteries. The other two will have 2-30 series batteries. Four of the battery banks shall be located in the engine room. Two of the banks shall be for starting the main engines and providing the 24 VDC power for the engine room distribution panel. The navigation and electronics panels are sourced from the engine room panel and are located in the pilothouse. The engine room panel also provides power for the shaft seal bilge pumps. Selector switches shall be provided so the two battery banks in the engine room shall be capable of being cross connected or paralleled. The battery banks shall have sufficient capacity to provide power to their respective normal loads in excess of 3 hours before recharging.

The other two battery banks will be used for starting the generator engines, the generator engine controls, and local and remote instrumentation.

Two dual output 40A battery chargers shall provide maintenance charging for the main and genset batteries when the ferry is on shore. Alternators driven by the propulsion engines and

generators shall recharge their respective batteries and provide 24 VDC power while the ferry is underway. Battery isolators shall be provided to permit the charging of two separate battery banks with two separate alternators. The battery charger shall be protected from current and voltage surges caused by engine starting.

The fifth battery bank, located in the pilothouse, provides the 24 VDC power for the ferry's emergency lighting system and communications. The emergency battery bank shall have sufficient capacity to provide power to the emergency equipment for a minimum of 3 hours without recharge. A 40 A battery charger shall provide a maintenance charge while the ferry is on shore or generator power and provide the 24 VDC power when the ferry is underway.

A shore power connection shall be furnished. The connection shall be rated for 208V 30A and shall be located on the main deck starboard aft. The shore power shall connect only to the A and B phases of the engine room 208/120 1-phase distribution panel. The loads in the panel shall be distributed so that only the loads required to be powered by shore power shall be connected to phase A and B. The shore power and engine room 208/120 1-phase panel circuit breakers shall be mechanically interlocked to prevent paralleling the shore power with the generator power. A 7.5 KVA isolation transformer shall be provided between the shore power and the switchboard. A 30 A circuit breaker shall also be provided at the shore power connection and at the switchboard.

Watertight receptacles and switches shall be provided in the engine room, voids, steering gear room and areas exposed to the weather. Interior flush mount receptacles and switches shall be used for the interior spaces. The receptacles shall be duplex straight blade type and rated for 20 A. A sufficient number of receptacles are to be provided to allow the use of portable tools or lights in the machinery spaces or voids and provide passenger with 120 VAC power for laptop computers, etc.

19.3 Electric Motors and Controls

Each electric motor in excess of 1 hp shall be provided with a suitable across the line magnetic contactor with thermal overload. The contactor shall have a momentary stop/start button, overload reset button and green run light. Where the motor is multispeed, a momentary button and green run light shall be provided for each speed. Where the contactor or its circuit breaker

is not visible from the switchboard, it shall also be provided with a disconnect switch. The disconnect switch shall open all phases simultaneously. Where the motor being operated is not visible from the controller it shall be provided with an operator station. The operator station shall have the required stop/start buttons and a run light. The remote operator stop button shall be fitted with a lock out mechanism. The contactors shall feature low voltage protection except for the fire pump, which shall have low voltage release. Each contactor shall be mounted in a suitable drip proof enclosure. Contactors and operator stations located in the weather shall be watertight. Each contactor, button, indicator lamp shall be suitably marked with regard to service and circuit designation. Each enclosure shall have a schematic of the motor control circuit mounted within.

Motors less than 1 hp may have a mechanical across the line switch. Exceptions shall be noted on Dwg. Nos. 283-32A-304 and 283-32A-303.

20.0 LIGHTING SYSTEMS

The ferry shall be provided with lighting throughout the interior and exterior. The normal voltage shall be 120 VAC for general illumination and 24 VDC for navigation and emergency lighting. All fixtures shall be suitable for marine use and meet the applicable USCG regulations and be UL listed where required. The light fixtures shall be new and fitted with lamps of the wattage indicated on the Dwg. Nos. 283-32A-303, 283-32A-304 and 283-32A-305.

Light fixtures located in the engine room, steering gear room, voids and in the weather shall be watertight.

Fluorescent lights shall be 3x20 W. The lights will feature cold weather electronic ballasts. The lights shall be provided with 3x20 W 120 VAC or 2x20 W 120 VAC and 1x24 VDC depending upon their location. The 3x20 W 120 VAC fluorescent lights shall generally be used in the passenger spaces. The 2x20 W 120 AC and 1x20 W 24 VDC shall be used wherever there is overhead emergency lighting in the passenger spaces or under main deck. Fluorescent lights shall be provided in the passenger spaces, engine room, steering gear room and fuel tank void.

Step lights shall be provided to illuminate the exterior ladders and foredeck and aft deck outside seating. The lights shall use a fluorescent bulb.

Compact fluorescent lamps shall be provided for the passenger cabin reading lights and exterior lighting. The compact fluorescent lights are pendant or surface mounted. The voltages for the incandescent lights in the pilot house are 24 VDC with wattage depending upon location and application.

Halogen floodlights are provided to illuminate passenger boarding areas and gates, the pilothouse aft deck and for the docking lights.

The fluorescent overhead lighting in the passenger spaces shall be fitted with switches that can be operated by the passengers to control the illumination. The 3x20 120 VAC lights shall be split so that a single fluorescent tube shall be always on and the remaining two tubes controlled by a light switch accessible by the passengers. There shall be 4 such lighting zones provided on the main passenger deck and two on the 01 deck. The illuminated area on the main deck shall be broken roughly into quarters and halves on the 01 deck.

The fluorescent dual voltage overhead fixtures shall each have two (2) 120 VAC fluorescent tubes always on with the third tube operating on 24 VDC upon loss of 120 VAC power. Loss of 120 VAC power shall activate a relay connected to the emergency battery bank and supply 24 VDC power to the third florescent tube.

The exterior incandescent emergency lights shall operate upon loss of 120 VAC power and the activation of the relay connected to the 24 VDC source or by a switch located in the pilothouse.

The lights shall be controlled either from the panel circuit breaker, from switches located in the passenger spaces as above, emergency lighting relays or a switch panel located in the pilothouse console. The floodlights and docking lights shall each be operated by a switch on the console. The chart table lights shall each be operated by a switch on the light fixture. The reading lights located in the main passenger deck shall be operated by a switch on each light fixture.

3-way light switches shall be used at the pilothouse entry from the crew space and exit to weather, and at each door of the main and upper deck cargo alleys.

The navigation lights shall meet the requirements of UL1104 and be powered from the 24 VDC navigation lighting panel.

Each emergency light fixture shall be marked with a red “E” indelible label in accordance with 46 CFR Subchapter K.

Steering lights shall be provided P/S, forward of frame 2, just below the 01 deck sheer and shall be recessed and shielded on 3 sides to prevent glare to the pilothouse.

21.0 COMMUNICATIONS AND ELECTRONICS

The communication and electronic equipment shall be of commercial marine quality. The majority of the equipment shall be manufactured by Furuno in keeping with the desire to standardize the equipment on the Owner's existing ferries. The equipment shall be powered by the 24 VDC systems on the ferry. Most of the equipment shall be powered from the electronics panel located in the pilothouse. Duplicated equipment shall be powered from the navigation light panel. Dedicated emergency equipment shall be powered from the emergency panel. Where the equipment requires 12 VDC for operation, a DC-DC converter shall be used to reduce the 24 VDC to 12 VDC.

The radio and electronic equipment shall be powered from 24 VDC per drawings 283-32A-302 and 283-32A-304. The equipment will include the following hardware and software as a minimum:

(2) 6kw 10.4” LCD Color Radar with integrated Chart System and 4ft open antenna array

(1) ARPA circuit board

(1) Local area chart software

(1) GPS Satellite Compass

(2) VHF Radio, black with antenna

(2) VHF Radio with antenna, with stainless steel mount

(2) GPS receiver

(1) depth sounder with 200 khz transducer (model and make to be determined by Owner)

One VHF shall be powered from the emergency battery bank located in the pilothouse. The one radar set shall be powered from the navigation light panel and the other from the electronics panel.

All of the equipment shall be installed complete with all antennae, cables and fittings. All deck penetrations shall be watertight. Kick tubes for passing antenna and power cables shall extend a minimum of 8" above the deck and be fitted with a suitable stuffing tube. Brackets to support display units and other devices shall be securely mounted to the pilothouse console top or from the overhead. The final location of all electronics and instrumentation is to be decided by the Owner.

21.1 Public Address System

The public address system shall provide announcements throughout the passenger spaces, ADA heads and manned crew spaces. The PA system shall consist of:

- (10) wide range high output 70V all weather speakers
- (1) Mixer/Amplifier 120w 70v modular
- (12) wide range 70V all weather speakers
- (3) standard duty steel grill speakers with mounting hardware
- Microphone input modules with compression
- Wireless microphone belt pack transmitter
- Wireless microphone receiver
- (1) Headset microphone for wireless unit
- (2) Hand-held switched utility microphone
- Position Dual-deck Rotary switch
- Any necessary weather proof junction boxes, toggle switches, support brackets and steel rack-mount drawer

The PA system shall also have the following annunciator equipment integrated:

- (1) 20 message severe use digital repeater
- Sealed Card Option
- (1) 32 Meg PCMIA steel case memory card

In addition to the audible public announcing system, the Contractor shall provide an electronic sign system that will provide visual announcements for the hearing impaired. The sign shall meet all ADA requirements.

21.2 Intercom System

An intercom system is to be supplied and installed by the Contractor to permit communications between the pilot house, at all four loading stations, P/S, main deck and 01 deck, two 02 deck aft control stations (watertight), engine room, lazarette and elevator call station. All stations are to be of "hands free, talk back" operation type. Areas with high noise levels shall also be provided with a call light and headset. The intercoms at the remote control stations shall be provided with a watertight cover. Alternatively, the remote control stations intercom may have a jack with a portable headset or handset.

The system provided is to be an Airphone system, with three (3) AP-5M master stations and LE-SS-1G substations. Stations are to be CRES vandal proof.

21.3 Sound Powered Phone System

A two-station sound powered phone system manufactured by Hose-McCann Telephone Co., shall be provided between the pilothouse and the engine room. An acoustic booth with audible and flashing light call indicator shall be installed in the engine room.

21.4 Fire Detection System

A USCG approved fire detection system shall be installed on the ferry. The control and alarm panel shall be located in the pilothouse. Alarms shall be annunciated in the pilothouse. Power for the unit shall be provided by 120 VAC supplied from the engine room 120 VAC distribution panel. The unit shall be powered while the ferry is on shore or ship's power. An internal battery shall provide the unit's power during blackout conditions. The unit's battery shall be of sufficient capacity to maintain all functionality for the time required by 46 CFR Subchapter K. The fire detection unit shall be addressable. The sensors shall be a mixture of smoke, heat and rate of rise. Sensors shall be provided in each of the ADA heads. The detectors shall be suitable for the environment in which they are installed.

ADA visual alarm signaling devices shall be installed in all passenger areas.

The contractor shall be responsible for selecting the appropriate equipment, layout of the detector zones, installing the equipment and supplying the USCG with all of the required documentation and plans.

21.5 Video Surveillance System

The ferry shall be furnished with a video surveillance system enabling personnel in the pilothouse to view up to sixteen cameras located at the direction of the Owner. The cameras shall be of the pan-tilt type and of sufficient quantity and clarity to permit viewing of the spaces in the various levels of light encountered. The cameras in the engine room shall be capable of recording infrared images and shall be directed towards the main and auxiliary engines. All of the cameras shall have enclosures suitable for their respective environments. The camera images shall be capable of being displayed on a 21" video monitor mounted in the pilothouse. The camera fuse box shall be located in an easily accessible location to the satisfaction of the Owner. A video splitter unit shall be installed to enable splitting the screen into four separate views. The camera images shall also be capable of being scanned.

Specifically the CCTV system shall consist of the following equipment:

- (16) Pan-tilt Mini Dome Cameras w/Smoked Dome
- Hybrid Video Recorder
- Camera Controller to provide controls to 16 Mini Dome Cameras
- 26" LCD monitor with multiviewer to provide simultaneous viewing of 16 Mini Dome Cameras
- Continuous power to CCTV system provided through shore power and generator supply

21.6 Storage Batteries

The battery installation shall meet the requirements of 46 CFR Subchapter K. The ferry shall be equipped with five (5) 24 V battery banks. Four of the battery banks shall be located in trays, two (2) mounted along the aft bulkhead of the engine room, and two (2) under the engine room stairs. One battery bank shall be located in the pilothouse. The batteries shall be placed in HDPE boxes that meet the requirements of 46 CFR Subchapter K. The batteries must be capable of starting the engines at 15 deg F temperature.

One battery bank in the engine room shall be dedicated to main engine starting. The other shall provide power for the engine room 24 VDC distribution panels. Suitable switches shall be provided to parallel and shift the loads from one battery bank to another. The battery voltage shall be maintained by a dual output battery charger while the ferry is on shore power and by the

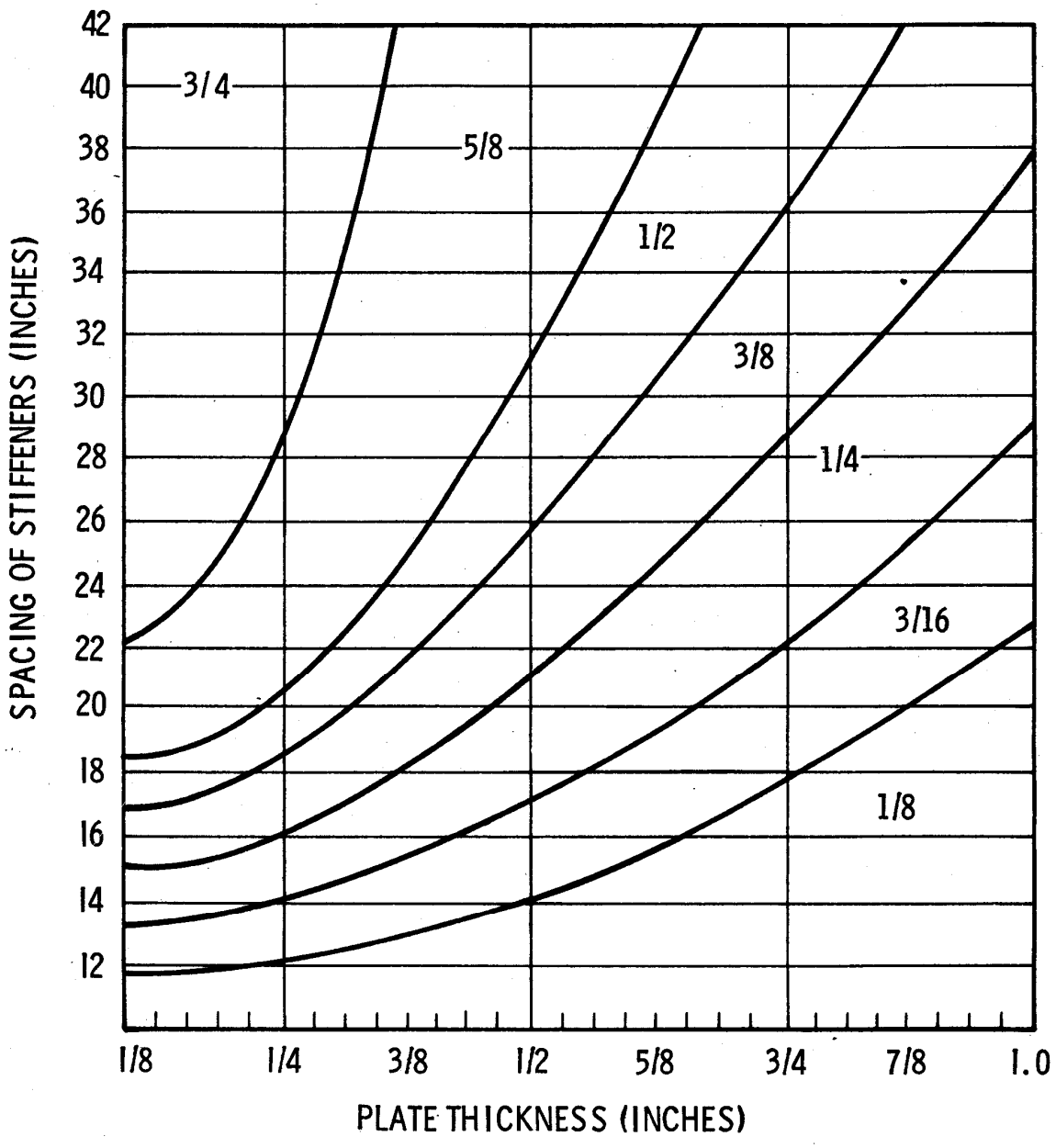
propulsion engine driven alternators when the ferry is operating. The battery charger shall also be capable of supplying the ferry's normal navigation and electronic panel loads if only the generators are running. The battery charger shall have an ammeter. The battery charger shall be protected from the current surge associated with engine starting.

Two additional battery banks shall be provided for starting the generator engines and the engine's electronic controls. Each engine shall have its own battery bank. Suitable switches shall be provided to parallel and shift the loads from one battery bank to another. The battery voltage shall be maintained by a dual output battery charger while the ferry is on shore power and by the generator engine driven alternators when the ferry is operating.

The battery bank in the pilothouse shall provide the 24 VDC power to the emergency lighting and communications distribution panel. Relays, operating off 120 VAC shall supply power to the 24 VDC emergency lights upon loss of 120 VAC power.

ATTACHMENT 'A'

5 **PERMISSIBLE UNFAIRNESS IN STEEL WELDED STRUCTURE**



MASTER EQUIPMENT LIST

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
NAMEPLATES / NOTICES / MARKINGS								
1	Glass Enclosed Bulletin Board	Outfit					Grainger	4XT51
ELEVATOR								
1	5'-8" Wide x 4'-3" Deep Elevator	Outfit	3 Phase	Tradesman Series	2000 lb	ADA Compliant	Canton	
MAIN AND AUXILIARY MACHINERY								
6	Rigid Shaft Couplings	Propulsion		Rigid	3-1/2"	finished w/ 3-1/2" bore and keyway	Kopflex	3 1/2H EB FR
4	Flexible Shaft Couplings	Propulsion		Flexible	3-1/2"	finished w/ 3-1/2" bore and keyway	Kopflex	3 1/2H EB FF
2	Thrust Bearing	Propulsion					SKF	24ZP
2	Shaft Saver	Propulsion					Drivesaver	1108
6	Stern Tube Bearing	Propulsion		Std. Water Lubricated	3.5" x 14"		Duramax	
2	Shaft Seal	Propulsion		Gen II	3 1/2" Shaft, 5" Stern Tube		Lasdrop	G-312-5
2	Shaft Brake Disc Brake (2-Caliper)	Propulsion		Disc		24" Disc	ZF Mathers	SB31-06613
2	Shaft Brake Air Treatment Panel	Propulsion					ZF Mathers	AT11-1100
2	Shaft Brake Shuttle Valve	Propulsion					ZF Mathers	2458C-1
2	Shaft Brake Circuit Panel	Propulsion					ZF Mathers	MS452-4600
2	Steering Gear	Steering	208V 3PH, 24VDC	Electro/Hydraulic	2HP	FULL FOLLWUP AND JOG LEVER MODES. REMOTE STATIONS	Jastram	C2-76-300-2-37
1	Fresh Water Pressure Set	FW	208V, 1 PH		1/2 HP		Goulds	JRS5K
1	Salt Water Pressure Set	SW	208V, 1 PH		1/2 HP		Goulds	JRS5K
1	Ventilation Fan	HVAC	208V, 3PH		24", 2 Speed, 5 HP	7500 CFM	Delta T	500-224183-35/9
1	Air Compressor	Compressed Air	208V, 3 PH		9 SCFM, 175 PSIG		Ingersoll Rand	T-30
1	Fire Pump	Fire	208V, 3 PH		230 TDH, 83 GPM		Goulds	SSH-10A SH L 5 B0
4	Bathroom Exhaust Fan	HVAC	120V 1 PH		125 CFM		Kanalflakt	KG5XL
2	Sewage Tank Pump	BW	208V, 3 PH		3 HP		Crane Deming	7163
1	Bilge Pump	Bilge	208 V 3 PH	Electric Self Priming	100 GPM, 50 TDH	Self Priming	MP Pumps	MP 8
5	Window Wiper, External		120V 1 PH			INBOARD MOUNT WIPERS WITH VARIABLE SPEED CONTROLLER	Cornell-Carr	CC-5200, 5136A
1	Fire Detection System	Fire				USCG Approval, Addressable	Ansul	IQ-301M
1	Pilothouse Window Defogger Unit	HVAC	208V 3 PH		5 kW	ELECTRIC DUCT HEATER AND FAN	Indeeco	TFXU
1	Pilothouse Defogger Fan	HVAC	208V 3 PH		1000 CFM @ 1" WC		Delta T	500-212183-45/8S
1	Compressed Air Dryer	Compressed Air	208V 3 PH		35 SCFM	w/ Integral Filter Option	Gardner Denver	RCN-35
2	Shaft Stuffing Box Bilge Pump	BW	24 V DC		500 GPH		Rule	RM500-24
2	Fire Damper	HVAC			750mm X 750mm		Delta T	A-60 Rect
1	Oil Drain Transfer Pump	Bilge	24V				Jabsco	17830-024

MASTER EQUIPMENT LIST

ATTACHMENT 'B'

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
MAIN AND AUXILIARY MACHINERY (continued)								
4	Fuel Filtration Units	Fuel				USCG Approved	Racor	73/1000 MA
2	Screwed Vent Check Valve w/Flame Screen	Fuel		Bronze	2"	USCG Approved	Kings Point Machinery	1027
50	Butt Weld Deck Drain	GW			1-1/2"		Kings Point Machinery	1017V
13	Flanged Scupper Valve	GW			2-1/2"-150# Flange		Kings Point Machinery	1018
1	Simplex Strainer	Fire		Bronze	3"		Hayward	Model 72
1	Simplex Strainer	BW		Bronze	2"		Hayward	Model 72
2	Main Propulsion Engines	Propulsion			450 BHP @ 1800 RPM	Continuous Service Rating @ 1800 RPM		
2	Reduction Gears	Propulsion				Continuous Service Rating @ 1800 RPM and one manufacturer's model size heavier duty rating than recommended for this HP and RPM rating		
1	ME and Reduction Gear Controls	Propulsion		Electronic	6 stations		ZF Mathers	Clear Command
2	Propellers	Propulsion		Workhorse	4 blade, 48" diameter		Michigan	
2	Tail shaft	Propulsion		Aquamet 17	3.5"		Aquamet	
2	Thrust Shaft	Propulsion		Aquamet 17			Aquamet	
2	Intermediate Shaft	Propulsion		Aquamet 17			Aquamet	
2	ME JW Gridcooler	Cooling					Fernstrum	D1239U-L
2	ME Reduction Gear and Intercooler Grid Cooler	Cooling					Fernstrum	CN12187U-L
2	Genset Gridcoolers	Cooling					Fernstrum	BN1451U-L
2	ME Exhaust Silencers	Exh					EM	TAU
2	Genset Exhaust Silencers	Exh					EM	JR
DIESEL GENERATOR UNITS								
2	Diesel Generator	Electrical	I-4/Turbo/4	208V, 3 PH	65 kW		Northern Lights	M65C2
INSTRUMENTS AND CONTROL BOARDS								
2	Alarm Panel				10 Inputs		Murphy	ST-10ASF
3	Water Tank Level Transducer	Alarm		Ultrasonic	0-60"	24 VDC power,	Innovative Components	ULS-301-S
10	Tank Level Alarm Switches	Alarm		Float Type		Set at 10% and 90% of capacity	Gems Sensors	LS-7
2	Fuel Tank Level Indicator/Transmitter	Alarm		Float Type		Variable voltage transmitter	Gems Suresite	
15	Fuel and Water Tank Level Display	Alarm	120 VAC	LED/LCD Panel Meter		LED/LCD Panel Meter w/ Alarm relay and 4-20mA output. NEMA 4 Enclosure	Innovative Components	DPM 5714-D NE

MASTER EQUIPMENT LIST

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
ELECTRICAL SYSTEM								
1	Switchboard	Electrical				USCG Subchapter K	IPS	
1	Isolation Transformer	Electrical	208V, 1 PH/208V 1 PH		7.5 kVA		Acme	T-3-53546-S
1	3 PH Distribution Panel	Electrical	208 V, 3 PH	NEMA 12	30 Poles w/Neutral	Lighting Distribution Panels ER	Square D	NQOD430L100C HC23WP
1	3 PH Distribution Panel	Electrical	208 V, 3 PH	NEMA 12	24 Poles W/Neutral	Air Curtain Distribution Panel	Square D	NQOD424L100C HC23WP
1	1 PH Distribution Panel	Electrical	208 V, 1 PH	NEMA 12	20 Poles W/Neutral	Boiler Power Distribution Panel	Square D	NQOD20L100CU C23WP
1	3 PH Disconnect Switch	Electrical	208 V 3 PH 200A	NEMA 4X	3 Poles, 200A	Bow Thruster Disconnect Switch	Square D	H324DS
1	1 PH Distribution Panel	Electrical	208 V 1 PH	NEMA 12	20 Poles W/Neutral	Lighting Distribution Panels Pilot house		
A/R	Interior Duplex Receptacle	Electrical	120V		20A		Pauluhn	2705B-125
A/R	Exterior Duplex Receptacle	Electrical	120V		20A		Pauluhn	2405A-125
3	Battery Charger	Electrical	120V		24V DC 45A Output		Newmar	PT 25-45U
1	Ventilation Fan Starter	HVAC		NEMA 1	2 Speed		Square D	Class 8810 SCA-
1	Fire Pump Motor Starter	Fire	208V, 3 PH	NEMA 2			Square D	Class 8526 SDA1
1	Sewage Tank Pump Motor Starter	Sewage	208V, 3 PH	NEMA 1			Square D	Class 8536 SCA-
2	24V DC Distribution Panel	Electrical	24V DC		50A Main Breaker	Flush Mount, Must Meet Reqmts of 46 CFR Sub K	Bass Panels	
4	24V DC Distribution Panel	Electrical	24V DC		50A Main Breaker	Surface Mount, Must Meet Reqmts of 46 CFR Sub K	Bass Panels	
1	24V DC Distribution Panel	Electrical	24V DC		100A Main Breaker	Flush Mount, Must Meet Reqmts of 46 CFR Sub K	Bass Panels	
1	24V DC Distribution Panel	Electrical	24V DC		100 A Main Breaker	Surface Mount, Must Meet Reqmts of 46 CFR Sub K	Bass Panels	
2	Battery Isolator	Electrical	24V DC		2 Alternator, 2 Batt., 130A		Powerline	33-28
3	DC-DC Converter	Electrical	24-12 VDC				Newmar	32-24-6
6	Deep Cycle Battery	Electrical	12V		230 A-Hr		Rolls	12HHG8DM
5	Battery Box	Electrical					Midstate	
1	Battery Selector Switch	Electrical					Guest	2300A
4	Battery Disconnect Switch	Electrical					Guest	2303A
5	Battery Banks	Electrical		Deep Cycle			Rolls	

MASTER EQUIPMENT LIST

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
LIGHTING SYSTEM								
35	Ovhd. Recessed Mt. Fluor. Lt.	Lighting	120V AC	2-Circuit	3x20W		LC Doane	M100R
18	Ovhd. Recessed Mt. Fluor. Lt.	Lighting	120V AC/24V DC		2x20W 120V, 1x20W 24V		LC Doane	M100R
26	Ovhd. Ext. Surf. Mt. Fluor. Lt.	Lighting	120V AC		2x20W		LC Doane	M3
16	Ovhd. Ext. Surf. Mt. Fluor. Lt.	Lighting	120V AC/24V DC		2x20W 120V, 1x20W 24V		LC Doane	M3
11	Ovhd. Surf. Mt. Pendant Lt.	Lighting	120V AC		14W	Compact Fluorescent	Pauluhn	717B
7	Bhd. Mt. Pendant Light	Lighting	24V DC		25W		Pauluhn	729B
14	2-Way Interior Light Switch w/Box	Lighting					Pauluhn	2722A
8	3-Way Interior Light Switch w/Box	Lighting					Pauluhn	2724A
A/R	4-Way Interior Light Switch w/Box	Lighting					Pauluhn	2725A
5	Exterior 2-Way Light Switch w/Box	Lighting	120V AC		20A		Pauluhn	862A
10	Halogen Floodlight	Lighting	120V AC		300W		Pauluhn	QA1603
25	Step and Path Light	Lighting	120V AC		8W		LC Doane	M421C
2	Chart Light	Lighting	24V DC		5W	Bulb: 24V / 5W BA9s	Hella Marine	004 532-171
22	Reading Light	Lighting	24V DC		6.6 W w/Switch		Taylorbrite	CCF Euro

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
COMMUNICATIONS / ELECTRONICS								
1	Acoustic Phone Booth	Communication				With flashing call inicator light	Hose-McCann	897
2	Color Radar	Electronics	12V		6 kW, 10.4" LCD Screen	With Integrated C-Map Char System and 4ft open antenna array	Furuno	1944C/NT
1	ARPA Circuit Board	Electronics	12V				Furuno	ARP-11
1	Local Area Chart Software	Electronics					Jeppeson	C-Map
1	GPS Satellite Compass	Electronics	12V				Furuno	SC50
2	VHF Radio	Electronics	12V			Black with Antenna	ICOM	IC-M602
2	VHF Radio	Electronics	12V			with #5241R antenna, with stainless steel mount	ICOM	M302
2	GPS Receiver	Electronics	12V				Furuno	GP-37
1	Depth Sounder	Electronics	12V			with 200 kHz transducer	TBD by owner	TBD by owner
10	Wide Range High Output 70V All Weather Speakers	Electronics	70V				TOA	CS-154
1	Mixer/Amplifier, modular, 70V, 120W	Electronics	70V				TOA	BG-1120
12	Wide Range 70V All Weather Speakers	Electronics	70V				TOA	CS-64
3	Standard Duty Steel grill Speakers	Electronics				with Mounting Hardware	Atlas	B51-4
	Microphone Input Modules with compression	Electronics					TOA	M-61S
1	Wireless Microphone Belt Pack Transmitter	Electronics					Telex	WT-700
1	Wireless Microphone Receiver	Electronics					Telex	UR-700
1	Headset microphone for wireless unit	Electronics					Telex	PH-21
2	Hand-held switched utility microphone	Electronics					Peavey	PV-1
1	Postion Dual-deck Rotary Switch	Electronics					Greyhill	42D Series
1	20 Message Sever Use Digital Repeater	Electronics					MacKenzie	Model M2.2
1	Sealed Card Option	Electronics					MacKenzie	DOPT
1	32 Meg PCMIA Steel Case Memory card	Electronics					MacKenzie	MPC 32-FATA
3	Intercom Master Station	Electronics	120V AC			5 Stations per Master Station	Aiphone	AP-5M
10	Intercom Substation	Electronics	120V AC			CRES, Vandal Proof, All Weather	Aiphone	LE-SS-1G
16	Mini Dome Cameras with Smoked Dome	Electronics				With Pan/Tilt/Zoom Feature	PELCO	Spectra Mini Dome PTZ Cameras
1	Hybrid Video Recorder	Electronics					PELCO	DVR5100 Ver. 1.5
1	Camera Controller	Electronics			16 Cameras		PELCO	PTZ Controller Model KBD300A
1	LCD Monitor	Electronics			26" LCD	w/multiviewer for 16 cameras	PELCO	500 Series
1	Sound Powered Phone System	Communication		2 Station			Hose-McCann	

MASTER EQUIPMENT LIST

Qty	Item	System	Drive Type	Type	Capacity or Size	Remarks	Manufacturer	Model
HEATING SYSTEM								
8	AIR CURTAIN UNITS	HVAC	208V 1PH			208V 1PH FAN AND HYDRONIC HEATING COIL	POWER AIRE	MP-1-36
1	Heating Boiler	HVAC	208 V 1 PH	Cast Iron Wet Base, Low Mass	300MBTUH	ASME Cert, Controls to Meet CFR 46	Burnham	V-904A
2	Hydronic System Circulator Pumps	HVAC	208 V 1 PH	In Line Circulator	35 GPM, 40 TDH		Taco	
8	Hydronic Heaters	HVAC	120 V 1 PH	Hydronic Overhead Mount Heat Unit	38,700 MBTU		Trane	
8	Hydronic Heater Circulators/MOV	HVAC	120 V 1 PH	Hydonic Circulator and MOV	1 GPM	Variable speed circulator w/MOV	Taco	Load Match
5	Air Curtain Circulators/MOV	HVAC	120 V 1 PH	Hydonic Circulator and MOV	2.5 GPM	Variable speed circulator w/MOV	Taco	Load Match
135	Baseboard Convection Heater	HVAC		Fin tube convection heaters	1000MBTU/ft	Commercial Slant top baseboard fin tube convection heaters		
2	Baseboard Circulators/MOV	HVAC	120 V 1 PH	Hydonic Circulator and MOV	7 GPM	Variable speed circulator w/MOV	Taco	Load Match
1	Cabinet Style Fan Coil Unit	HVAC	120 V 1 PH	Hydronic Cabinet Heater	19000 MBTU		Trane	
2	Cabinet Style Fan Coil Unit	HVAC	120 V 1 PH	Hydronic Cabinet Heater	9000 MBTU		Trane	
3	Cabinet Unit Circulators/MOV	HVAC	120 V 1 PH	Hydonic Circulator and MOV	2.5 GPM	Variable speed circulator w/MOV	Taco	Load Match
15	Zone Control Panel	HVAC	120 V 1 PH			Zone Control Panels for secondary loop circulator and valve control	Taco	Load Match